ASHTABULA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES

KINGSVILLE REGIONAL SEWER IMPROVEMENTS

KINGSVILLE TOWNSHIP, OHIO ASHTABULA COUNTY

SEPTEMBER 2026

OHIO 811 DESIGN SERIAL NUMBER & UTILITY LIST:

TICKET A335202975-00A B335201239-00B

OHIO UTILITY PROTECTION SERVICE:
106 WEST RYEN, ROOM 427
YOUNGSTOWN, 44051
(800) 362-2764

CLEVELAND ELECTRIC ILLUMINATING CO:
2210 SOUTH RIDGE ROAD
ASHTABULA, OHIO 44004

THE EAST OHIO GAS COMPANY:
1010 WEST 30TH STREET
ASHTABULA, OHIO 44004
(440) 992-5100

CHARTER COMM:
2302 METCALF DRIVE, UNIT 26
ASHTABULA, OHIO 44004
(866) 874-2389

DOMINION ENERGY:
1201 E 55TH STREET
CLEVELAND, OHIO 44103
(800) 362-7557

WINDSTREAM COMM:
560 TERNES LANE
ELYRIA, OHIO 44035
(440) 310-7041

AQUA ASHTABULA
2905 N BEND ROAD
ASHTABULA, OHIO 44004
(440) 997-7566

ENVIRONMENTAL SERVICES:
36 W. WALNUT STREET
JEFFERSON, OHIO 44047
(440) 576-3722 PHONE
(440) 576-3781 FAX

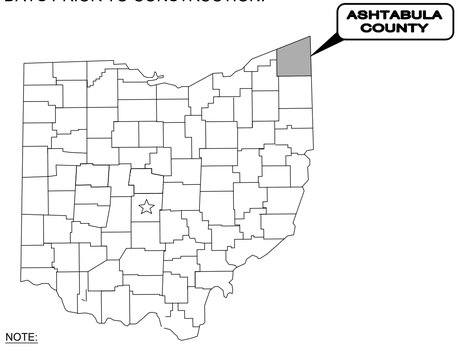
TCI:
2904 STATE ROAD
ASHTABULA, OHIO 44004
(440) 998-2148

CITY OF CONNEAUT WATER & SEWER
770 LAKE ROAD
CONNEAUT, OHIO 44030
(440) 593-7437

1. UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.

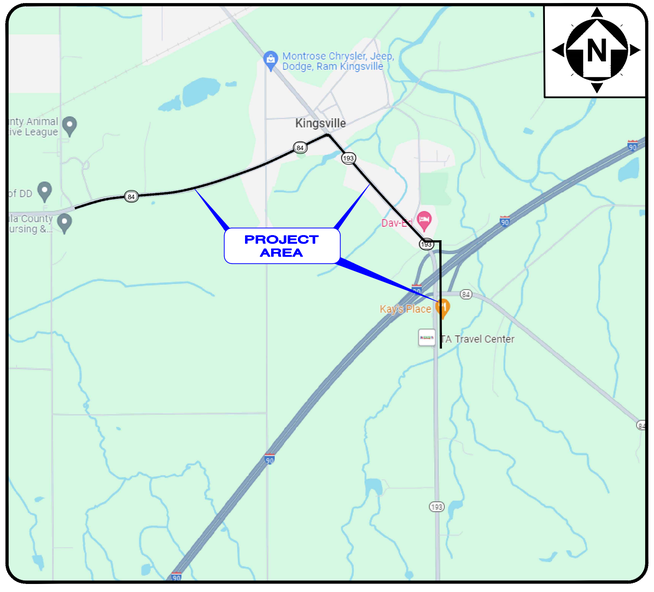
2. THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.

OHIO Utilities Protection SERVICE
Call Before You Dig
1-800-362-2764
CALL TWO WORKING DAYS BEFORE YOU DIG
(NON MEMBERS MUST BE CALLED DIRECTLY)



NOTE:

THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.



LOCATION MAP
NOT TO SCALE

verdantas

ENGINEER'S PROJECT No. 232478

ASHTABULA COUNTY APPROVALS:

COUNTY COMMISIONER	KATHRYN L. WHITTINGTON	DATE
COUNTY COMMISIONER	CASEY R. KOZLOWSKI	DATE
COUNTY COMMISIONER	J.P. DUCRO IV	DATE
DIRECTOR, ACDES	DOUG STARKEY	DATE

ENGINEER:

VERDANTAS, INC.
8150 STERLING COURT
MENTOR, OH 44060

(440) 951-9000 PHONE
(440) 951-7487 FAX

TIMOTHY MCLAUGHLIN — P.E. No. E-83985 — 10/6/2026 DATE

STATE OF OHIO · TIMOTHY MCLAUGHLIN E-83985 · REGISTERED PROFESSIONAL ENGINEER

STATE OF OHIO · TIMOTHY MCLAUGHLIN E-83985 · REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
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DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY — KINGSVILLE, OHIO
GENERAL - 00 SERIES
COVER SHEET

PROJECT NO. 232478
DISCIPLINE: GENERAL
SHEET NAME: 00G-01
SHEET 1 OF 49

EXISTING PLAN LINE SYMBOLOGY:

- FENCE, GENERAL
- FENCE, BARBED WIRE
- FENCE, CHAIN LINK
- FENCE, DECORATIVE
- FENCE, ELECTRIC
- FENCE, VINYL
- FENCE, WOOD
- FENCE, WOVEN WIRE
- CABLE RAIL
- GUARDRAIL
- HANDRAIL
- TELEPHONE, ABANDONED
- TELEPHONE
- TELEPHONE, OH
- TELEPHONE, UG
- TELEPHONE, SERVICE
- TELEPHONE, SERVICE OH
- TELEPHONE, SERVICE, UG
- ELECTRIC, ABANDONED
- ELECTRIC, DUCT BANK
- ELECTRIC
- ELECTRIC, OH
- ELECTRIC, UG
- ELECTRIC, SERVICE
- ELECTRIC, SERVICE OH
- ELECTRIC, SERVICE, UG
- GAS, ABANDONED
- GAS
- GAS, SERVICE
- SANITARY, ABANDONED
- SANITARY FORCE MAIN
- SANITARY SEWER
- SANITARY LEACH LINE
- SANITARY SEWER, DOUBLE
- SANITARY SEWER, SERVICE
- STORM CULVERT
- TELEPHONE, ABANDONED
- TELEPHONE
- TELEPHONE, OH
- TELEPHONE, UG
- TELEPHONE, SERVICE
- TELEPHONE, SERVICE OH
- TELEPHONE, SERVICE, UG
- COMMUNICATION LINE
- WATER LINE, ABANDONED
- WATER LINE
- WATER LINE, SERVICE
- NON-POTABLE WATER LINE
- ALUM SOLUTION LINE
- CHLORINE SOLUTION LINE
- SULFUR DIOXIDE SOLUTION LINE
- BRUSH LINE
- BUSH LINE
- TREE LINE
- MAJOR CONTOUR (1005)
- MINOR CONTOUR (1001)
- TOP OF BANK
- TOP OF DITCH
- BOTTOM OF DITCH
- STREAM
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- RIGHT-OF-WAY C/L
- SURVEY STATIONING (2+00)
- PAVED ROADWAY
- GRAVEL DRIVEWAY
- CURB FACE
- CURB BACK
- CURB BACK
- PROPOSED SANITARY EASEMENT
- EMERGENT WETLAND AREA
- FORESTED WETLAND AREA
- STREAM
- TYPE 'C' PAVEMENT REPLACEMENT
- TYPE 'A' PAVEMENT REPLACEMENT

EXISTING PLAN SYMBOLOGY:

- SANITARY MANHOLE
- SANITARY CLEANOUT
- SANITARY LINE CAP
- SANITARY LINE PAINT MARKING
- SANITARY STRUCTURE NUMBER
- SANITARY VENT PIPE
- STORM MANHOLE (SOLID LID)
- STORM MANHOLE (OPEN GRATE)
- CURB INLET
- CURB INLET (DOUBLE)
- CATCH BASIN
- CATCH BASIN (ROUND LID)
- CATCH BASIN (DOME)
- CATCH BASIN (SIDE INLET)
- DRAIN
- DOWNSPOUT
- STORM CLEANOUT
- STORM LINE CAP
- STORM ENDWALL
- STORM HEADWALL
- STORM LINE PAINT MARKING
- STORM STRUCTURE NUMBER
- ROCK CHANNEL PROTECTION
- SURFACE DRAINAGE FLOW
- STORM FLOOD ROUTING ARROW
- FIRE HYDRANT
- WATER SIAMESE CONNECTION
- WATER VALVE
- WATER VALVE BOX
- WATER METER
- WATER METER PIT
- WATER LINE REDUCER
- WATER LINE CAP
- WATER LINE PLUG
- WATER LINE PAINT MARKING
- POST INDICATOR VALVE
- WATER MANHOLE
- WATER FLUSHING ASSEMBLY
- WATER FIXTURE
- WATER FITTING (TEE)
- WATER FITTING (CROSS)
- WATER FITTING (45° WYE)
- WATER FITTING (11.25°)
- WATER FITTING (22.50°)
- WATER FITTING (45°)
- WATER FITTING (90°)
- IRRIGATION SPRINKLER HEAD
- IRRIGATION CONTROL BOX
- IRRIGATION BOX
- STEAM MANHOLE
- STEAM VENT
- COMBINED SEWER MANHOLE
- GAS LIGHT POST (YARD)
- GAS MANHOLE
- GAS VALVE
- GAS VALVE BOX
- GAS METER
- GAS REGULATOR
- GAS VENT PIPE
- GAS LINE PAINT MARKING
- GAS LINE FIXTURE
- ELECTRIC LIGHT POST (YARD)
- ELECTRIC MANHOLE
- ELECTRIC PULL BOX
- ELECTRIC CONTROL BOX
- ELECTRIC JUNCTION BOX
- ELECTRIC VAULT BOX
- ELECTRIC METER
- ELECTRIC PEDESTAL
- ELECTRIC RISER BOX
- ELECTRIC TRANSFORMER
- ELECTRIC HVAC UNIT
- ELECTRIC GROUND LIGHT
- ELECTRIC LINE PAINT MARKING
- CABLE TV MANHOLE
- CABLE TV PEDESTAL
- CABLE TV PAINT MARKING
- TELEPHONE MANHOLE
- TELEPHONE PULL BOX
- TELEPHONE PEDESTAL
- TELEPHONE RISER BOX
- TELEPHONE LINE PAINT MARKING
- TELEPHONE PAY PHONE
- FIBER OPTIC CABLE MANHOLE
- FIBER OPTIC CABLE PAINT MARKING
- TRAFFIC CONTROL MANHOLE
- TRAFFIC CONTROL BOX
- TRAFFIC CONTROL PAINT MARKING
- TRAFFIC PULL BOX
- TRAFFIC SIGNAL PEDESTAL
- UNKNOWN, PULL BOX
- UNKNOWN, CLEANOUT
- UNKNOWN, MANHOLE
- UNKNOWN, VALVE
- MONITORING WELL
- TEST WELL
- WATER WELL
- SOIL BORING
- SWAMP
- POLE, ELECTRIC
- POLE, TELEPHONE
- POLE, LIGHT
- POLE, LIGHT, DECORATIVE
- POLE, LIGHT-OVERHEAD
- POLE, CABLE TV
- POLE, UTILITY
- POLE, GENERAL
- POLE, TRAFFIC CONTROL
- POLE, GUY
- POLE, BRACE
- POLE, ELECTRIC/TELEPHONE
- POLE, ELECTRIC W/LIGHT
- POLE, ELECTRIC/CABLE TV
- POLE, ELECTRIC/TELEPHONE/LIGHT
- POLE, ELECTRIC/TELEPHONE/CABLE TV
- POLE, ELEC./TELE./LIGHT/CABLE TV
- POLE, TELEPHONE/LIGHT
- POLE, TELEPHONE/CABLE TV
- POLE, TELEPHONE/LIGHT/CABLE TV
- POLE, CABLE TV W/LIGHT
- POLE, GUY WIRE
- SIGN
- SIGN, DOUBLE SIDED
- SIGN, DUAL POST
- SIGN, RAILROAD
- POST
- BOLLARD
- DELINEATOR POST
- PARKING BUMPER BLOCK
- HANDICAP PARKING SYMBOL
- HANDICAP PARKING SYMBOL
- HANDICAP DETECTABLE WARNING
- MAILBOX
- PAPERBOX
- PARKING METER
- GRAVE HEADSTONE
- EX. BARBEQUE GRILL
- FUEL PUMP
- FLAG POLE
- RAISED PAVEMENT MARKER
- GUARDRAIL, CENTER POST
- GUARDRAIL, TERMINAL POST
- GUARDRAIL, BOTTOM POST
- GUARDRAIL, TOP POST
- FENCE POST
- PICNIC TABLE
- BENCH
- DECIDUOUS TREE
- TREE TO BE REMOVED
- EVERGREEN TREE
- STUMP
- BUSH
- IRON PIN FOUND
- SOLID IRON PIN FOUND
- IRON PIPE FOUND
- DRILL HOLE FOUND
- CHISELED "X" FOUND
- MONUMENT BOX FOUND
- MONUMENT CONCRETE FOUND
- MONUMENT RIGHT-OF-WAY FOUND
- PK NAIL FOUND
- MAG NAIL FOUND
- SPIKE FOUND
- HUB FOUND
- AXLE FOUND
- WOOD POST FOUND
- CORNER STONE FOUND
- AERIAL TARGET FOUND
- GPS CONTROL FOUND
- BENCHMARK FOUND

ABBREVIATIONS

PIPE MATERIAL ID:

BR	= BRASS
BS	= BLACK STEEL
BZ	= BRONZE
CI	= GRAY CAST IRON
CU	= COPPER
CS	= CAST IRON
CT	= CARBON STEEL TUBING
DIP	= DUCTILE IRON PIPE
DR	= DIAMETER RATIO
FRP	= FIBERGLASS REINFORCED PLASTIC
GS	= GALVANIZED STEEL
HDPE	= HIGH-DENSITY POLYETHYLENE PIPE
PVC	= POLYVINYL CHLORIDE PIPE
SS	= STAINLESS STEEL
STL	= STEEL PIPE
SDR	= STANDARD DIAMETER RATIO
SCH	= SCHEDULE

OTHER:

ADD'L	= ADDITIONAL
AGG	= AGGREGATE
ALUM.	= ALUMINUM
BTWN	= BETWEEN
C/L	= CWNTERLINE
CLR	= CLEAR
CONC	= CONCRETE
CONT	= CONTINUOUS
DWL	= DOWEL(S)
EF	= EACH FACE
EL.	= ELEVATION
EMBED	= EMBEDMENT
EW	= EACH WAY
FF	= FINISH FLOOR
FG	= FINISH GRADE
FND	= FOUNDATION
HORIZ	= HORIZONTAL
HP	= HIGH POINT
LP	= LOW POINT
MAX	= MAXIMUM
MFR	= MANUFACTURER
MIN	= MINIMUM
REF	= REFERENCE
REINF	= REINFORCING
STRC	= STRUCTURE
T/	= TOP OF
TYP	= TYPICAL
UNO	= UNLESS NOTED OTHERWISE
VERT	= VERTICAL

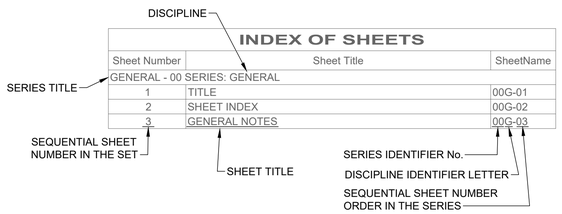
SERIES INFORMATION:

GENERAL - 00 SERIES
GRAVITY SEWER PLAN & PROFILE - 10 SERIES
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
6 INCH FM PLAN & PROFILE - 30 SERIES
2 INCH FM PLAN & PROFILE - 40 SERIES
CIVIL - 50 SERIES
PUMP STATIONS - 60 SERIES
EROSION CONTROL - 70 SERIES

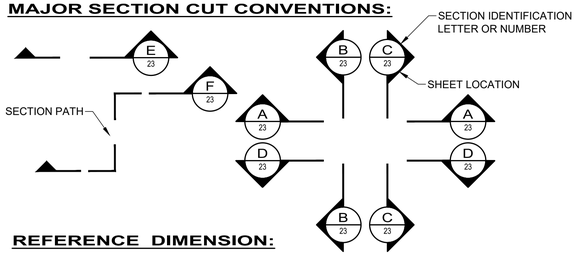
DISCIPLINE INFORMATION:

IDENTIFIER:	DISCIPLINE:
G	GENERAL
C	CIVIL
S	STRUCTURAL
A	ARCHITECTURAL
D	PROCESS
M	MECHANICAL (PLUMBING & HVAC)
E	ELECTRICAL
Y	INSTRUMENTATION

INDEX EXPLAINATION:



MAJOR SECTION CUT CONVENTIONS:



REFERENCE DIMENSION:

12'-4" (REF.)

REFERENCE DIMENSIONS ARE GIVEN FOR INFORMATION ONLY. THEY ARE CALCULATED DIMENSIONS NOT INTENDED TO BE USED WITHOUT FIELD VERIFICATION AND ARE USEFUL IN SHOWING INTENDED DESIGN.

GENERAL SYMBOLOGY NOTES:

1. THIS IS A STANDARD SHEET SHOWING COMMONLY USED SYMBOLOGY.
2. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
3. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE NEW IMPROVEMENTS SO AS TO HIGHLIGHT SPECIFIC TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
4. SYMBOLOGY OR DIAGRAMMATICAL LEGENDS MAY BE SHOWN ON INDIVIDUAL SHEETS FOR SCHEDULES, DIAGRAMS, DETAILS, SCHEMATICS OR EQUIPMENT.

DRAWING CODED NOTE TYPES:

1. VERDANTAS CONTRACTUAL NOTES ARE DEPICTED WITH A HEXAGON, SQUARE, CIRCLE OR TRIANGLE. ALL OTHER EXISTING WRITTEN CALLOUTS SHOWN ON THE REUSED SCANNED PLANS, SECTIONS & DETAILS ARE FOR EXISTING CONDITIONS AND REFERENCE ONLY, MANY OF THOSE NOTES FROM THE SCANNED DRAWINGS PERTAIN TO PREVIOUS WORK DONE.

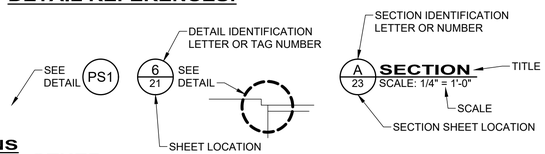
PLAN REVISIONS:

- A — REVISION DESCRIPTION
- B — REVISION DESCRIPTION

DEMOLITION CODED NOTES:

- 1 — DEMOLITION DESCRIPTION
- 2 — DEMOLITION DESCRIPTION

DETAIL REFERENCES:



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4	PLAN & PROFILE LAYOUT INDEX B	00G-04
5	GENERAL NOTES 1	00G-05
6	GENERAL NOTES 2	00G-06
7	MAINTENANCE OF TRAFFIC	00G-07
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8	SG STA 0+00 TO STA 5+00	10PP-01
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES		
9	FM STA 0+00 TO STA 5+00	20PP-01
10	FM STA 5+00 TO STA 10+00	20PP-02
11	FM STA 10+00 TO STA 15+00	20PP-03
12	FM STA 15+00 TO STA 20+00	20PP-04
13	FM STA 20+00 TO STA 25+00	20PP-05
14	FM STA 25+00 TO 30+00	20PP-06
15	FM STA 30+00 TO END	20PP-07
16	GRAVITY SEWER NO. 02 EXTENSION STA 0+00 TO END	20PP-08
6 INCH FM PLAN & PROFILE - 30 SERIES		
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18	FM STA 5+00 TO STA 10+00	30PP-02
19	FM STA 10+00 TO STA 15+00	30PP-03
20	FM STA 15+00 TO STA 19+50	30PP-04
21	FM STA 19+50 TO STA 25+00	30PP-05
22	FM STA 25+00 TO STA 30+00	30PP-06
23	FM STA 30+00 TO STA 35+00	30PP-07
24	FM STA 35+00 TO STA 40+00	30PP-08
25	FM STA 40+00 TO STA 45+00	30PP-09
26	FM STA 45+00 TO STA 50+00	30PP-10
27	FM STA 50+00 TO STA 55+00	30PP-11
28	FM STA 55+00 TO STA 60+00	30PP-12
29	FM STA 60+00 TO STA 65+00	30PP-13
30	FM STA 65+00 TO STA 70+00	30PP-14
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2 INCH FM PLAN & PROFILE - 40 SERIES		
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EROSION CONTROL - 70 SERIES		
50	EROSION CONTROL DETAILS	70EC-01

STATE OF OHIO
TIMOTHY MCLAUGHLIN
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REGISTERED PROFESSIONAL ENGINEER

verdantas
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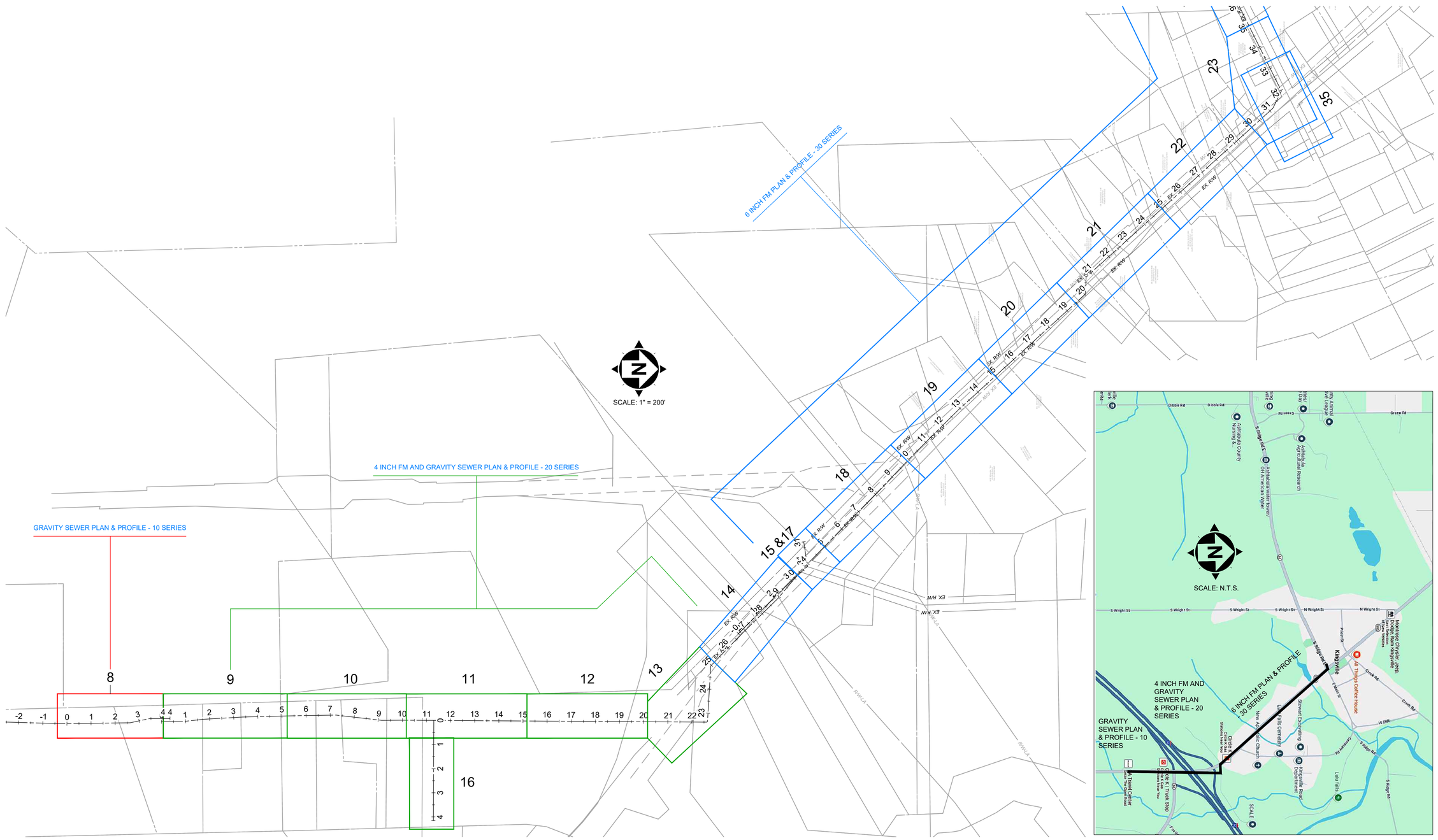
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ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

GENERAL - 00 SERIES
SHEET INDEX SYMBOLOGY ABBREVIATIONS AND LEGEND

PROJECT NO.: 232478
DISCIPLINE: GENERAL
SHEET NAME: 00G-02
SHEET: 2 OF: 49



STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
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ASHTABULA COUNTY

KINGSVILLE REGIONAL SEWER IMPROVEMENTS

ASHTABULA COUNTY KINGSVILLE, OHIO

GENERAL - 00 SERIES

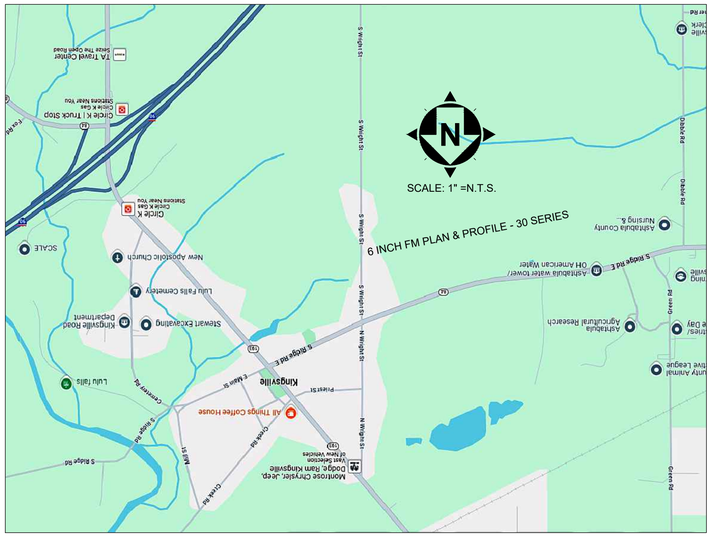
PLAN & PROFILE LAYOUT INDEX A

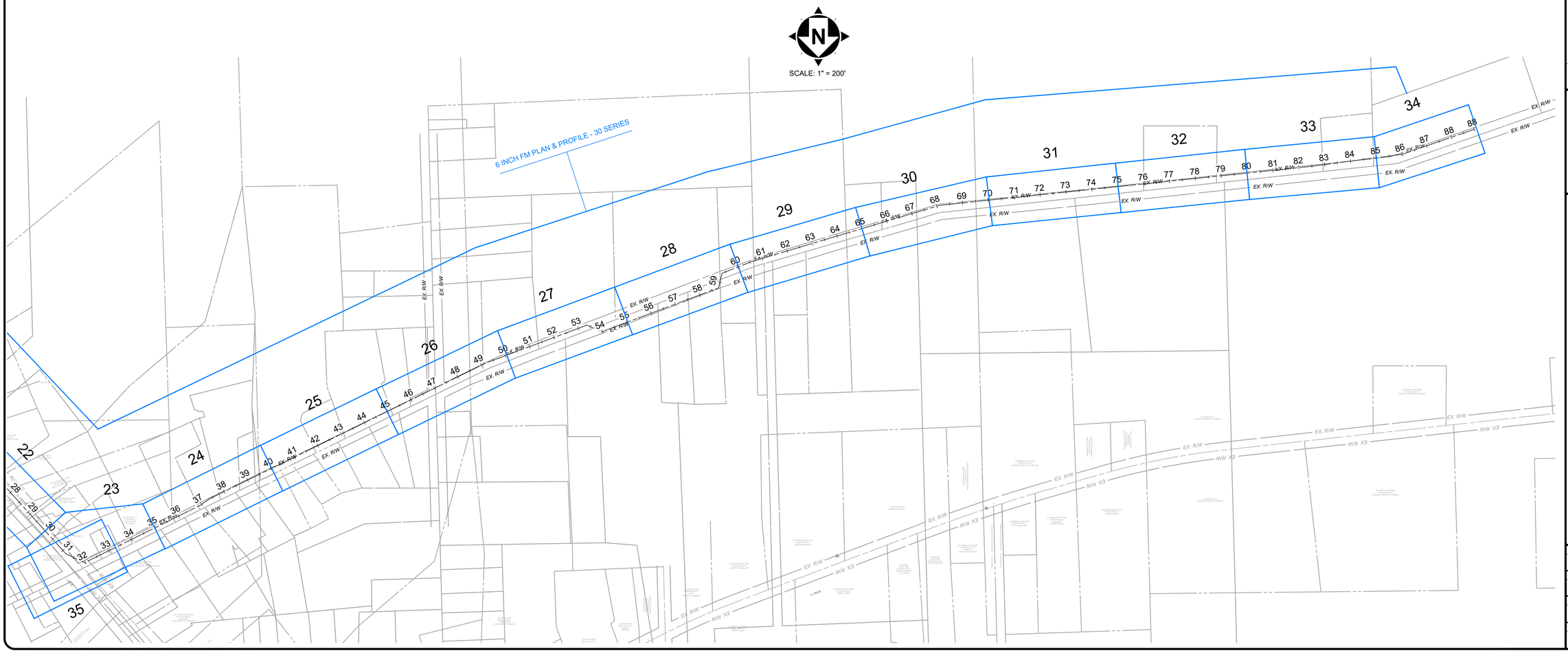
PROJECT NO.
232478

DISCIPLINE
GENERAL

SHEET NAME
00G-03

SHEET 3 OF 49





STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
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ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
GENERAL - 00 SERIES
PLAN & PROFILE LAYOUT INDEX B

PROJECT NO.	
232478	
DISCIPLINE	
GENERAL	
SHEET NAME	
00G-04	
SHEET	OF
4	49

GENERAL:

1. THE CONTRACTOR SHALL PERFORM ALL OF THE WORK AND FURNISH ALL OF THE LABOR AND MATERIALS NECESSARY FOR THE FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

2. A PRE-CONSTRUCTION VIDEO TAPE OF THE PROJECT AREA WILL BE REQUIRED AND SUBMITTED TO THE ENGINEER BEFORE CONSTRUCTION BEGINS.

3. THE CONTRACTOR SHALL NOT COMMENCE ANY FORM OF CONSTRUCTION WITHOUT CONTACTING THE ENGINEER, AS APPROPRIATE, A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITY TO ARRANGE FOR OBSERVATION. IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE ENGINEER TO AVOID UNNECESSARY OBSERVATION COSTS. IF NO NOTIFICATION IS MADE IN REGARDS TO CANCELLATION OF WORK, THE CONTRACTOR WILL BE CHARGED FOR THE TIME INCURRED.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE LOCAL ACCESS, VEHICULAR AND PEDESTRIAN, TO ALL PROPERTIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR WILL FURNISH, MAINTAIN AND SUBSEQUENTLY REMOVE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, BARRIERS, TEMPORARY PAVEMENT, LIGHTING, FLAGGERS, SIGNING AND OTHER TRAFFIC CONTROLS TO INSURE THE SAFETY OF PERSONS AND VEHICLES DURING CONSTRUCTION WITHIN THE PROJECT LIMITS.

5. ACCESS TO ALL DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES EXCEPT THE TIME WHEN SEWER INSTALLATION AND PAVEMENT REPLACEMENT WILL NOT PERMIT.

6. ALL SHOP DRAWINGS WILL BE SUBMITTED TO THE ENGINEER FOR PRELIMINARY CHECKING. THE ENGINEER SHALL FORWARD THE CHECKED SHOP DRAWINGS TO THE OWNER FOR FINAL CHECKING AND APPROVAL. SHOP DRAWINGS MUST BE APPROVED PRIOR TO ORDERING ANY MATERIALS.

7. BEFORE THE OWNER WILL APPROVE AND ACCEPT THE WORK AND RELEASE THE GUARANTEE RETAINER, THE CONTRACTOR WILL FURNISH THE OWNER A WRITTEN REPORT INDICATING THE RESOLUTION OF ANY AND ALL PROPERTY DAMAGE CLAIMS FILED WITH THE CONTRACTOR BY ANY PARTY DURING THE CONSTRUCTION PERIOD. THE INFORMATION TO BE SUPPLIED SHALL INCLUDE, BUT NOT BE LIMITED TO, NAME OF CLAIMANT, DATE FILED WITH CONTRACTOR, NAME OF INSURANCE COMPANY AND/OR ADJUSTER HANDLING CLAIM, HOW CLAIM WAS RESOLVED AND IF CLAIM WAS NOT RESOLVED FOR THE FULL AMOUNT, A STATEMENT INDICATING THE REASON FOR SUCH ACTION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ALL MATERIAL AND EQUIPMENT TESTING. THE OWNER MAY REQUIRE SUBGRADE COMPACTION TESTING, ASPHALT AND CONCRETE QUALITY CONTROL TESTING, PUMP TESTING, SCADA INTEGRATION VERIFICATION, OR OTHER TEST NECESSARY TO VERIFY THE IMPROVEMENTS ARE INSTALLED PER SPECIFICATIONS AND PLANS.

9. WHEN MAILBOXES, FENCES, NEWSPAPER BOXES OR STREET SIGNS AND SUPPORTS INTERFERE WITH CONSTRUCTION, THE CONTRACTOR SHALL REMOVE AND ERECT THEM IN A TEMPORARY LOCATION DURING CONSTRUCTION (EXCEPT FENCES). AFTER COMPLETION OF THE CONSTRUCTION AND BEFORE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL ERECT THE MAILBOXES, FENCES, NEWSPAPER BOXES OR STREET SIGNS AND SUPPORTS IN A PERMANENT LOCATION IN ACCORDANCE WITH THE PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE WORK SHALL BE INCLUDED IN THE UNIT PRICES BID FOR OTHER ITEMS.

10. PROPERTY PINS AND MONUMENTS ALONG THE ROUTE OF THE IMPROVEMENT, WHICH MAY BE DISTURBED BY THE CONTRACTOR, SHALL BE REFERENCED BY A PROFESSIONAL SURVEYOR, SO THEY CAN BE REPLACED IN THE EVENT THAT THEY ARE DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL PINS, MONUMENTS AND REFERENCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF LOCATING AND REFERENCING AND REPLACING THE PROPERTY PINS AND MONUMENTS.

11. ALL WORK SHALL BE CONDUCTED MONDAY - FRIDAY, 11:00 AM TO 11:00 PM. NO WORK WILL BE PERMITTED AT NIGHT, SUNDAY OR LEGAL HOLIDAYS EXCEPT AS NOTED ON THE PLANS OR IN THE CASE OF EMERGENCY AND THEN ONLY UPON WRITTEN AUTHORIZATION OF THE ENGINEER. WHERE NO EMERGENCY EXISTS, BUT THE CONTRACTOR FEELS IT ADVANTAGEOUS TO WORK AT NIGHT, SUNDAY OR LEGAL HOLIDAYS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TWO (2) DAYS IN ADVANCE, REQUESTING WRITTEN PERMISSION. ANY WORK PERFORMED DURING THE ABSENCE OF THE ENGINEER WILL BE DONE AT THE CONTRACTOR'S RISK AND RESPONSIBILITY AND MAY BE SUBJECT TO REJECTION UPON LATER INSPECTION.

PROHIBITED CONSTRCUTION ACTIVITIES

1. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED

2. THE USE OF EXPLOSIVES, UNLESS A PERMIT IS ISSUED BY THE OWNER.

3. PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, STREAM CORRIDORS, OR STORM SEWERS; ALL SUCH WATER WILL BE PROPERLY FILTERED OR SETTLED TO REMOVE SILT PRIOR TO RELEASE.

4. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, OR ANY OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO.

5. OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT. HE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AN OEPA OPEN BUILDING AIR PERMIT OR DISPOSING OF THE TREES AND STUMPS

6. STORING CONSTRUCTION EQUIPMENT AND VEHICLES AND/OR STOCKPILING CONSTRUCTION MATERIALS ON PROPERTY, PUBLIC OR PRIVATE, NOT PREVIOUSLY SPECIFIED ON THE PLANS BY THE ENGINEER FOR SUCH PURPOSES.

7. RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER.

8. OPERATION ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00 AM AND 5:00 PM OR OUTSIDE THE HOURS ALLOWED BY LOCAL ORDINANCES OR REGULATIONS.

9. CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE OR BOULEVARD WITHOUT THE PRIOR CONSENT OF MUNICIPAL OFFICIALS AND THE ENGINEER AND CLOSING CLEAR ACCESS:
   a. BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES;
   b. BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE; OR
   c. BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.

10. DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOODPLAINS, EVEN WITH THE PERMISSION OF THE PROPERTY OWNER.

11. LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS.

12. INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN AND STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS.

13. PERMANENT OR UNSPECIFIED ALTERATION OF THE FLOW LINE OF ANY STREAM.

14. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA

15. DISPOSAL OF TREES, BRUSH, AND OTHER DEBRIS IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS.

16. DISCHARGING INJURIOUS SILICA DUST CONCENTRATIONS INTO THE ATMOSPHERE RESULTING FROM BREAKING, CUTTING, CHIPPING, RILLING, BUFFING, GRINDING, POLISHING, SHAPING OR SURFACING CLOSER THAN 200 FEET TO PLACES OF RESIDENCES OR COMMERCIAL, PROFESSIONAL, QUASI-PUBLIC OR PUBLIC PLACES OF HUMAN OCCUPATION.

17. NO USING ANY SUBSTANCE OTHER THAN WATER TO CONTROL DUST

18. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY, SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE PERFORMED DAILY OR AS DIRECTED BY THE OWNER, TO MAINTAIN ALL PAVED AREAS AFFECTED BY THE CONSTRUCTION.

19. PAYMENT FOR ALL SOIL EROSION, SEDIMENT AND DUST CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER VARIOUS ITEMS.

EXISTING UTILITIES:

1. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE OWNER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND IDENTIFY ALL UTILITIES ILLUSTRATED ON THE PLANS OR NOT IDENTIFIED.

2. BEFORE ANY WORK IS STARTED, THE CONTRACTOR SHALL CALL THE "OHIO UTILITIES PROTECTION SERVICE", OUPS, AT 1-800-362-2764, A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE OF THE WORK. NON-MEMBER UTILITIES MUST BE CONTACTED DIRECTLY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, AT NO ADDITIONAL EXPENSE TO THE OWNER, TO AVOID DAMAGE TO EXISTING UNDERGROUND AND OVERHEAD UTILITY LINES DURING THE ENTIRE PROJECT. IN THE EVENT OF DAMAGE TO EXISTING PUBLIC AND/OR PRIVATE UTILITIES, THE AGENCY CONCERNED SHALL BE NOTIFIED IMMEDIATELY BY THE CONTRACTOR AND ALL REPAIR WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE RESPECTIVE AGENCY AT NO ADDITIONAL EXPENSE TO THE OWNER, INCLUDING ANY INSPECTION FEES OR MAINTENANCE CREWS.

3. DELAYS TO THE CONTRACTOR AS A RESULT OF TIMING OF POLE RELOCATION OR PROTECTION SHALL NOT BE CONSIDERED COMPENSABLE DELAYS, AS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK IN CONFORMANCE TO THE UTILITY COMPANY'S SCHEDULE.

4. NO SEPARATE PAYMENT WILL BE MADE FOR UTILITY SUPPORT, POLE SUPPORT OR POLE RELOCATION. THE CONTRACTOR SHALL INCLUDE THE COST OF UTILITY SUPPORT, POLE SUPPORT AND POLE RELOCATION IN THE UNIT PRICE(S) BID FOR OTHER RELATED ITEMS OF WORK.

5. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL THE EXISTING GAS, WATER, ELECTRIC, CABLE, FIBER, TELEPHONE, SANITARY OR OTHER UNDERGROUND UTILITIES PRIOR TO THE INSTALLATION OF ANY PROPOSED IMPROVEMENT INDICATED ON THE PLANS. SHOULD A CONFLICT EXIST AT A UTILITY CROSSING, THE PROJECT ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

6. THE CONTRACTOR SHALL ANTICIPATE AT A MINIMUM ONE SERVICE CONNECTION FOR EACH UTILITY (GAS, WATER, STORM SEWER, FIBER OPTIC OR POWER) SHOWN TO EACH PROPERTY, EVEN IF NOT SHOWN ON PLAN.

7. SERVICE CONNECTIONS ON THE PLANS THAT HAVE BEEN IDENTIFIED ARE BASED ON AS BUILTS PROVIDED BY THE RESPECTIVE UTILITY COMPANY AND ARE APPROXIMATE. THE OWNER DOES NOT GUARANTEE THEIR LOCATION AND THE CONTRACTOR IS RESPONSIBLE AND SHALL FIELD VERIFY THE LOCATION AND DEPTH OF UTILITIES WHETHER OR NOT SHOWN IN PLANS PRIOR TO COMMENCEMENT OF ANY WORK IN THE AREA. CONTRACTOR IS RESPONSIBLE TO LOCATE AND SUPPORT ALL SERVICE CONNECTIONS IN PLACE AS NECESSARY TO COMPLETE ALL WORK AS DETAILED. ANY DISRUPTION OR DAMAGE TO EXISTING UTILITY SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION OF THE EXISTING UTILITY OWNERS AND THE UTILITY PROTECTION SERVICE IN THE LIST FEATURED ON THE COVER OF THE PLANS IN ACCORDANCE WITH SECTION 153.64 OF THE OHIO REVISED CODE

9. IN THE EVENT THAT ANY LEAD SERVICE CONNECTION IS ENCOUNTERED DURING THIS PROJECT BY THE CONTRACTOR, AQUA OHIO SHALL BE IMMEDIATELY NOTIFIED AND WORK AT THAT LOCATION SHALL CEASE UNTIL DIRECTION ON HOW TO PROCEED IS MADE BY AQUA. CONTRACTOR SHALL CONTINUE WITH WORK ONCE AQUA GIVES NOTICE TO PROCEED WITHOUT ADDITIONAL PAYMENT FOR REMOBILIZATION.

10. A UTILITY SUPPORT AND COORDINATION ALLOWANCE IS INCLUDED AS APART OF THE CONTRACT FOR COORDINATION AND FEES ASSOCIATED WITH SUPPORTING UTILITY POLES WITHIN THE PROXIMITY OF THE PROPOSED IMPROVEMENTS.

TRAFFIC CONTROL

1. MAINTAINING TRAFFIC SHALL BE IN ACCORDANCE WITH ODOT ITEM 614 AND THE MOST RECENT VERSION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

2. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN FOR REVIEW AND ACCEPTANCE BY THE ENGINEER PRIOR TO BEGINNING WORK. ALL TRAFFIC CONTROL WORK NECESSARY TO COMPLETE THE PROJECT SHALL BE PAID FOR UNDER THE LUMP SUM PAY ITEM "MAINTAINING TRAFFIC, AS PER PLAN".

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE LOCAL ACCESS, VEHICULAR AND PEDESTRIAN INCLUDING PERSONS WITH DISABILITIES, TO ALL PROPERTIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR WILL FURNISH, MAINTAIN AND SUBSEQUENTLY REMOVE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, BARRIERS, TEMPORARY PAVEMENT, LIGHTING, FLAGGERS, SIGNING, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROLS TO ENSURE THE SAFETY OF PERSONS AND VEHICLES DURING CONSTRUCTION WITHIN THE PROJECT LIMITS.

4. AT ALL EXCAVATION LOCATIONS THE CONTRACTOR SHALL PROVIDE SUITABLE FLASHERS, BARRICADES, AND TRAFFIC CONTROL DEVICES AS DEEMED NECESSARY BY THE ENGINEER AND IN ACCORDANCE WITH THE OMUTCD FOR SUCH TIME UNTIL THE AREA IS COMPLETELY BACKFILLED.

5. ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ITEM 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN OR INCLUDED IN OTHER PAY ITEMS.

6. ACCESS MUST BE MAINTAINED FOR EMERGENCY VEHICLES AT ALL TIMES.

7. NO TRENCH WILL BE LEFT OPEN AT THE END OF A WORK DAY, WHERE PRACTICAL; ANY OPEN TRENCH WILL BE PROPERLY IDENTIFIED AND BARRICADED FOR SAFETY PURPOSES.

8. PRIOR TO CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE, OR BOULEVARD, THE CONTRACTOR MUST HAVE CONSENT FROM LOCAL OFFICIALS AND THE ENGINEER.

9. PRIOR TO CLOSING OFF ACCESS TO ANY PORTION OF PRIVATE PROPERTY WHERE SEWER WORK MAY BE LOCATED, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER TO IMPLEMENT PROPOSED TRAFFIC CONTROL DEVICES WHICH SHALL ALSO REQUIRE FINAL APPROVAL BY THE ENGINEER.

TREE/VEGETATION PROTECTION

1. TREE REMOVAL WILL BE LIMITED TO THE TIME PERIOD BETWEEN OCTOBER 1 AND MARCH 31.

2. TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHEREVER POSSIBLE.

3. NO TREE REMOVAL WILL BE PERMITTED OUTSIDE THE TEMPORARY OR PERMANENT EASEMENT WITHOUT PERMISSION OF THE ENGINEER.

4. TREES WHICH ARE NOT REMOVED WILL BE PROTECTED BY ENSURING THAT TREES TO BE REMOVED ARE FELLED SO AS NOT TO INJURE THE REMAINING TREES.

5. THE PROJECT IS WITHIN THE RANGE OF THE STATE AND FEDERALLY ENDANGERED INDIAN BAT (MYOTIS SODALIS) AND NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS), THE STATE ENDANGERED LITTLE BROWN BAT (MYOTIS LUCIFUGUS), AND THE STATE ENDANGERED TRICOLORED BAT (PERIMYOTIS SUBFLAVUS) AND MAY IMPACT SUMMER ROOSTING HABITAT FOR THESE SPECIES. PER U.S. FISH AND WILDLIFE RECOMMENDATIONS, THE REMOVAL OF TREES GREATER THAN OR EQUAL TO 3-INCHES IN DIAMETER SHOULD ONLY OCCUR BETWEEN OCTOBER 1 AND MARCH 31. IF THIS TIME FRAME CANNOT BE FOLLOWED, THE U.S. FISH AND WILDLIFE SERVICE AND OHIO DEPARTMENT OF NATURAL RESOURCES (CONTACT EILEEN WYZA AT EILEEN.WYZA@DNR.OHIO.GOV) MUST BE CONTACTED PRIOR TO CUTTING FOR GUIDANCE ON NECESSARY STEPS TO DOCUMENT THE ABSENCE OR PRESENCE OF THESE SPECIES.

6. PRIOR TO CLEARING, THE CONTRACTOR AND ENGINEER, SHALL WALK THE ACQUIRED EASEMENTS IN AN EFFORT TO DESIGNATE THE TREES THAT ARE TO BE SAVED. TREES TO BE SAVED WILL BE CLEARLY MARKED BY PAINT WITH THE LETTER "S". TREES TO BE PROTECTED BY AN APPROPRIATE BARRIER SHALL BE MARKED WITH AN "S" ENCLOSED IN A CIRCLE. TREES MARKED FOR REMOVAL IN THE PLANS WILL BE INSPECTED BY THE OWNER AND THE ENGINEER BEFORE REMOVAL & WILL BE SAVED WHERE POSSIBLE.

7. SOIL AND OTHER MATERIAL WILL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINEOF TREES.

8. PRESERVATION OF LANDSCAPING SHOULD TAKE PRECEDENCE OVER REMOVAL. IF REMOVAL OR DAMAGE IS UNAVOIDABLE, EXISTING VEGETATION SHOULD BE REPAIRED OR REPLACED "IN-KIND" UNLESS THE HOMEOWNER SPECIFIES OTHERWISE.

9. IF TREES/SHRUBS CANNOT BE REPLACED IN THE SAME LOCATION DUE TO INSTALLATION OF THE SEWER SYSTEM, RELOCATION SHOULD BE CONSIDERED.

10. THE CONTRACTOR'S ARBORIST SHALL REPAIR ALL INJURIES TO BARK, TRUNKS, LIMBS, AND ROOTS OF REMAINING VEGETATION BY PROPERLY DRESSING, CUTTING, BRACING AND PAINTING, USING ONLY APPROVED TREE SURGERY METHODS, TOOLS, AND MATERIALS.

11. SELECTIVE PRUNING OF TREE LIMBS PRIOR TO INITIATION OF CONSTRUCTION SHOULD ONLY BE USED WITHIN ESTABLISHED EASEMENTS WHERE REMOVAL IS NECESSARY FOR OPERATION OF EQUIPMENT.

12. LIMIT THE USE OF RIP-RAP TO AREAS WHERE STREAM FLOW CONDITIONS PREEMPT VEGETATIVE STABILIZATION.

13. TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHENEVER POSSIBLE. IF THE PROJECT IS LOCATED WITHIN THE RANGE OF THE FEDERALLY-ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND TREES MUST BE CUT, THIS MUST OCCUR BETWEEN SEPTEMBER 30 AND APRIL 1. INDIANA BATS ARE HIGHLY-DEPENDENT UPON TREES INCLUDING DEAD AND DYING TREES OF SPECIES WITH EXFOLIATING BARK, CREVICES, OR CAVITIES IN UPLAND AREAS OR RIPARIAN CORRIDORS AND LIVING TREES OF THE SPECIES LISTED ABOVE WITH EXFOLIATING BARK, CAVITIES, OR HOLLOW AREAS FORMED FROM BROKEN BRANCHES OR TOPS. IF SUITABLE TREES MUST BE CUT DURING THE PROHIBITED TIME PERIOD, A NET SURVEY MUST BE CONDUCTED TO DETERMINE THE PRESENCE OR ABSENCE OF INDIANA BATS PRIOR TO CUTTING.

ENVIRONMENTAL PROTECTION

1. ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AT A SITE APPROVED BY THE ENGINEER. NO EXCESS MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOODPLAIN, SURFACE WATER, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE MUST BE INSTALLED AND MAINTAINED UNTIL DISPOSAL IS COMPLETE AND THE DISPOSAL SITE IS PERMANENTLY STABILIZED. GIVING EXCAVATED SOIL AWAY DOES NOT RELIEVE THE CONTRACTOR OR ENGINEER OF THIS RESPONSIBILITY.

EXCAVATION AND TRENCHING

1. TRENCHING, HAUNCHING, BEDDING, AND ALL EARTHWORK SHALL BE IN ACCORDANCE WITH DETAILS WITHIN THE PLANS AND SPECIFICATION SECTIONS 310000 AND 333100.

2. A GEOTECHNICAL ENGINEERING REPORT WITH SOIL BORINGS IS INCLUDED IN THE BID DOCUMENTS FOR REFERENCE IN DETERMINING TRENCHING METHODS AND DEWATERING

3. SLAG PRODUCTS OR CRUSHED CONCRETE WILL NOT BE PERMITTED FOR BEDDING, BACKFILL, OR TRAFFIC COMPACTED SURFACE.

4. ALL UTILITY LINES CROSSING THE NEW SEWER TRENCH, (I.E. STORM SEWERS, STORM LATERALS, WATERLINES, WATERLINE CONNECTIONS, SANITARY SEWERS, SANITARY LATERALS, GAS MAINS, GAS SERVICE CONNECTIONS, UNDERGROUND OCT CONDUITS, CABLE TV LINES) SHALL BE PROTECTED AND SUPPORTED WITH HARDWOOD PLANKS OR REMOVED AND REPLACED, RECONNECTED AND SUPPORTED ACROSS THE ENTIRE WIDTH OF THE TRENCH. NO ADDITIONAL COMPENSATION WILL BE PAID FOR THE ABOVE WORK UNLESS ANY OF THE ABOVE UTILITIES ARE ENCOUNTERED AND NOT SHOWN ON THE DRAWINGS.

5. ANY COMPACTION TESTING REQUIRED AT THE SOLE DISCRETION OF THE ENGINEER SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

6. CONTRACTORS AND SUBCONTRACTORS ARE REQUIRED UNDER OHIO REVISED CODE SECTION 149.53 TO NOTIFY THE OHIO HISTORICAL SOCIETY AND THE OHIO HISTORIC SITE PRESERVATION BOARD OF ARCHAEOLOGICAL DISCOVERIES LOCATED IN THE PROJECT AREA AND TO COOPERATE WITH THOSE ENTITIES IN ARCHAEOLOGICAL AND HISTORIC SURVEYS AND SALVAGE EFFORTS IF SUCH DISCOVERIES ARE UNCOVERED WITHIN THE PROJECT AREA.

   CONTACT: STATE HISTORIC PRESERVATION OFFICE, PHONE: 614.298.2000

DEWATERING PROCEDURES

1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A DEWATERING SYSTEM TO INSTALL THE IMPROVEMENTS AS NOTED AND SPECIFIED IN THE PLANS AND BID DOCUMENTS. CONTRACTOR SHALL DEVELOP A SYSTEM THAT WILL ENSURE WELL WATER SERVICE IS MAINTAINED FOR ALL PROPERTIES WITHIN THE PROJECT LIMITS FOR THE DURATION OF CONSTRUCTION

2. ALL DEWATERING FLOWS FROM EXCAVATION AND TRENCHING OPERATIONS SHALL BE SETTLED INTO INSTALLATION BASINS OR DIRECTED THROUGH APPROVED FILTERING DEVICES PRIOR TO BEING DISCHARGED TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWER; NOT ONTO EXPOSED SOILS, STREAM BANKS, OR ANY EITHER SITE WHERE THE FLOW COULD CAUSE OR INCREASE THE RATE OF EROSION.

3. SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER INTO THE STORM SEWER SYSTEM. FOR THE ENTIRE COURSE OF CONSTRUCTION, EROSION CONTROL (FILTERS OR OTHER APPROVED BMPS) MEASURES SHALL BE IMPLEMENTED AT ALL NEARBY INLETS TO PREVENT SILT FROM ENTERING INTO THE SYSTEM. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THESE DEVICES FOR THE ENTIRE DURATION OF CONSTRUCTION AND SHALL ONLY REMOVED BY ORDER OF THE ENGINEER.

4. CONVEY WATER FROM THE CONSTRUCTION SITE IN A CLOSED CONDUIT. TRENCH EXCAVATIONS SHALL NOT BE PERMITTED AS TEMPORARY DRAINAGE DITCHES.

MATERIAL DISPOSAL AND TEMPORARY SURFACES

1. THE REMOVAL AND DISPOSAL OF ALL SURPLUS EXCAVATED MATERIAL AND CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR ULTIMATE DISPOSAL. THE DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE AT AN APPROVED LOCATION BY THE OWNER AND THE ENGINEER. THE DISPOSAL OF ALL "CLEAN" MATERIAL SHALL BE AT APPROVED LANDFILLS, AND/OR OTHER SITES APPROVED BY THE OWNER AND THE DISPOSAL OF EXISTING PIPELINE AND WASTEWATER SLUDGE SHALL BE AN APPROVED LOCATION. THE CONTRACTOR SHALL OBTAIN ALL APPROVALS, PERMITS, LICENSES, ETC. STATE AND FEDERAL AGENCIES AND OR PRIVATE LANDOWNERS. THE CONTRACTOR SHALL FURNISH ENGINEER A COPY OF ALL APPROVALS OR WRITTEN PERMISSION PRIOR TO DISPOSING OF ANY WASTE SITE.

2. THE COST OF HEREIN DESCRIBED WORK, INCLUDING SEEDING AND MULCHING NECESSARY TO SECURE RESULTS, SHALL BE CONSIDERED INCIDENTAL TO THE OTHER VARIOUS ITEMS OF WORK IN THIS CONTRACT INCLUDED IN THE RESPECTIVE PAY ITEMS. NO SEPARATE PAYMENT SHALL BE MADE.

3. TEMPORARY SURFACES WHERE EXCAVATION ARE LOCATED IN STREETS, DRIVES AND PARKING AREAS FURNISHED AND PLACED BY THE CONTRACTOR AND SHALL BE FULLY MAINTAINED TO MINIMIZE INCONVENIENCE TO THE PUBLIC AT NO ADDITIONAL COST TO THE OWNER.

4. THE ABOVE-DESCRIBED WORK SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF ALL WORK INCLUDED IN THE RESPECTIVE PAY ITEMS AND SHALL NOT BE A SEPARATE PAY ITEM.

GRASS RESTORATION

1. GRASS AREAS TO BE RESTORED SHALL BE SEEDED UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

2. SEEDING AND/OR SODDING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 329200.19 OF THE DETAILED SPECIFICATIONS.

3. ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND MULCHING RATHER THAN SODDING UNLESS OTHERWISE SHOWN ON PLANS, DETAILS, OR SPECIFICATIONS.

4. SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL IMMEDIATELY FOLLOW EXCAVATION AND SEWER INSTALLATION OPERATIONS.

5. ALL EXPOSED SLOPES ARE TO BE SEEDED AND MULCHED IMMEDIATELY AFTER GRADING WORK IS COMPLETED. IF, IN THE OPINION OF THE ENGINEER, ADDITIONAL EROSION AND SEDIMENTATION CONTROLS ARE REQUIRED, THEY SHALL BE INSTALLED UNDER HIS DIRECTION IN ACCORDANCE WITH APPLICABLE SECTIONS OF ODOT ITEM 207 AND STANDARD CONSTRUCTION DRAWING NO. MC-11.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
GENERAL - 00 SERIES
GENERAL NOTES 1

PROJECT NO.	
232478	
DISCIPLINE	
GENERAL	
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5	49

EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ODOT ITEM 207 AND AS REQUIRED BY THE ASHTABULA COUNTY SOIL AND WATER CONSERVATION DISTRICT.

2. SITE CLEARING AND GRUBBING SHALL NOT COMMENCE UNTIL SUCH TIME THAT THE CONTRACTOR IS PREPARED TO START CONSTRUCTION. REMOVE ONLY THOSE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED FOR CONSTRUCTION OF ACTUAL FACILITIES; PROTECT THE REST TO PRESERVE THEIR AESTHETIC, HABITAT, AND EROSION CONTROL VALUES.

3. IMMEDIATELY FOLLOWING SITE AND ACCESS CLEARING, TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED. THEY WILL BE MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION UNTIL FINAL SEEDING AND SITE RESTORATION OCCURS.

4. AT THE LIFT STATION CONSTRUCTION SITES INSTALL SEDIMENT BASINS AND DIVERSION DIKES BEFORE DISTURBING THE LAND THAT DRAINS INTO THEM.

5. DIVERSION CHANNELS WILL BE CONSTRUCTED AROUND THE LIFT STATION SITE TO COLLECT RUNOFF AND PREVENT SILT AND OTHER ERODIBLE MATERIALS FROM ENTERING LOCAL DRAINAGE COURSES. DIVERSION CHANNELS WILL FLOW TO TEMPORARY SEDIMENT BASINS, AND ARE TO BE STABILIZED THROUGH SEEDING, RIP-RAPPING, OR LINING THEM WITH PLASTIC.

6. EXISTING TOPSOIL WILL BE STOCKPILED AND REPLACED UPON FINAL GRADING OF THE CONSTRUCTION SITE.

7. EXTENSIVE AREAS OF STOCKPILED TOPSOIL AT THE CONSTRUCTION SITE ARE TO BE PROTECTED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING OR COVERING SUCH AS WITH ANCHORED STRAW MULCH. SILT BARRIERS WILL BE INSTALLED DOWN GRADIENT OF THESE AREAS ON CONTOUR AND WITH THEIR ENDS UP SLOPE OF THE CONTOUR TO PREVENT SILT LADEN RUNOFF FROM ENTERING WATERWAYS OR STORM SEWERS. WITHIN 15 DAYS OF COMPLETION OF CONSTRUCTION, ANY REMAINING SOIL MUST EITHER BE REMOVED OR PERMANENTLY STABILIZED.

8. SILT FENCES SHOULD BE TRENCHED SIX TO TWELVE INCHES DEEP, THE FABRIC LAID IN THE TRENCH, AND THE SOIL PROPERLY BACKFILLED INTO THE TRENCH TO PREVENT UNDERCUTTING.

9. WHERE TRENCH EXCAVATION OCCURS PARALLEL TO ANY WATERWAY, A VEGETATED BARRIER SHOULD BE MAINTAINED BETWEEN THE STREAM AND THE CONSTRUCTION SITE. ALL TRENCH SPOILS WILL BE STOCKPILED ON THE SIDE OF THE TRENCH AWAY FROM THE WATERWAY, AND A LINE OF SILT BARRIERS WILL BE ESTABLISHED ALONG THE EDGE OF CONSTRUCTION ON THE CONTOUR BETWEEN THE TRENCH AND THE WATERWAY.

10. NO MORE THAN 200 FEET OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME. TRENCH OPENING AND LAYING OF PIPE SHOULD OCCUR SO AS TO MINIMIZE THE AMOUNT OF DISTURBED AREA. ALL TRENCHES ARE TO BE BACKFILLED AND COMPACTED IMMEDIATELY AFTER PIPE INSTALLATION. IMMEDIATELY FOLLOWING THE BACKFILLING OF THE TRENCH, THE GROUND SURFACE WILL BE ROUGH GRADED TO THE EXISTING CONTOURS TO ALLOW FOR PROPER DRAINAGE, AND WILL BE SEEDED AND/OR MULCHED IN STAGES TO PREVENT EROSION.

11. ANY DISTURBED AREA THAT WILL NOT BE ACTIVELY UNDER CONSTRUCTION FOR A PERIOD OF 15 DAYS OR MORE WILL BE TEMPORARILY STABILIZED IMMEDIATELY BY SEEDING AND MULCHING OR BY ANCHORED STRAW MULCH.

12. AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH DISTURBED AREA IN STAGES WITH PERENNIAL VEGETATION INSTALLED ACCORDING TO OHIO EPA (OR EQUIVALENT) STANDARDS AND SPECIFICATIONS. AFTER FINAL SOIL SETTLING OVER THE SANITARY SEWER, OUTFALL SEWER, AND FORCE MAIN ALIGNMENTS, THE CONTRACTOR SHALL BRING THE TRENCH BACK TO GRADE IF NECESSARY, PLACE TOPSOIL, AND FINE GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF THAT SECTION OF PIPE. FINAL GRADING WILL BE CONSISTENT WITH PRE-CONSTRUCTION TOPOGRAPHY FOR DRAINAGE AND AESTHETIC REASONS.

13. BORING PITS (FOR JACK AND BORE LOCATIONS) SHALL BE SURROUNDED WITH SILT BARRIERS TO PREVENT EROSION OF THE EXCAVATED PIT MATERIAL. STORM SEWER INLETS WILL BE SURROUNDED WITH SILT BARRIERS TO PREVENT SILTATION.

14. SLOPES EXCEEDING 15 PERCENT OR THAT TEND TO BE UNSTABLE REQUIRE SPECIAL TREATMENT SUCH AS WATER DIVERSION BERMS, SODDING, OR THE USE OF JUTE OR EXCELSIOR BLANKETS.

15. WHEN BORROW MATERIAL IS OBTAINED FROM OTHER THAN COMMERCIALLY OPERATED SOURCES, EROSION OF THE BORROW SITE WILL BE SO CONTROLLED BOTH DURING AND AFTER COMPLETION OF THE WORK THAT EROSION WILL BE MINIMIZED AND SEDIMENT WILL NOT ENTER STREAMS OR OTHER BODIES OF WATER. WASTE OR DISPOSAL AREAS AND CONSTRUCTION ROADS SHALL BE LOCATED AND CONSTRUCTED IN A MANNER THAT WILL KEEP SEDIMENT FROM ENTERING STREAMS. TEMPORARY EROSION CONTROL BARRIERS AND LIMITED SITE CLEARING WILL BE USED AS NEEDED.

16. IF WORK IS SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL MAINTAIN THE SOIL EROSION AND SEDIMENTATION CONTROLS IN GOOD OPERATING CONDITION DURING THE SUSPENSION OF THE WORK. ALSO, WHEN SEASONAL CONDITIONS PERMIT AND THE SUSPENSION OF WORK IS EXPECTED TO EXCEED A PERIOD OF ONE MONTH, THE CONTRACTOR SHALL SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS LEFT EXPOSED WHEN THE WORK IS STOPPED.

MANHOLE REHABILITATION NOTES

1. MANHOLE REHABILITATION SHALL BE PERFORMED AND IN ACCORDANCE WITH SPECIFICATION SECTION 330130.81 AND MANHOLE IMPROVEMENT SCHEDULE. THIS WORK SHALL BE PAID UNDER UNIT PRICE PAY ITEM 'MANHOLE REHABILITATION AND CLEANING 48-INCH DIAM. AS PER PLAN".

2. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS, SEDIMENT, ROOTS, OR OTHER OBSTRUCTIONS PRIOR TO APPLICATION OF ANY SPRAY OR TROWEL ON SEALING SYSTEM FOR MANHOLES.

3. ALL IMPROVEMENTS SHALL BE MADE AS TO NOT CAUSE FURTHER DAMAGE TO STRUCTURE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL PREPARATION AND REPAIRS IN SUCH MANNER THAT NO ADDITIONAL DAMAGE OCCURS THAT REQUIRES ADDITIONAL REPAIRS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS. IF THE CONTRACTOR DETERMINES THE STRUCTURE IS NOT STABLE ENOUGH FOR APPLYING NOTED IMPROVEMENTS, THE ENGINEER SHALL BE NOTIFIED TO DETERMINE COURSE OF ACTION.

FORCE MAIN GENERAL NOTES

1. THE CONTRACTOR SHALL NOT PERFORM ANY EXCAVATION WITHIN ODOT ROW OR DISTURB ANY ROADWAY PAVEMENT. ALL WORK WITHIN THESE LIMITS SHALL BE PERFORMED BY HORIZONTAL DIRECTIONAL DRILLING (HDD) UNLESS OTHERWISE NOTED ON THE PLANS.

2. PROPOSED LAUNCH AND RECEIVING PIT LOCATIONS ARE NOTED ON THE PLAN AND PROFILES AS PRE-APPROVED LOCATIONS FOR SETTING UP BORING OR DRILLING PITS. ANY ADDITIONAL PITS OR EXPANDING BEYOND THE NOTED LIMITS SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE MAKING ANY ADJUSTMENTS.

3. THE FORCE MAIN SHALL MAINTAIN MINIMUM 4'-0" COVER FROM THE TOP OF PIPE TO SURFACE GRADE AT ALL TIMES.

4. FORCE MAIN INSTALLED BY OPEN CUT METHODS SHALL BE COMPOSED OF PVCO OR HDPE PIPE PER DIVISION 33 SPECIFICATIONS OR AS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS.

5. FORCE MAIN INSTALLED BY TRENCHLESS SECTIONS SHALL BE COMPOSED OF APPROVED MATERIALS AND METHODS DETAILED IN THE DIVISION 33 SPECIFICATIONS, GENERAL NOTES, AND/OR CONSTRUCTION DETAILS.

6. THE CONTRACTOR MAY PERFORM SECTION OR ALL OF THE CONSTRUCTION OF THE FORCE MAIN BY TRENCHLESS METHODS. IF THE CONTRACTOR ELECTS FOR A TRENCHLESS METHOD, THEY SHALL PROVIDE THE LOCATIONS, LIMITS, DEPTH, SHORING, AND DEWATERING REQUIREMENTS NECESSARY FOR LAUNCH AND RECEIVE PITS TO THE ENGINEER FOR APPROVAL.

7. THE CONTRACTOR IS RESPONSIBLE TO LOCATE ANY AND ALL WATER SERVICE, SEWER LATERALS, GAS SERVICE, OR OTHER EX. UTILITY SERVICE CROSSINGS THAT MAY CROSS THE PROPOSED FORCE MAIN AND ADJUST THE ELEVATION AS NECESSARY TO LIMIT THE NEED FOR LOWERINGS THAT WILL REQUIRE FITTINGS.

8. ANY LOW OR HIGH POINT WHERE THE SLOPE CHANGES FROM POSITIVE TO NEGATIVE (OR VICE VERSA), SHALL REQUIRE THE INSTALLATION OF AN AIR RELEASE VALVE OR BLOW VALVE CHAMBER. THESE CHAMBERS SHALL BE INSTALLED PER DETAILS. IF THE CONTRACTOR PLANS MAKE ANY DEVIATION FROM THE VERTICAL PROFILE DETAILED IN THE PLANS, THEY SHALL INFORM THE ENGINEER PRIOR TO INSTALLATION TO DETERMINE IF ANY ADDITIONAL VALVES SHALL BE REQUIRED DUE TO THE CHANGE DIRECTION OF SLOPE.

SANITARY SEWER NOTES

1. ALL SANITARY SEWER MATERIALS, METHODS AND PROCEDURES FOR INSTALLATION, BEDDING/BACKFILL/HAUNCHING REQUIREMENTS, AND ALL OTHER WORK DIRECTLY ASSOCIATED WITH THE INSTALLATION OF GRAVITY SEWER (MAINLINE AND LATERAL CONNECTIONS) OR FORCE MAIN SHALL BE IN ACCORDANCE DIVISION 31 AND 33 SPECIFICATION SECTIONS OR AS OTHERWISE SPECIFIED WITHIN THE PLANS AND DETAILS.

2. CLEARANCE REQUIREMENTS: SANITARY SEWERS SHALL MAINTAIN 10' HORIZONTAL CLEARANCE FROM EXISTING WATER MAINS, 5' HORIZONTAL CLEARANCE FROM ALL OTHER SUBSURFACE UTILITIES AND POWER POLES, AND 18" VERTICAL CLEARANCE FROM ALL EXISTING UTILITIES INCLUDING, BUT NOT LIMITED TO, STORM SEWERS, GAS MAINS, WATER MAINS, OTHER EXISTING SANITARY SEWERS, ALL PRIVATE UTILITY SERVICE LINES, AND ANY OTHER PRIVATE OR PUBLIC UTILITY THAT MAY CROSS THE PROPOSED SEWERS UNLESS OTHERWISE NOTED ON PLANS.

3. TESTING REQUIREMENTS:
   a. LEAKAGE TESTING SHALL BE AIR TESTED IN ACCORDANCE WITH SPECIFICATIONS SECTION 013319 AND RSFW 33.93 AND 33.94
   b. DEFLECTION TESTING ON FLEXIBLE PIPE SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 013319 AND RSFW 33.85
   c. EACH SECTION OF FORCE MAIN SHALL BE SUBJECTED TO A HYDROSTATIC TEST OF 50 PSI AT THE HIGH END OF THE PIPE OR TWICE THE WORKING PRESSURE WHICHEVER IS THE GREATER. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER OR THEIR REPRESENTATIVE. THE ALLOWABLE LEAKAGE PER 1000 FEET OF FORCE MAIN PER HOUR SHALL COMPLY WITH SPECIFICATIONS SECTION 013319.

4. TRENCHLESS SEWER CONSTRUCTION:
   a. IN AREAS DESIGNATED FOR TRENCHLESS SEWER CONSTRUCTION, THE CONTRACTOR SHALL INSTALL THE SEWER, LATERAL, OR FORCE MAIN USING STANDARD INDUSTRY PRACTICES AND EQUIPMENT FOR JACK AND BORE OR HORIZONTAL DIRECTION DRILLING.
   b. ALL DESIGNATED FORCE MAIN SECTIONS FOR TRENCHLESS CONSTRUCTION SHALL BE HORIZONTAL DIRECTIONAL DRILLING CONSTRUCTION UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.
   c. ALL SECTIONS OF GRAVITY SEWER OR SANITARY LATERAL DESIGNATED FOR TRENCHLESS CONSTRUCTION MAY EITHER BE INSTALLED BY JACK AND BORE OR HORIZONTAL DIRECTIONAL DRILLING.
   d. REFER TO SPECIFICATION SECTIONS 330507.13 - HORIZONTAL DIRECTIONAL DRILLING AND 330507.23 - HORIZONTAL BORING AND PIPE JACKING
   e. THE CONTRACTOR SHALL PERFORM POTHOLING AT A MINIMUM OF EVERY 500' ALONG THE PROPOSED 6" I.D. FORCE MAIN ALIGNMENT TO VERIFY UTILITIES BASED ON THE PLANS AND THEIR OWN UTILITY RECONNAISSANCE AS REQUIRED UNDER GENERAL NOTE SECTION EXHIBITING UTILITIES. ANY CONFLICTS REQUIRING ADJUSTMENT TO ALIGNMENT SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. ALL POTHOLING SHALL BE INCLUDED IN THE INDIVIDUAL UNIT PRICE PAY ITEMS FOR SEWER CONSTRUCTION.

5. AERIAL SEWER:
   a. PIPE SHALL BE CEMENT LINED DUCTILE IRON PIPE, CLASS 54, WITH PROTECTO 401 INTERIOR COATING.
   b. JOINTS SHALL BE PUSH-ON GASKETED JOINTS IN ACCORDANCE WITH AWWA C111.
   c. ALL AERIAL SEWER PIPE, INCLUDING THAT OF WHICH IS BENEATH THE SURFACE, SHALL INCLUDE A 20 GAGE GALVANIZED SPIRAL LOCK SEAM CASING WITH POLYURETHANE FOAM INSULATION. CASING SYSTEM SHALL BE MANUFACTURED BY INSUL-TEK PIPING SYSTEMS OR APPROVED EQUIVALENT
   d. ¼" GALVANIZED STEEL STRAPS SHALL BE UTILIZED FOR SECURING PIPE TO SUPPORT COLUMNS.
   e. SUPPORT COLUMNS SHALL BE INSTALLED IN ACCORDANCE WITH PERTINENT DIVISION 33 SPECIFICATION SECTIONS AND DETAILS.

6. SEWER PIPE CONNECTION INTO A NEW PRE-CAST CONCRETE STRUCTURES SHALL UTILIZE A-LOK X-CEL PREMIUM STORM CONNECTORS OR APPROVED EQUIVALENT AT THE STRUCTURE CONNECTION

7. PLACE PLUGS IN ENDS OF UNCOMPLETED CONDUIT AT THE END OF EACH DAY OR WHENEVER WORK STOPS. ALL NEWLY LAID SEWER SHALL BE FLUSHED AND ALL MANHOLES INSPECTED FOR CLEANLINESS UPON COMPLETION OF THE PROJECT.

8. STUBS NOTED FOR FUTURE MAINLINE EXTENSION (8" OR GREATER) SHALL INCLUDE UP TO 4' OF PIPE FROM THE MANHOLE. ALL STUBS FOR FUTURE CONNECTIONS SHALL BE INSTALLED WITH REMOVABLE WATERIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.

SANITARY GRAVITY SERVICE LATERAL NOTES

1. SANITARY SEWER SERVICE LATERAL INVERT ELEVATIONS SHOWN IN THIS PROFILE HAVE BEEN DESIGNED TO PROVIDE FIRST FLOOR GRAVITY SERVICE UNLESS OTHERWISE NOTED. PROPERTY OWNER WILL BE REQUIRED TO INSTALL A GRINDER PUMP SYSTEM IF BASEMENT SERVICE IS DESIRED. INVERTS ARE CALCULATED BASED ON SUBTRACTING 5'-0" FROM THE EXISTING BUILDING FINISHED FLOOR ELEVATION (FFE) & THEN SLOPED FROM THE FRONT OF THE HOUSE TO THE R/W LINE AT A DESIRED 1.00% BUT NEVER LESS THAN 1.00%. CONTRACTOR SHALL FIELD DETERMINE INSTALLED LATERAL LOCATION & DOCUMENT THE AS-BUILT ON THE LATERAL TABLES ON SHEET 36, IMPROVEMENT SCHEDULE TABLES.

2. ALL LATERALS CONNECTING TO THE GRAVITY MAINS SHALL BE COMPOSED OF PVC SDR-26 AND BE IN ACCORDANCE WITH SPECIFICATION SECTION 333100 AND CONSTRUCTION DETAILS.

3. ALL LATERALS THAT CROSS THE ROADWAY SHALL BE BORED. LATERALS THAT CROSS THE ROADWAY SHALL BE PAID FOR UNDER THE UNIT PRICE PAY ITEM "6-INCH SANITARY SEWER LATERAL (LONG), AS PER PLAN". VARIATIONS IN LENGTH SHALL NOT HAVE ANY MODIFICATION TO PAYMENT AND EACH LATERAL WILL BE PAID PER EACH ONE COMPLETED.

4. STATIONING OF THE LATERAL SHOWN IN PROFILE IS APPROXIMATE, CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNER TO DETERMINE THE FINAL LOCATION OF THE INSTALLED LATERAL FROM THE MAINLINE TO THE R/W LINE OR EASEMENT LIMIT. WYE WHERE LATERAL CONNECTION NOTES "VACANT PARCEL". REFER TO STANDARD SEWER RISER & WYE BRANCH DETAIL ON SHEET 38, 50C-04.

5. A CLEAN OUT SHALL BE CONSTRUCTED FOR EACH LATERAL CONNECTION AS PER PLAN AND BE PAID FOR UNDER THE UNIT PRICE PAY ITEM "6-INCH SANITARY SEWER TEST TEE/CLEAN OUT, AS PER PLAN".

STRUCTURE NOTES

1. REFER TO SPECIFICATION SECTION 333100 FOR PRECAST CONCRETE MANHOLES

2. ALL CONCRETE SANITARY SEWER STRUCTURES SHALL BE PRECAST USING A CONCRETE ADMIXTURE SUCH AS XYPEX CRYSTALLINE ADMIXTURE OR AN APPROVED EQUAL WHICH WILL ACT AS A WATERPROOF AGENT AND HYDROGEN SULFIDE INHIBITOR, THOROSEAL INSIDE OF SANITARY STRUCTURES ONLY, FULL DEPTH. (ANY COLOR BUT GRAY). ALL JOINT AND CONNECTIONS TO BE WATER PLUGGED.

3. BEARING AREAS SHALL BE FINISHED SMOOTH AND FITTED SO AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE COVER IN THE FRAME. EACH COVER SHALL SEAT IN THE FRAME WITHOUT ROCKING AND SHALL BE MARKED AS A MATCHED FRAME AND COVER BEFORE DELIVERY TO THE PROJECT. THE BASE OF THE FRAME SHALL BE SET ON A DOUBLE ROW OF BUTYL RUBBER SEALANT AND ADJUSTED TO CONFORM TO THE FINISHED PAVEMENT OR SHOULDER ELEVATION AND SLOPE. CASTINGS WHICH SHALL MEET SPECFICAITON SECTION 333100 REQUIREMENTS AND BE DESIGNED ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS THOSE SHOWN HEREIN SHALL BE PROVIDED.

4. ALL STEPS SHALL HAVE A DEPRESSED TREAD OF 1/2". MIN. CLEAT HEIGHT AT THE ENDS. STEPS INSTALLED IN FRESH CONCRETE SHALL BE EMBEDDED TO MINIMUM DEPTH OF 4". STEPS INSTALLED IN MORTAR JOINTS SHALL BE EMBEDDED TO A MINIMUM DEPTH OF 7". FRICTION-FIT STEPS MEETING TO REQUIREMENTS OF 711.31 WITH A 1/2" DIAMETER REBAR MAY BE USED IN PRECAST STRUCTURES. THE RECEIVING HOLES FOR FRICTION-FIT STEPS SHALL NOT PENETRATE THE STRUCTURE WALL. THE ENGINEER MAY REQUIRE THE CONTRACTOR TO TEST LOAD MAXIMUM OF ONE STEP PER STRUCTURE TO A PROOF LOAD OF 400 LBS. IN DIRECT PULL. THE EQUIPMENT AND METHOD USED SHALL MEET THE APPROVAL OF THE ENGINEER. IF THE SELECTED STEP FAILS THE PULLOUT TEST, THE REMAINING STEPS IN THAT STRUCTURE SHALL ALSO BE TESTED. ALL STEPS NOT PASSING THE PULLOUT TEST SHALL BE REMOVED AND A NEW STEP INSTALLED AND TESTED TO THE SATISFACTION OF THE ENGINEER. COST OF TESTING SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE STRUCTURE.

5. BOLT-DOWN COVERS SHALL NOT BE USED UNLESS SPECIFIED IN THE PLANS.

6. TESTING REQUIREMENTS: ALL STRUCTURE SECTIONS SHALL BE VISUALLY EXAMINED FOR CRACKS OR DAMAGE THAT WOULD COMPROMISE THE WATERTIGHTNESS OF THAT SECTION. ANY DAMAGED SECTION SHOULD BE RETURNED TO THE MANUFACTURER. TESTING SHALL CONFORM RSFW 34.7 AND ASTM C-1244. SEE SPECIFICATION SECTION(S) FOR FURTHER DETAIL.

7. WHEN EMPTY DURING CONSTRUCTION, THE STRUCTURES MAY BECOME BUOYANT. IN THE EVENT THAT THE EXCAVATIONS BECOME FLOODED, THE STRUCTURES MUST BE FILLED WITH WATER.

CONTINCENCY AND RESOURCE PROTECTION PLAN

A. ON-SITE MONITORING

1. DURING DRILLING OPERATIONS, VISUAL INSPECTION ALONG THE BORE PATH OF THE ALIGNMENT SHALL TAKE PLACE AT ALL TIMES.

2. THE CONTRACTOR SHALL SUPPLY THE FOLLOWING INFORMATION TO THE MONITORING TEAM THROUGHOUT THE DURATION OF THE HDD OPERATION AT SPECIFIC TIME INTERVALS (E.G. UPON COMPLETION OF EACH DRILL ROD):
   a. POSITION OF THE DRILLING HEAD RELATIVE TO THE DRILLING POINT OF ENTRY;
   b. ESTIMATED TOTAL VOLUME OF DRILLING FLUID THAT HAS BEEN PUMPED DURING THE DRILLING OPERATION;
   c. COMPARISON OF THE CURRENT TOTAL VOLUME OF DRILLING FLUID USED AND THE ESTIMATED CURRENT TOTAL VOLUME OF RETURNS;
   d. EQUIPMENT BREAKDOWNS AND REPAIRS;
   e. ANY ABNORMAL DRILLING FLUID PRESSURE AT THE TIME OF OCCURRENCE; AND
   f. ANY CHANGE OF DRILLING FLUID CONTENTS (E.G. NEW BENTONITE MIXTURE OR INTRODUCTION OF LCMS.

B. FIELD RESPONSE PLAN

1. DURING THE DRILLING PROCESS, THE OPERATOR SHALL ADJUST THE THICKNESS OF THE BENTONITE MIXTURE TO MATCH THE SUBSTRATE CONDITIONS AND ENSURE CONTINUOUS FLOW. SUBSEQUENTLY, THE OPERATOR SHALL CLOSELY MONITOR DRILLING PRESSURES AND PENETRATION RATES SO USE OF FLUID PRESSURE SHALL BE OPTIMAL TO PENETRATE THE FORMATION.

2. A COMPLETE AND SUDDEN LOSS OF RETURNS SERVES AS A SIGNAL TO BOTH THE OPERATOR AND THE MONITOR THAT SOMETHING MORE SIGNIFICANT MAY BE OCCURRING AND TO WATCH CLOSELY FOR A POSSIBLE SURFACE RELEASE. THIS PLAN USES THE LOSS OF RETURNS OR PRESSURE, THE USE OF A TRACING DYE AND VISUAL INDICATIONS, TO TRIGGER RESPONSE AND MITIGATION ACTIONS.

3. IN THE EVENT OF A SUDDEN LOSS OF APPROXIMATELY 75 PERCENT OF EXPECTED RETURNS, OR IN THE EVENT THAT A SURFACE RELEASE OF DRILLING FLUID OR DYE ARE DETECTED, THE CONTRACTOR SHALL IMMEDIATELY CEASE OPERATIONS TO DETERMINE WHAT ACTIONS NEED TO BE TAKEN. IN AREAS CONTAINING SENSITIVE RESOURCES, AGENCY NOTIFICATIONS SHALL BE MADE AND THE DECISION TO RESUME OPERATIONS SHALL BE DETERMINED IN CONSULTATION WITH THE APPROPRIATE AGENCIES' REPRESENTATIVES.

4. ALL EQUIPMENT REQUIRED TO CONTAIN AND CLEAN UP A FRAC-OUT RELEASE SHALL EITHER BE AVAILABLE AT THE WORK SITE OR READILY AVAILABLE AT AN OFF-SITE LOCATION WITHIN 10 MINUTES OF THE BORE SITE. REQUIRED EQUIPMENT WILL BE MADE AVAILABLE BY MANUAL TRANSPORT; UNLESS VEHICLE TRANSPORTATION IS REQUIRED DUE TO MAGNITUDE OF EQUIPMENT AND ACCESS IS AVAILABLE. THIS EQUIPMENT INCLUDES THE FOLLOWING:
   a. HEAVY WEIGHT PLASTIC CLEAN GRAVEL FILLED SAND BAGS (AT LEAST 20 BAGS);
   b. GEOTEK FILTER BAGS 10-BY-12 FOOT SIZE OR EQUIVALENT (AT LEAST 3 BAGS PER SEGMENT):
   c. SEVERAL HARD PLASTIC (5-GALLON) BUCKETS;
   d. ONE WIDE HEAVY-DUTY PUSH BROOM;
   e. THREE FLAT BLADED SHOVELS;
   f. SILT FENCE (APPROPRIATE COVERAGE UP TO 40 FOOT PERIMETER);
   g. CERTIFIED WEED-FREE HAY BALES (APPROPRIATE COVERAGE UP TO 40 FOOT PERIMETER);
   h. TWO BUNDLES OF ABSORBENT PADS TO USE WITH PLASTIC SHEETING FOR PLACEMENT BENEATH MOTORIZED EQUIPMENT WHILE IN OPERATION IN THE VICINITY OF A RIPARIAN/STREAM ZONE;
   i. STRAW LOGS (WATTLES OR FIBER ROLLS) (AT LEAST TWO 10-FOOT ROLLS);
   j. PORTAGE PUMPS;
   k. A MINIMUM OF 100 FEET OF HOSE
   l. VACUUM TRUCK (800 AND 3,000 GALLON).

5. GENERAL RESPONSES TO FRAC-OUT RELEASES RELATED COMMITMENTS ARE AS FOLLOWS:
   a. DIRECTIONAL BORING WOULD STOP IMMEDIATELY;
   b. THE BORE STEM WOULD BE PULLED BACK TO RELIEVE PRESSURE ON FRAC-OUT;
   c. THE OWNER AND OWNERS' SITE REPRESENTATIVE WOULD BE NOTIFIED TO ENSURE ADEQUATE RESPONSE ACTIONS ARE TAKEN AND NOTIFICATIONS ARE MADE;
   d. TERRESTRIAL RELEASES WOULD BE CLEANED UP USING ON-SITE EQUIPMENT;
   e. A DIKE/BERM MAY BE CONSTRUCTED AROUND THE FRAC-OUT (TERRESTRIAL ONLY) TO ENTRAP RELEASED DRILLING FLUID;
   f. RESPONSE EQUIPMENT STORED OFF-SITE IN READILY ACCESSIBLE LOCATIONS (E.G. PORTABLE PUMPS AND FULL EQUIPPED 800 OR 3,000 GALLON VACUUM TRUCKS) WOULD BE MOBILIZED TO RECOVER LARGER RELEASES OF DRILLING FLUID;
   g. ACCESS TO THE FRAC-OUT RELEASE AREA WOULD BE VIA EXISTING ROADS AND TEMPORARY WORK EASEMENTS. ADDITIONAL ACCESS NEEDED TO PERFORM CLEAN-UP ACTIVITIES WOULD BE COORDINATED WITH AND REQUIRE APPROVAL OF ALL REGULATING ENTITIES.

C. PROPER NOTIFICATION AND DOCUMENTATION

1. IF FRAC-OUT OCCURS OR ANY DEGREE OF DYE WERE DETECTED WITHIN THE WATER COLUMN OF A STREAM, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE APPROPRIATE PERMITTING AGENCIES, AND ADDITIONAL FOLLOW-UP RESPONSE ACTIONS WOULD BE DEVELOPED IN COORDINATION WITH AGENCY REPRESENTATIVES.

2. DOCUMENTATION OF ENVIRONMENTAL COMPLIANCE SHALL INCLUDE WRITTEN REPORTS OF OBSERVATIONS, DOCUMENTATION OF EVENTS AND FOLLOW-UP, AND PROJECT TRACKING.

D. TRAINING OF PERSONNEL

1. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT AN ON-SITE TRAINING SESSION FOR MEMBERS OF HIS MONITORING TEAM, OWNERS' PERSONNEL AND OWNERS' SITE REPRESENTATIVE. THE TRAINING SESSION SHALL COVER THE FOLLOWING TOPICS:
   a. DETAILS OF THE INFORMATION FOUND WITHIN THE CONTRACTOR'S SAFETY, TRAFFIC CONTROL AND ENVIRONMENTAL PROTECTION AND CONTINGENCY PLANS;
   b. SPECIFIC PERMITTING CONDITIONS AND REQUIREMENTS;
   c. REQUIREMENT TO RETAIN COPIES OF ALL APPROPRIATE PERMITS ON THE SITE DURING ALL OPERATIONS;
   d. SENSITIVE RESOURCES LOCATED AT OR NEAR THE SITE;
   e. REQUIREMENT TO MONITORING DURING ALL OPERATIONS;
   f. PROPER LINES OF COMMUNICATION;
   g. PROPER LINES OF AUTHORITY AND RESPONSIBILITY;
   h. INFORMATION THE CONTRACTOR SHALL PROVIDE TO THE MONITORING PERSONNEL AND OWNERS' SITE REPRESENTATIVE;
   i. CONTACT NAMES AND PHONE NUMBERS OF THE APPROPRIATE INDIVIDUALS AND AGENCIES
   j. TYPES OF EVENTS THAT THE CONTRACTOR IS REQUIRED TO REPORT AND TO WHOM.

2. THE CONTRACTOR SHALL PROVIDE AN OVERVIEW OF THE DRILLING OPERATION IN THEIR WORK PLAN. THE TRAINING SESSION SHALL ENSURE THAT CONTRACTOR PERSONNEL RECOGNIZE THE AUTHORITY OF THE ON-SITE MONITORS TO STOP DRILLING.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

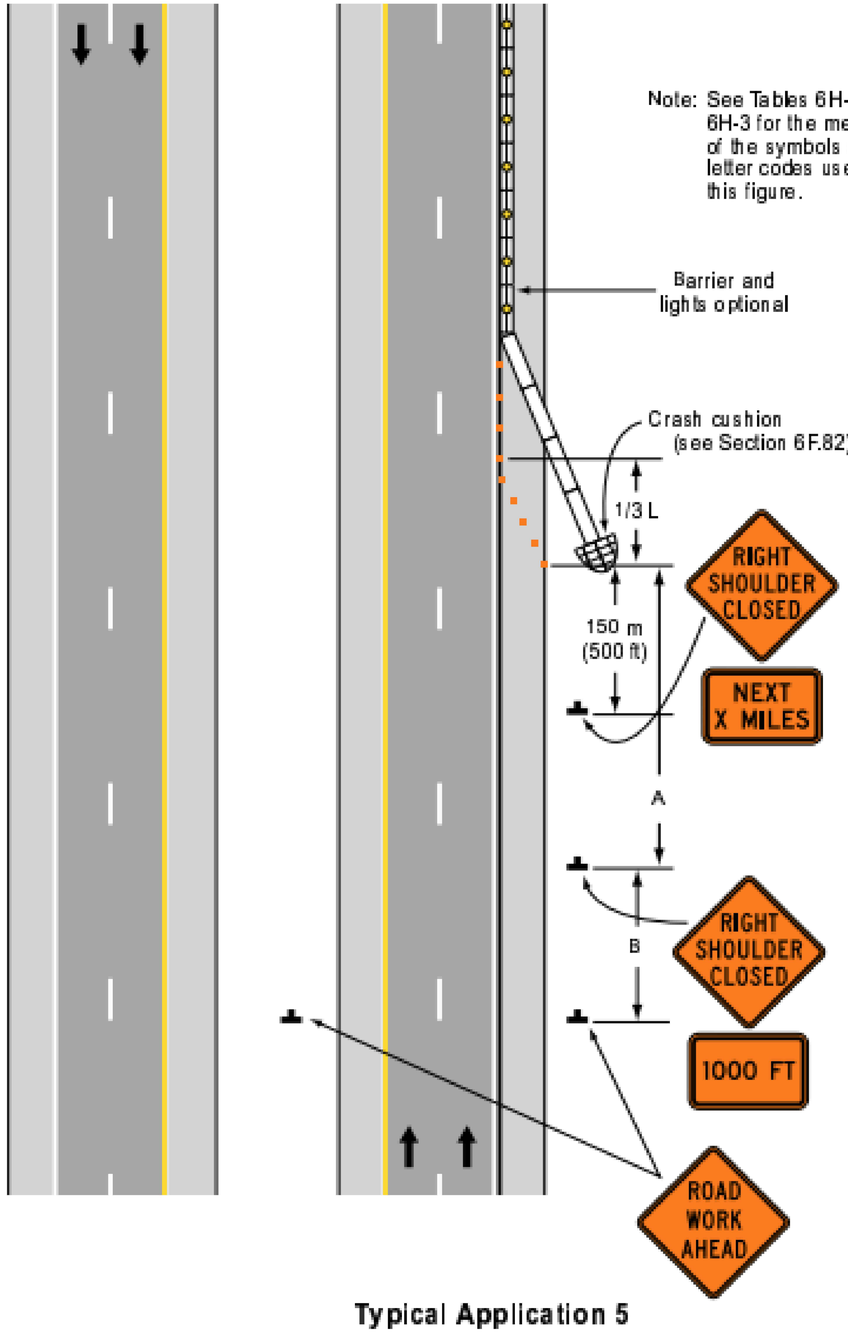
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ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
GENERAL - 00 SERIES
GENERAL NOTES 2

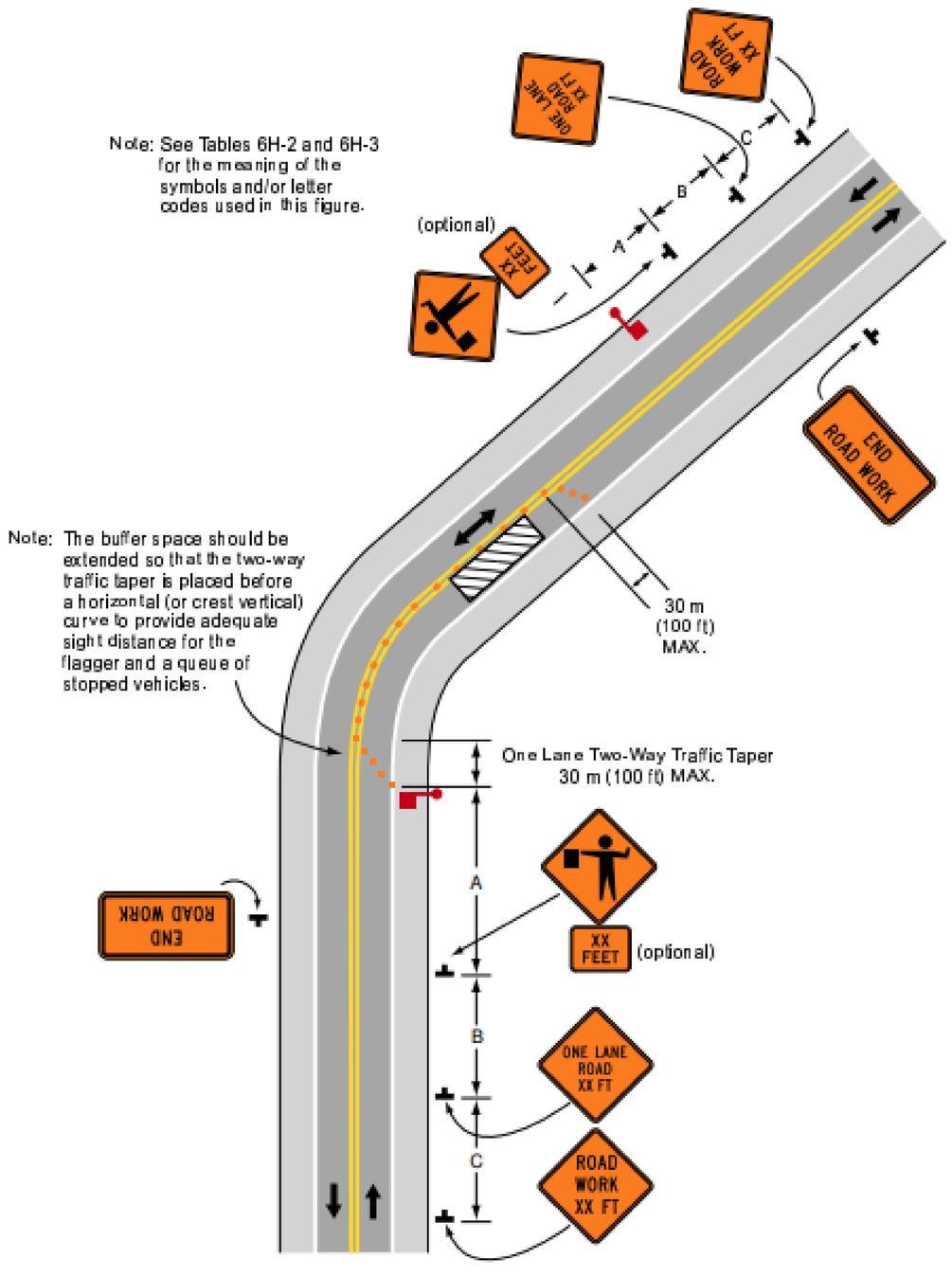
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DISCIPLINE	GENERAL
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SHEET	6
OF	49

Figure 6H-5. Shoulder Closure on Freeway (TA-5)



Typical Application 5

Figure 6H-10. Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

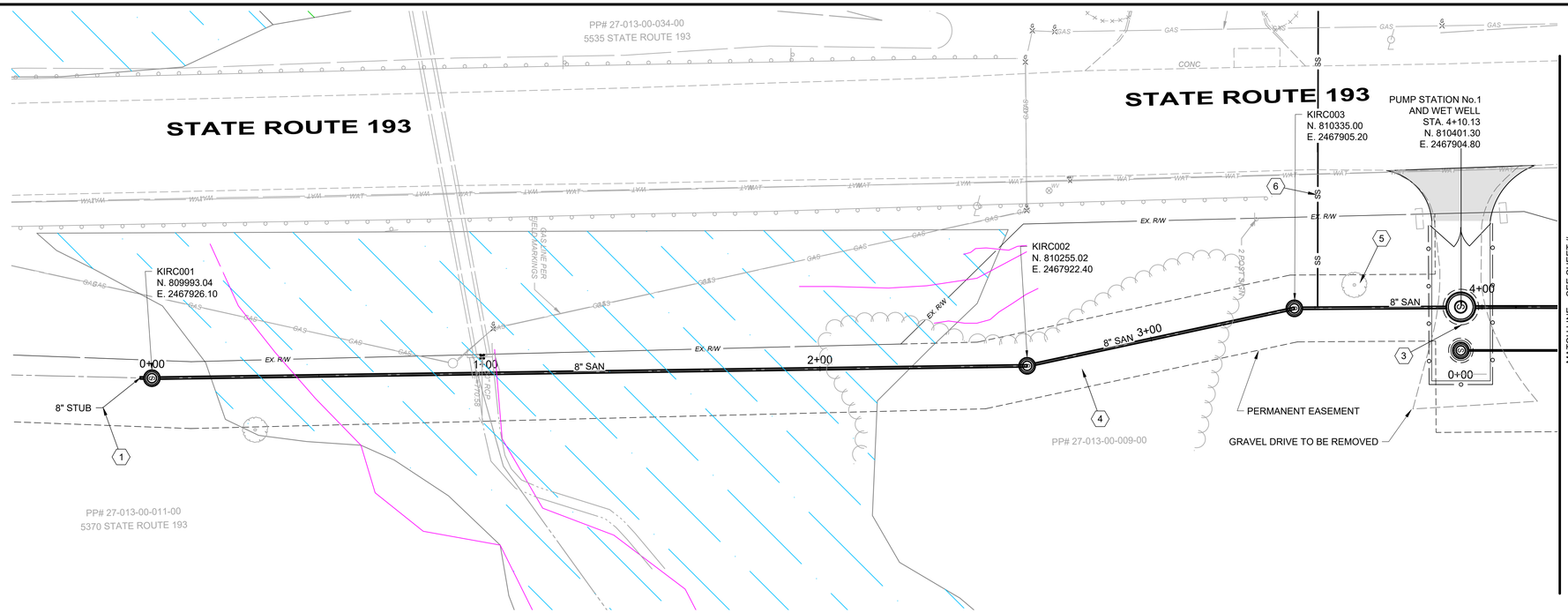
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GENERAL - 00 SERIES
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PROJECT NO.
232478
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00G-07
SHEET 7 OF 49

H:\2022\232478\DWG\SHEETS\G_232478 - MAINTENANCE OF TRAFFIC.DWG - 5 MAINTENANCE OF TRAFFIC - 12/18/2025 8:55:47 AM - CORY SCOTT



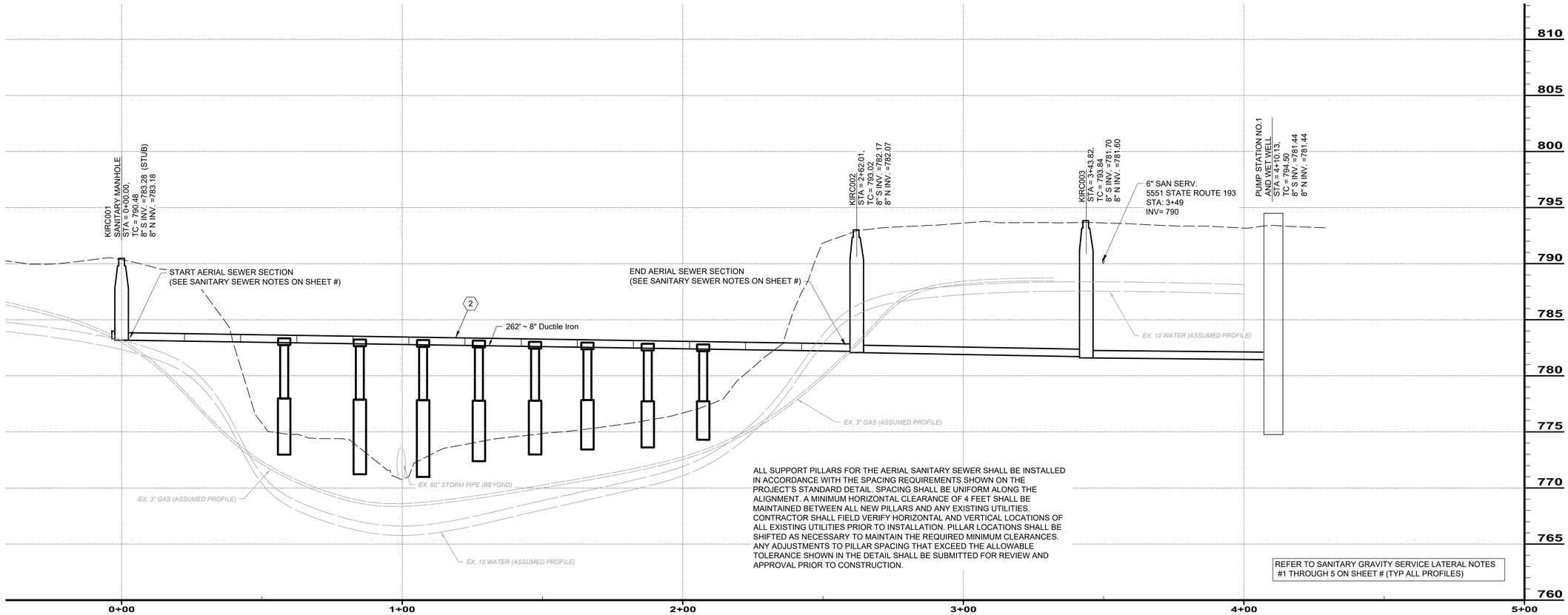


LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. STUB AND CAP 2'-0" FROM MANHOLE
2. SEE AERIAL SEWER DETAILS ON SHEET 50C-10
3. SEE PUMP STATION NO.01 SECTION ON SHEET 60D-01
4. CLEAR AND GRUB AREA NECESSARY TO INSTALL SEWER AND MANHOLES
5. REMOVE TREE
6. PROPOSED LATERAL TO BE INSTALLED PER REQUIREMENTS SPECIFIED UNDER SANITARY GRAVITY SERVICE LATERAL GENERAL NOTES



ALL SUPPORT PILLARS FOR THE AERIAL SANITARY SEWER SHALL BE INSTALLED IN ACCORDANCE WITH THE SPACING REQUIREMENTS SHOWN ON THE PROJECT'S STANDARD DETAIL. SPACING SHALL BE UNIFORM ALONG THE ALIGNMENT. A MINIMUM HORIZONTAL CLEARANCE OF 4 FEET SHALL BE MAINTAINED BETWEEN ALL NEW PILLARS AND ANY EXISTING UTILITIES. CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO INSTALLATION. PILLAR LOCATIONS SHALL BE SHIFTED AS NECESSARY TO MAINTAIN THE REQUIRED MINIMUM CLEARANCES. ANY ADJUSTMENTS TO PILLAR SPACING THAT EXCEED THE ALLOWABLE TOLERANCE SHOWN IN THE DETAIL SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

REFER TO SANITARY GRAVITY SERVICE LATERAL NOTES #1 THROUGH 5 ON SHEET # (TYP ALL PROFILES)

GRAVITY NO. 01 STA: 1+00 - 4+15

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

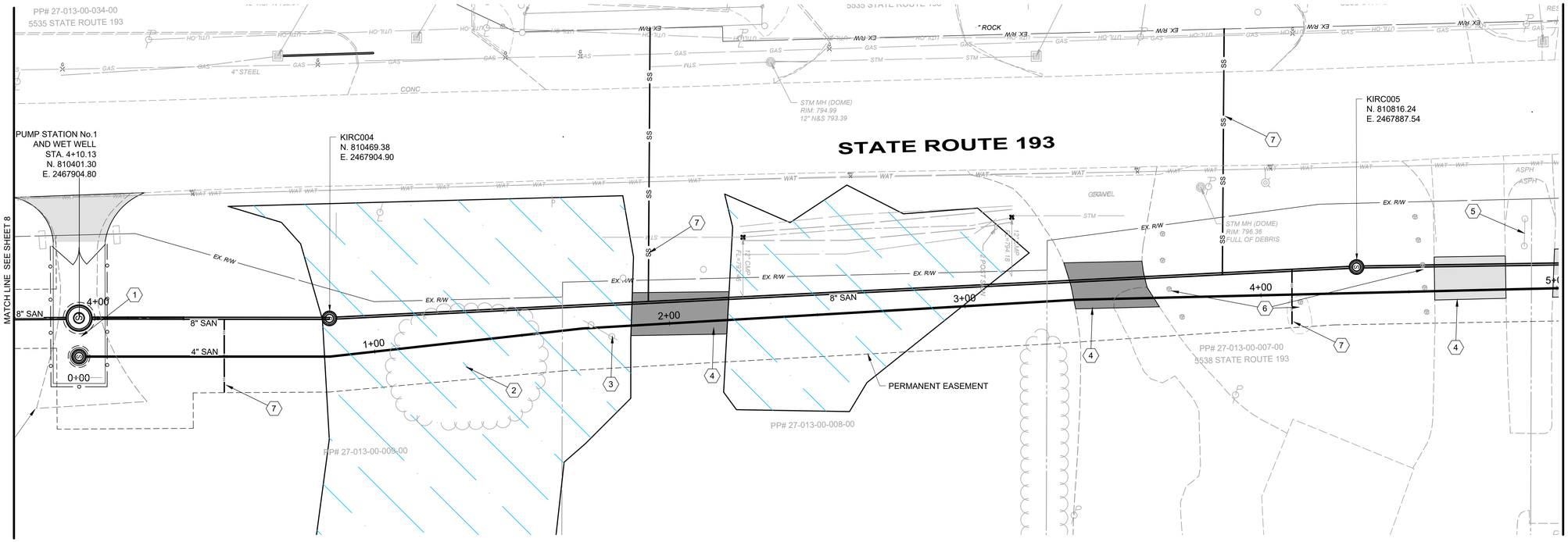
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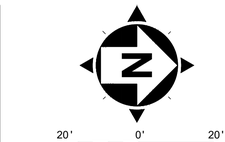
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

GRAVITY SEWER PLAN & PROFILE - 10 SERIES
SG STA 0+00 TO STA 5+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
10PP-01
SHEET 8 OF 49



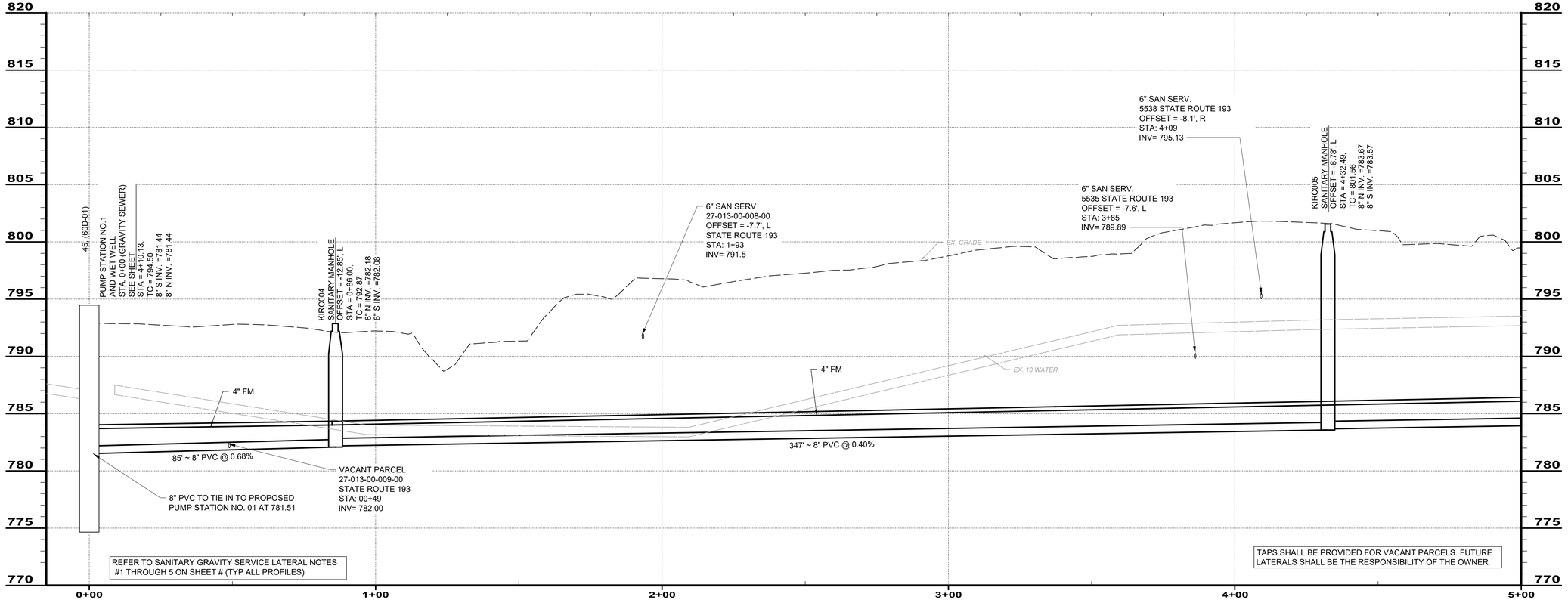


LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT
- TYPE 'A' PAVEMENT REPLACEMENT

CODED NOTES:

1. SEE PUMP STATION NO. 01 SECTION ON SHEET 60D-01
2. CLEAR AND GRUB AREA REQUIRED TO INSTALL SEWER AND FORCE MAIN
3. REMOVE AND RESTORE EXISTING SIGNAGE (REPLACE IF DAMAGED)
4. PAVEMENT REPLACEMENT IN KIND
5. PROTECT SIGN DURING CONSTRUCTION. REMOVE AND RESTORE IF NECESSARY
6. REMOVE AND REPLACE LANDSCAPING IN KIND
7. PROPOSED LATERAL TO BE INSTALLED PER REQUIREMENTS SPECIFIED UNDER SANITARY GRAVITY SERVICE LATERAL GENERAL NOTES.



FM NO. 01 AND GRVITY SEWER NO. 02 STA: 0+00 - 5+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

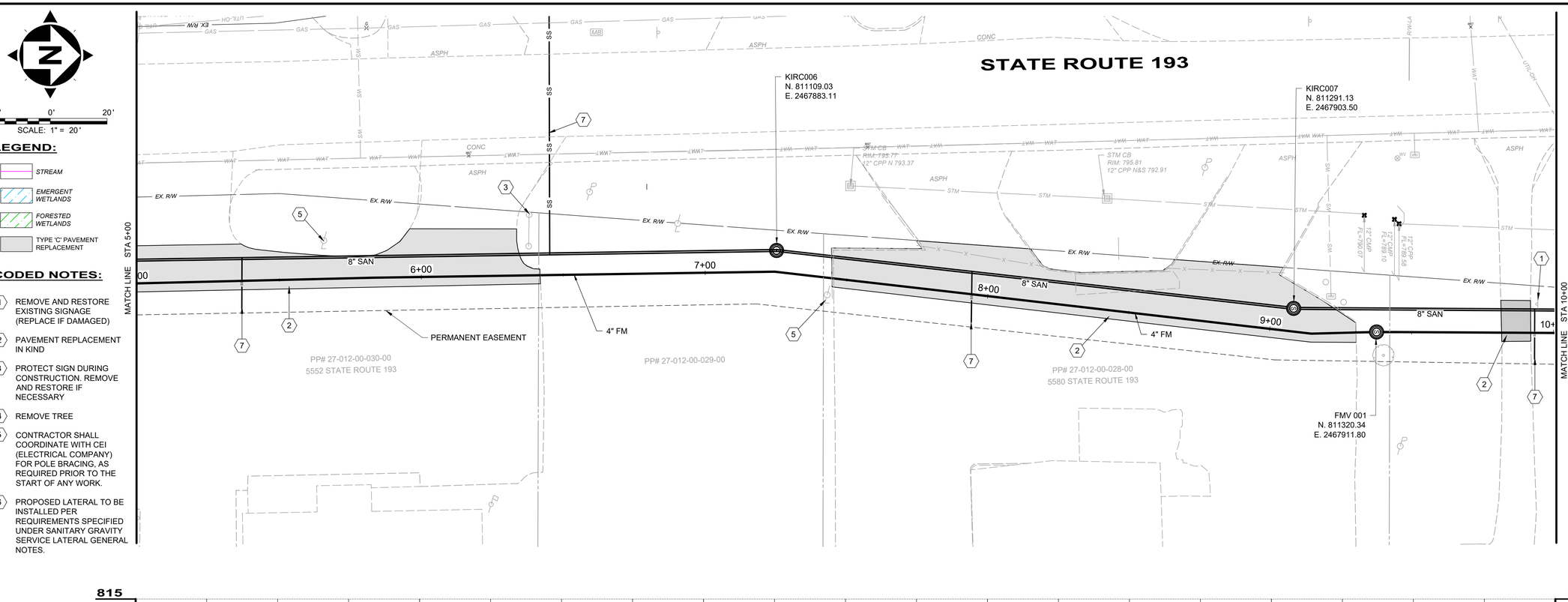
NO	REVISION	DATE

ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
REVIEW SET	9/30/26	AS NOTED	JBB	JBB	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 0+00 TO STA 5+00

PROJECT NO.	
232478	
DISCIPLINE	
CIVIL	
SHEET NAME	
20PP-01	
SHEET	OF
9	49

H:\2023\232478\DWG\SHEETS\C-23247_ALTERNATIVE-TWO-UPDATES.DWG - 9 FM STA 00+00 TO STA 5+00 - 9/17/2026 11:32:49 PM - CORY SCOTT



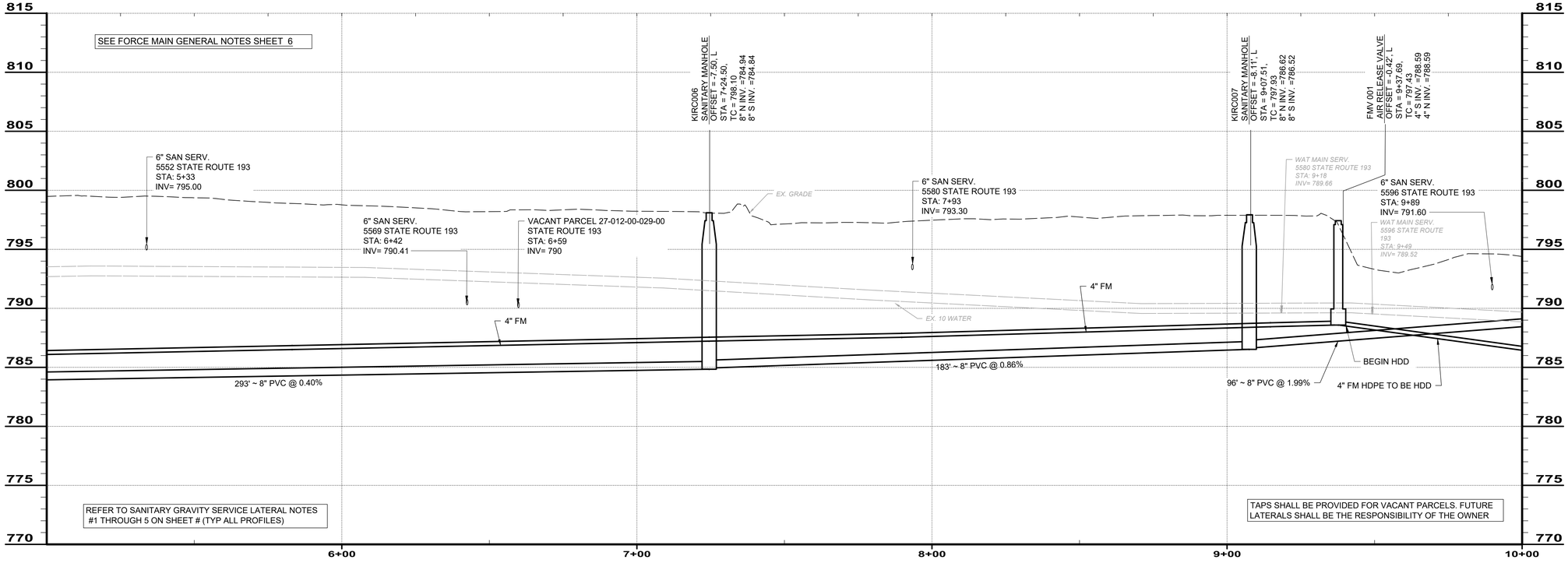
20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. REMOVE AND RESTORE EXISTING SIGNAGE (REPLACE IF DAMAGED)
2. PAVEMENT REPLACEMENT IN KIND
3. PROTECT SIGN DURING CONSTRUCTION. REMOVE AND RESTORE IF NECESSARY
4. REMOVE TREE
5. CONTRACTOR SHALL COORDINATE WITH CEI (ELECTRICAL COMPANY) FOR POLE BRACING, AS REQUIRED PRIOR TO THE START OF ANY WORK.
6. PROPOSED LATERAL TO BE INSTALLED PER REQUIREMENTS SPECIFIED UNDER SANITARY GRAVITY SERVICE LATERAL GENERAL NOTES.



FM NO. 01 AND GRAVITY SEWER NO. 02 STA: 5+00 - 10+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

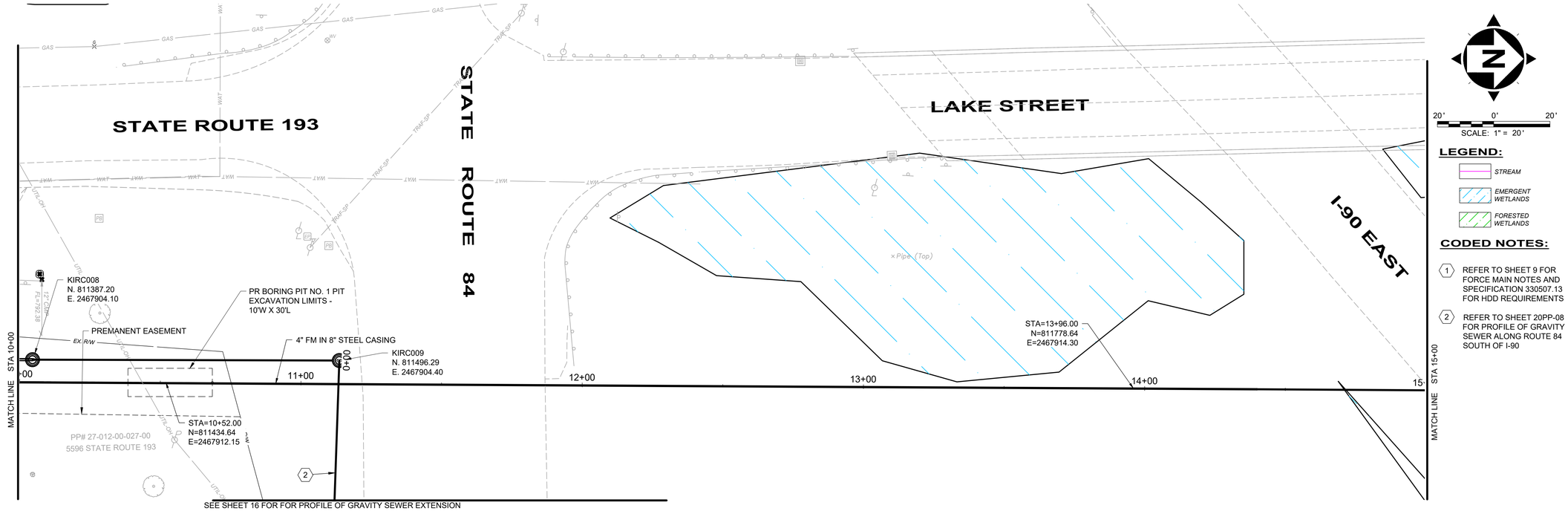
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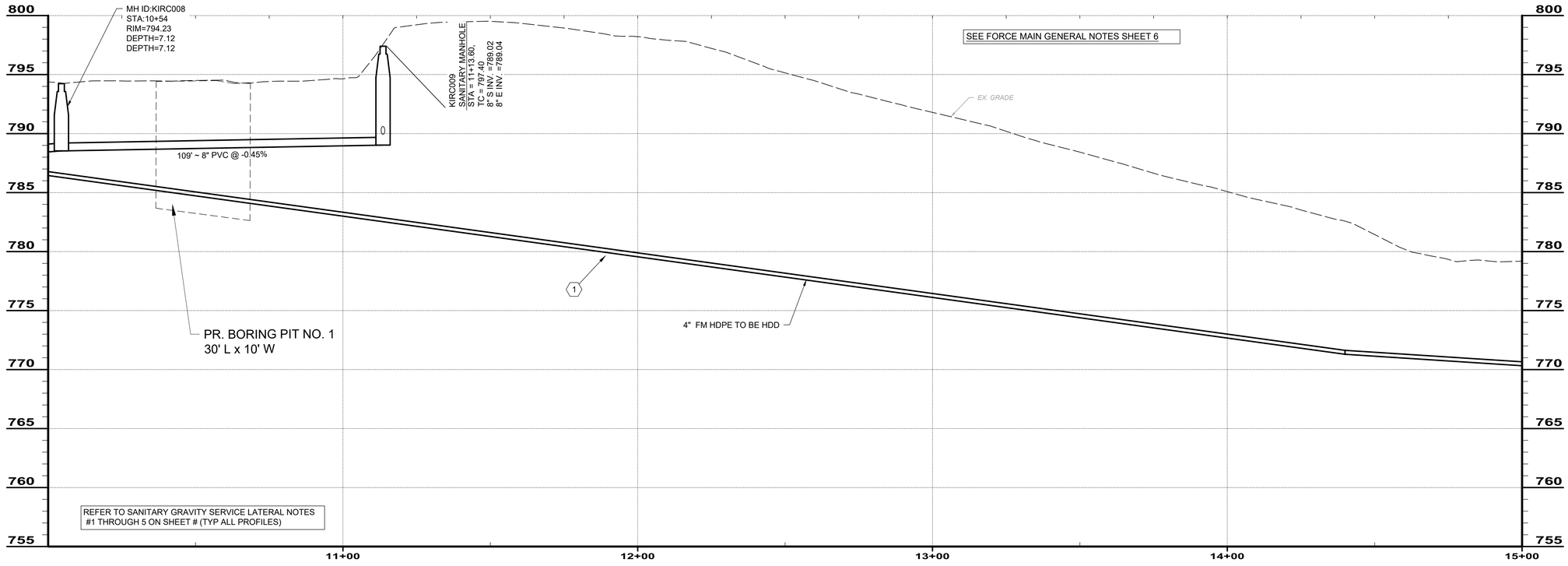
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 5+00 TO STA 10+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
20PP-02
SHEET 10 OF 49





FM NO. 01 AND GRAVITY SEWER NO. 02 STA: 10+00 - 15+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

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STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 10+00 TO STA 15+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
20PP-03
SHEET 11 OF 49

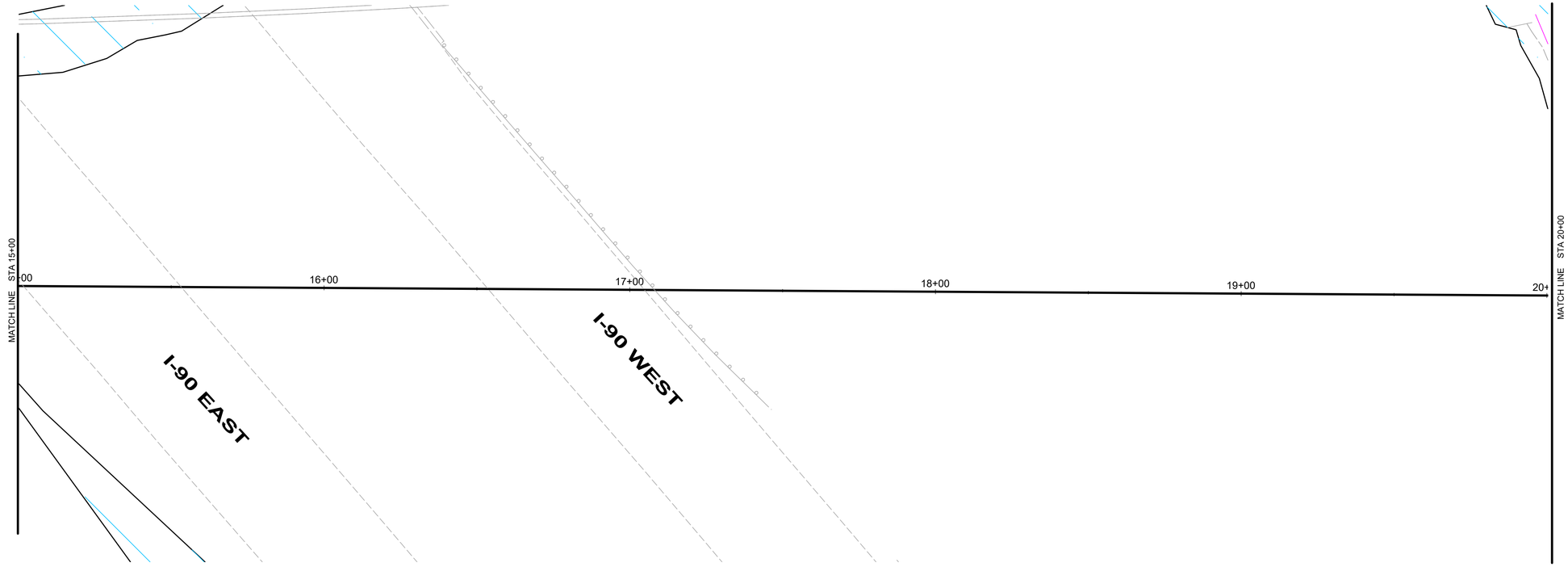
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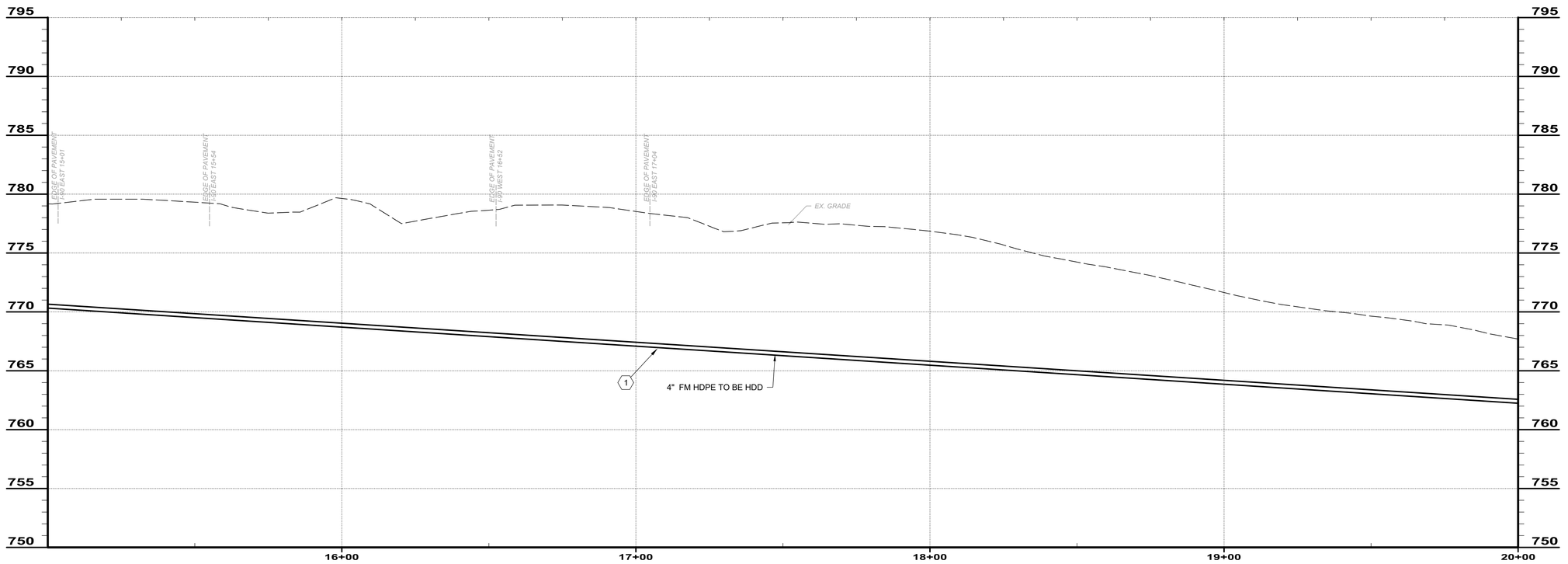
LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS

CODED NOTES:

(1) REFER TO SHEET 9 FOR FORCE MAIN NOTES AND SPECIFICATION 330507.13 FOR HDD REQUIREMENTS





FM NO. 01 AND GRAVITY SEWER NO. 02 STA 15+00 - 20+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER
STATE OF OHIO

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

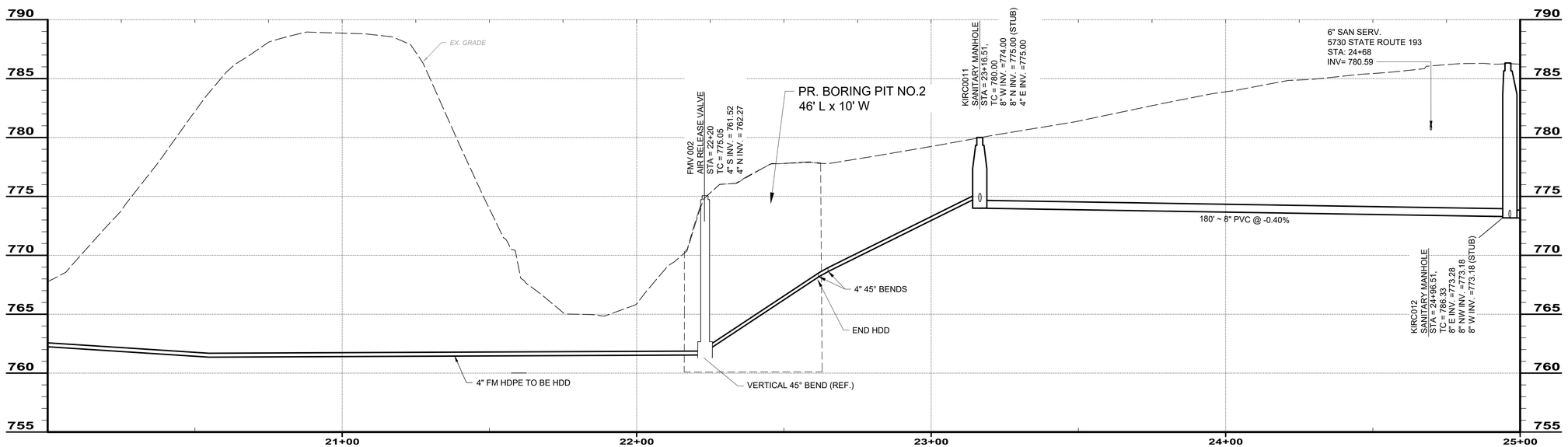
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DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 15+00 TO STA 20+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
20PP-04
SHEET 12 OF 49





FM NO.01 AND GRAVITY SEWER NO. 02 STA: 20+00 - 25+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'A' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. REFER TO SHEET 9 FOR FORCE MAIN NOTES AND SPECIFICATION 330507.13 FOR HDD REQUIREMENTS
2. PAVEMENT REPLACEMENT IN KIND
3. REMOVE AND REPLACE LANDSCAPING IN KIND
4. THE CONTRACTOR SHALL BORE BENEATH FENCE AND GATE OR REMOVE AND REPLACE IN KIND WHEN INSTALLING SEWER IN THIS LOCATION NEAR STA. 24+00. THE CONTRACTOR MAY ADJUST ALIGNMENT WITH THE APPROVAL OF THE ENGINEER TO AVOID CONFLICT WITH FENCING AND GATE WITH NO ADDITIONAL PAYMENT FOR PAVEMENT REPLACEMENT OR ASSOCIATED ADDITIONAL WORK NECESSARY TO SHIFT SEWER AND CLEAR OBSTRUCTION.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
PROFESSIONAL ENGINEER
REGISTERED

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: JBB
DRAWN BY: JBB
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 20+00 TO STA 25+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
20PP-05
SHEET 13 OF 49

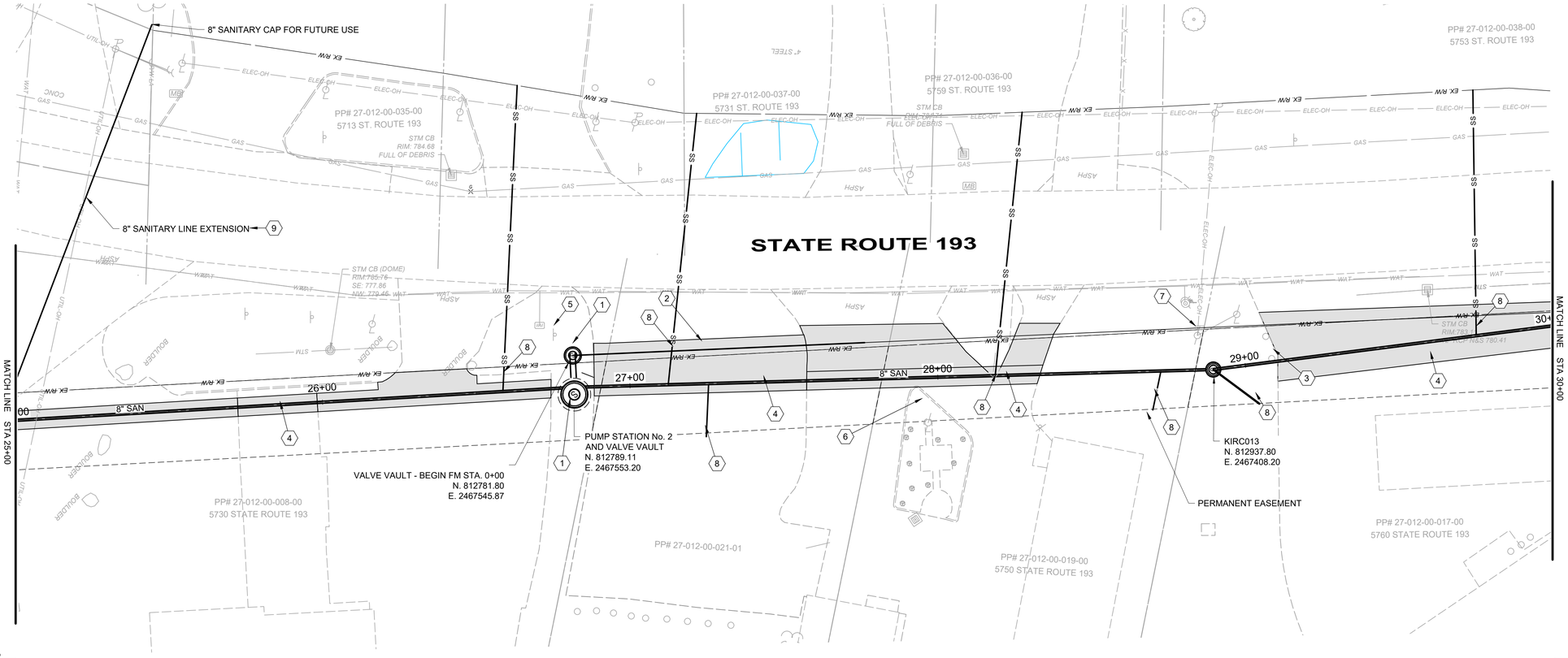
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SCALE: 1" = 20'

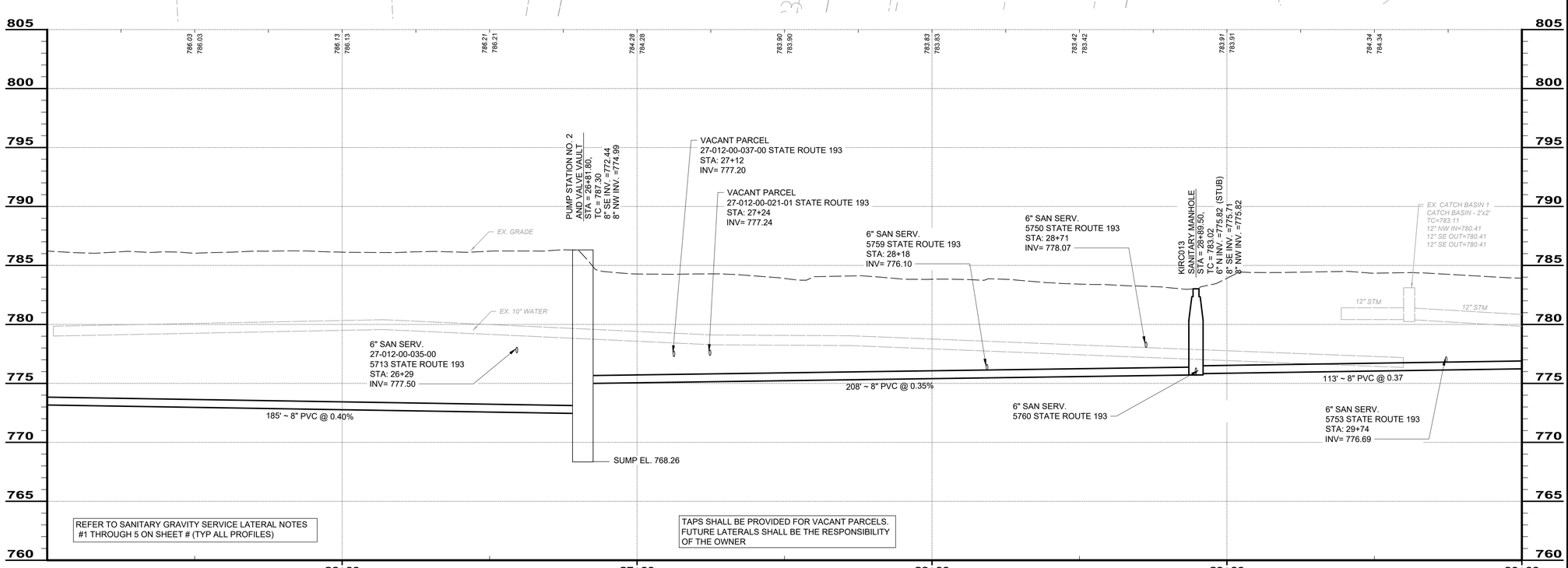
LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. SEE PUMP STATION NO. 02 SECTION ON SHEET 60D-02
2. SEE SHEET 30PP-01 FOR FORCE MAIN NO.2 PLAN AND PROFILE
3. REMOVE AND RESTORE EXISTING SIGN (REPLACE IF DAMAGED). IF STREET SIGNAGE, CONTRACTOR SHALL TEMPORARILY RELOCATE UNTIL WOK IS COMPLETED
4. PAVEMENT REPLACEMENT IN KIND
5. MAINTAIN SIGN DURING CONSTRUCTION OR REMOVE AND RESTORE AS NECESSARY
6. REMOVE AND REPLACE LANDSCAPING IN KIND
7. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING AS REQUIRED, PRIOR TO THE START OF ANY WORK
8. PROPOSED LATERAL TO BE INSTALLED PER REQUIREMENTS SPECIFIED UNDER SANITARY GRAVITY SERVICE LATERAL GENERAL NOTES
9. 8 INCH SANITARY DIRECTED TO PROPERTY 5580 STATE ROUTE 193 SHALL BE INSTALLED BY JACK AND BORE (STEEL ENCASEMENT) AS TO NOT DISTURB ROADWAY PAVEMENT. THE END SHALL BE CAPPED WIT HA REMOVABLE AND WATERTIGHT PLUG AND A STACK SHALL BE PLACED OVER THE CAP LOCATION ONCE THE CONNECTION IS BACKFILLED.





REFER TO SANITARY GRAVITY SERVICE LATERAL NOTES #1 THROUGH 5 ON SHEET # (TYP ALL PROFILES)

TAPS SHALL BE PROVIDED FOR VACANT PARCELS. FUTURE LATERALS SHALL BE THE RESPONSIBILITY OF THE OWNER

FM NO. 01 AND GRAVITY SEWER NO. 02 STA: 25+00 - 30+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: JBB
DRAWN BY: JBB
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
FM STA 25+00 TO 30+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
20PP-06
SHEET 14 OF 49

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20' 0' 20'

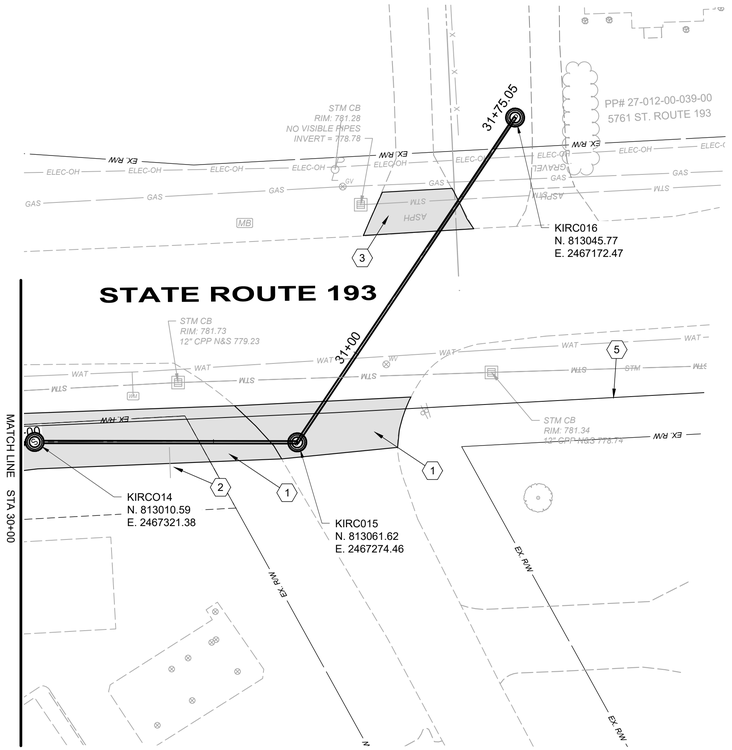
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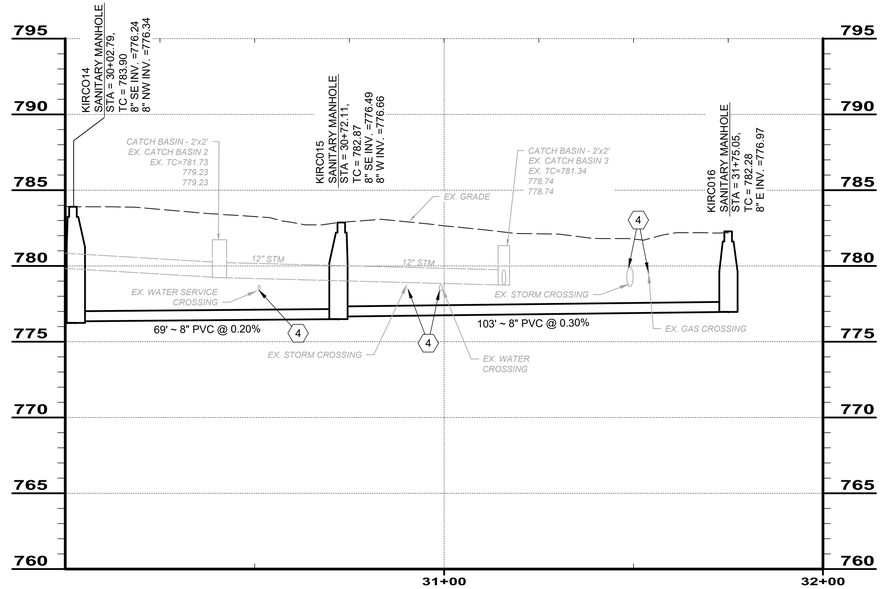
LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. PAVEMENT REPLACEMENT IN KIND
2. MAINTAIN SIGN DURING CONSTRUCTION OR REMOVE AND RESTORE AS NECESSARY
3. EXISTING DRIVEWAY APRON TO BE REPLACED IN KIND
4. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18" OF VERTICAL CLEARANCE FROM UTILITY CROSSINGS
5. REFER TO SHEET 30PP-01 FOR THE CONTINUATION OF 6" FORCEMAIN ELEVATIONS AND DETAILS
6. 8 INCH SANITARY DIRECTED TO PROPERTY 5761 STATE ROUTE 193 SHALL BE INSTALLED BY JACK AND BORE (STEEL ENCASEMENT) AS TO NOT DISTURB ANY ROADWAY PAVEMENT ON STATE ROUTE 193.





FM NO. 01 AND GRAVITY SEWER NO. 02 STA: 30+00 - END

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY

KINGSVILLE REGIONAL SEWER IMPROVEMENTS

ASHTABULA COUNTY KINGSVILLE, OHIO

4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES

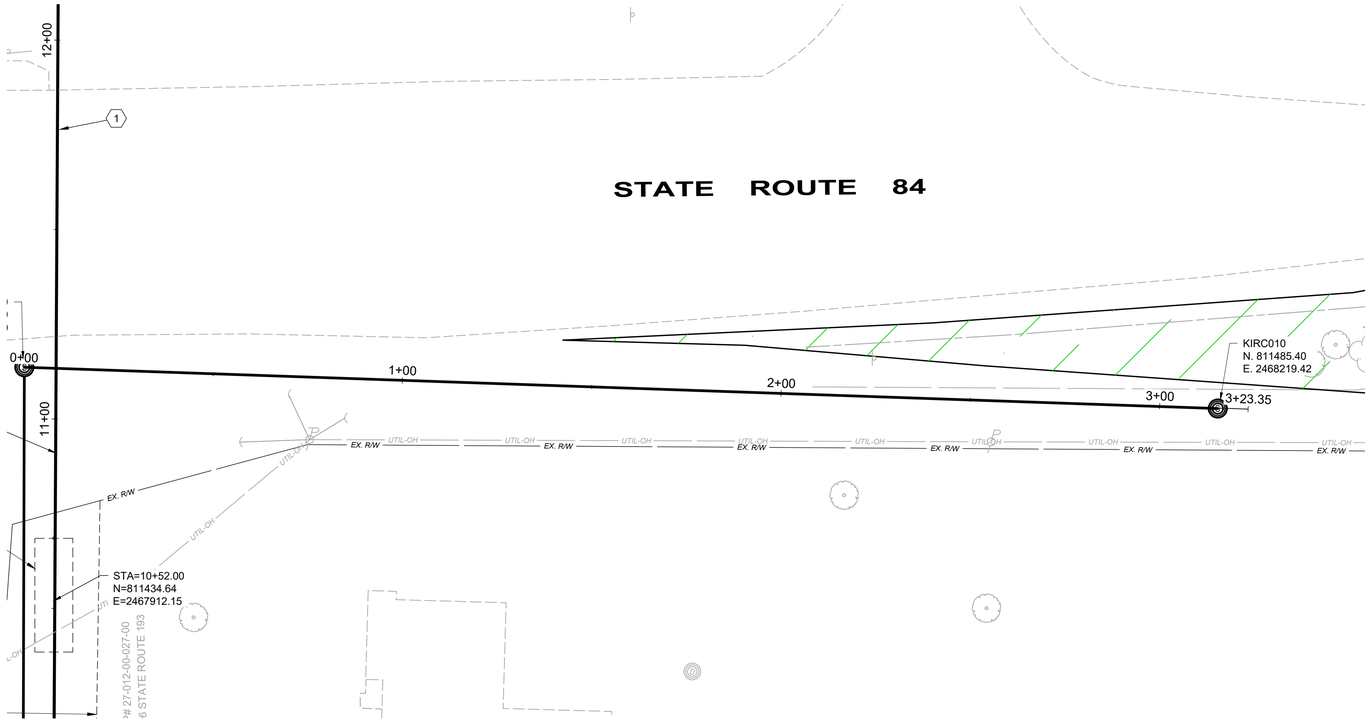
FM STA 30+00 TO END

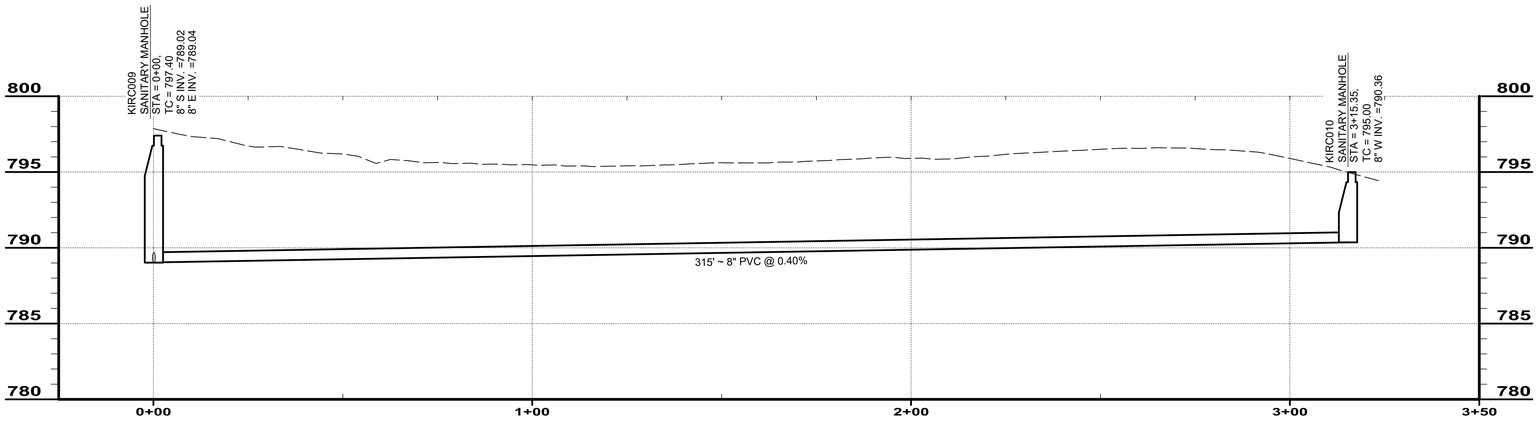
PROJECT NO.	232478
DISCIPLINE	CIVIL
SHEET NAME	20PP-07
SHEET	15
OF	49



CODED NOTES:

1. REFER TO SHEET20PP-04 FOR THE CONTINUATION OF SANITARY FORCE MAIN





GRAVITY SEWER NO.02 EXTENSION STA: 0+00 - END

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
4 INCH FM AND GRAVITY SEWER PLAN & PROFILE - 20 SERIES
GRAVITY SEWER NO. 02 EXTENSION STA 0+00 TO END

PROJECT NO.	232478
DISCIPLINE	CIVIL
SHEET NAME	20PP-08
SHEET	16
OF	49

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS
- TYPE 'C' PAVEMENT REPLACEMENT

CODED NOTES:

1. SEE PUMP STATION NO. 02 SECTION ON SHEET 60D-02
2. SEE GRAVITY SEWER NO. 02 CONTINUATION ON SHEET 20PP-06
3. REMOVE AND RESTORE EXISTING SIGN (REPLACE IF DAMAGED). IF STREET SIGNAGE, CONTRACTOR SHALL TEMPORARILY RELOCATE UNTIL WOK IS COMPLETED
4. PAVEMENT REPLACEMENT IN KIND
5. PROTECT SIGN DURING CONSTRUCTION. REMOVE AND RESTORE IF NECESSARY
6. REMOVE AND REPLACE LANDSCAPING IN KIND
7. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

CONTRACTOR SHALL MAINTAIN EXISTING UTILITY POLES IN PLACE DURING CONSTRUCTION. INSTALLATION SHALL BE PERFORMED TO AVOID CONFLICTS WITH EXISTING POLES. WITH WRITTEN APPROVAL FROM THE ENGINEER, THE PROPOSED FORCE MAIN ALIGNMENT MAY BE HORIZONTALLY DEFLECTED AS NECESSARY TO MAINTAIN PROPER CLEARANCE FROM UTILITY POLES OR OTHER OBSTRUCTIONS SHOWN ON THE PLANS OR ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL MODIFY INSTALLATION METHODS AS NECESSARY TO MAINTAIN REQUIRED SEPARATION FROM EXISTING POLES. ANY DAMAGE TO EXISTING POLES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER

LAKE STREET (SR-84 & SR-193)

VALVE VAULT - BEGIN FM STA. 0+00
N. 812781.80
E. 2467545.87

PUMP STATION No. 2
AND VALVE VAULT
N. 812789.11
E. 2467553.20

STM CB
RIM: 781.28
NO VISIBLE PIPES
INVERT = 778.78

STM CB
RIM: 781.73
12" CPP N&S 779.23

STM CB
RIM:783.11
12" RCP N&S 780.41

STM CB
RIM: 781.34
12" CPP N&S 778.74

0+00 1+00 2+00 3+00 4+00 5+00

MATCH LINE STA 5+00 SEE SHEET 18

CEMETERY ROAD

PUMP STATION NO.2
AND VALVE VAULT
STA=0+00.00
TC=784.79
8" NW INV. =774.99
6" NW INV. =781.33

PUMP STATION NO.2
AND VALVE VAULT
STA = 0+00
TC = 787.79
8" SE INV. = 772.44
8" NW INV. = 774.99

EX. GRADE

4' MIN. COVER

6" SAN FM

SUMP EL. 768.26

EX. CATCH BASIN 1
CATCH BASIN - 2'x2'
STA=2+???
TC=783.11
12" NW IN=780.41
12" SE OUT=780.41

EX. CATCH BASIN 2
CATCH BASIN - 2'x2'
STA=3+???
TC=781.73
12" NW IN =779.23
12" SE OUT =779.23

EX. CATCH BASIN 3
CATCH BASIN - 2'x2'
STA = ???
TC=781.34
12" NW IN =778.74
12" NW IN =778.74

12" STM

EX. WATER SERVICE CROSSING

6" HDPE SAN FM TO BE HDD

BEGIN HDD SECTIONS

795 790 785 780 775 770 765 760 755

0+00 1+00 2+00 3+00 4+00 5+00

6 - INCH FORCE MAIN 0+00 - 5+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

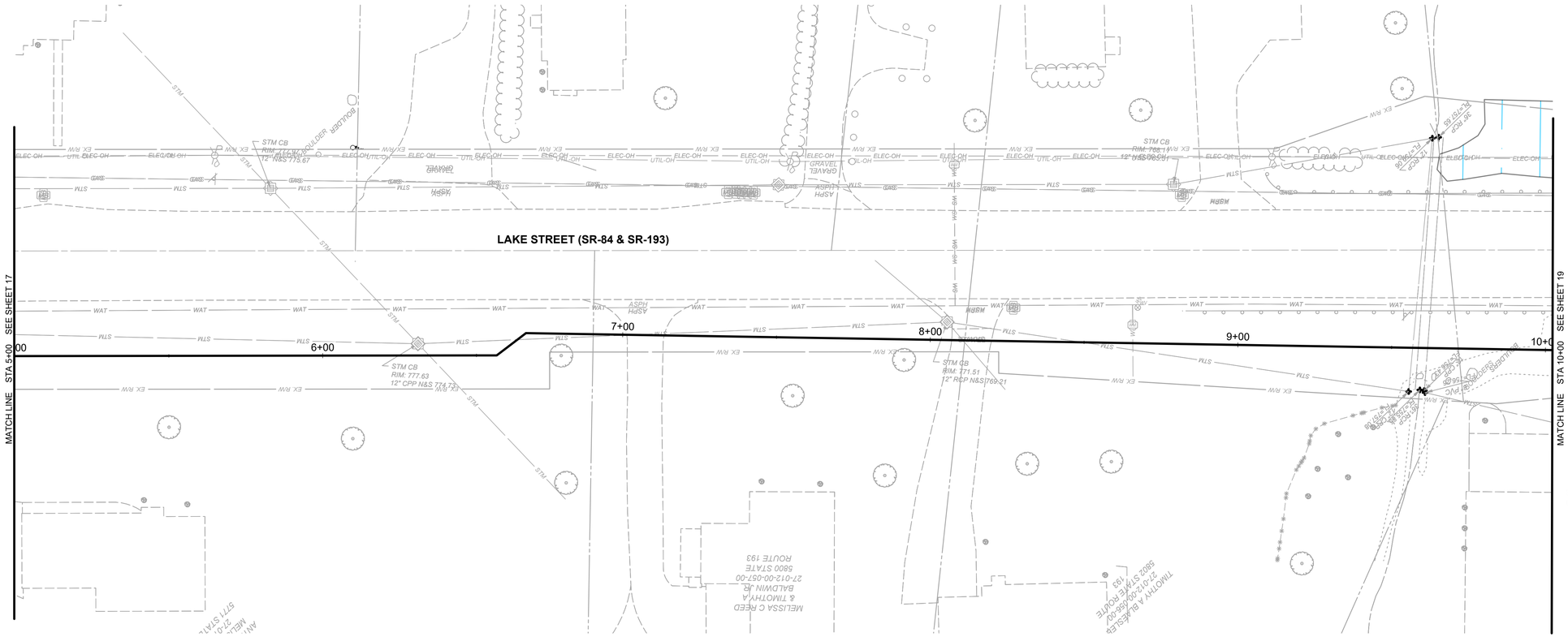
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ISSUE DATE: 9/30/26
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DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 0+00 TO STA 5+00

PROJECT NO. 232478
DISCIPLINE CIVIL
SHEET NAME 30PP-01
SHEET 17 OF 49

H:\2023\232478\DWG\SHEETS\FORCE MAIN\C_232478 FORCE MAIN.DWG - 15 FM STA 0+00 TO STA 5+00 AND GRAVITY TO PS NO. 2 - 9/30/2026 3:35:34 PM - CORY SCOTT



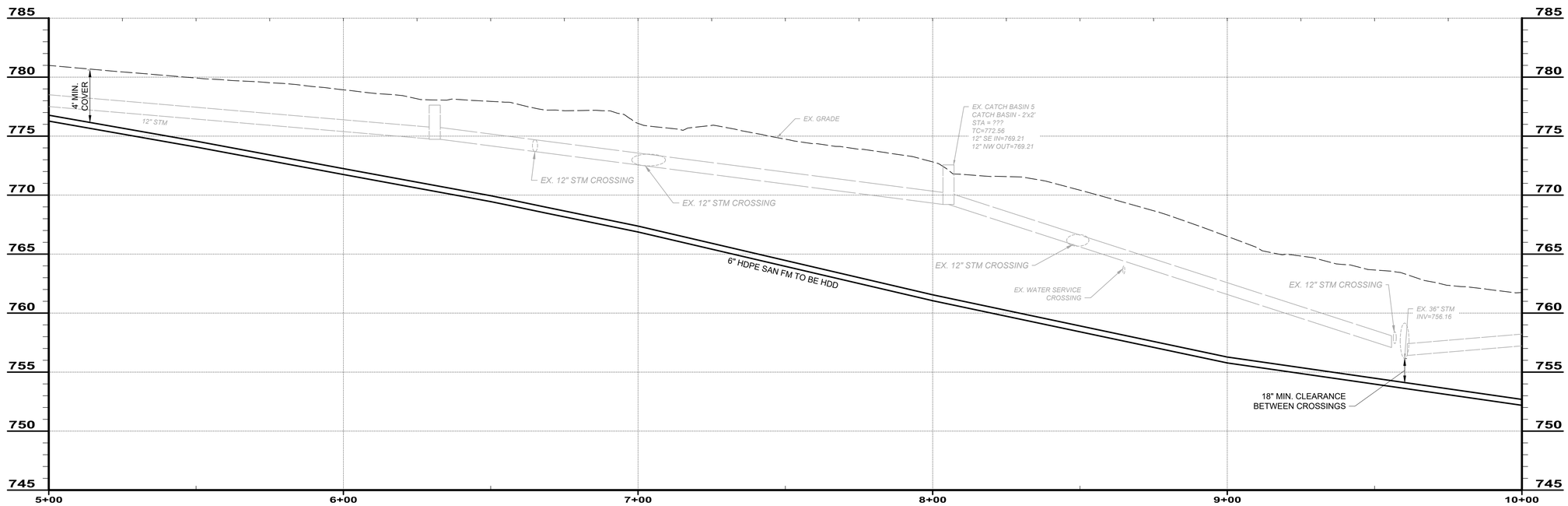
SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

20' 0' 20'

SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*



6 - INCH FORCE MAIN 5+00 - 10+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER
STATE OF OHIO

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

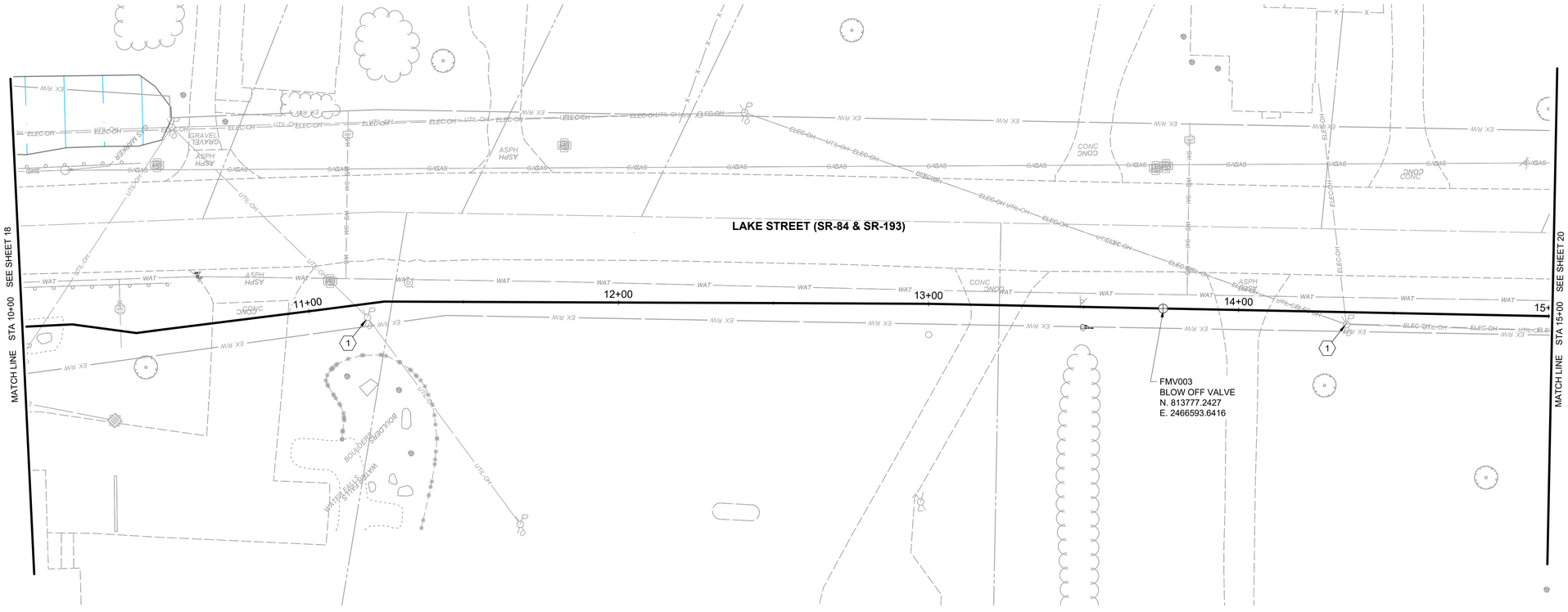
NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 5+00 TO STA 10+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-02
SHEET 18 OF 49

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20' 0' 20'
SCALE: 1" = 20'

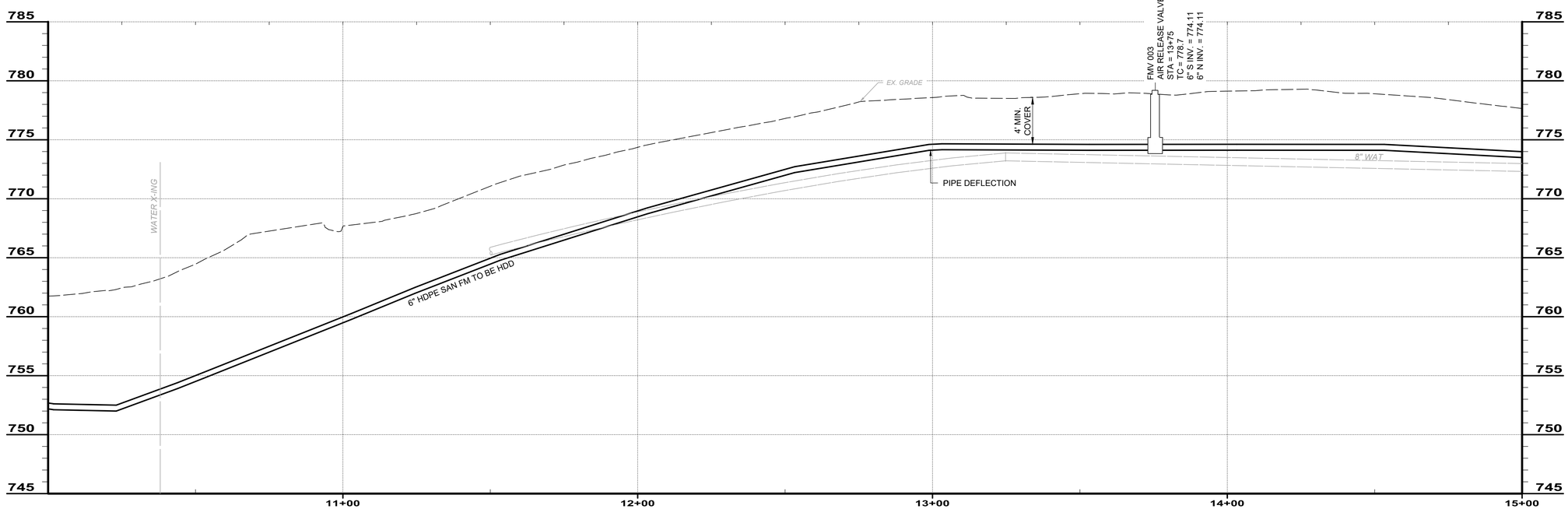
LEGEND:

- TYPE 'A' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE RELOCATIONS BRACING AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES



6 - INCH FORCE MAIN 10+00 - 15+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
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verdantas
8150 STERLING COURT
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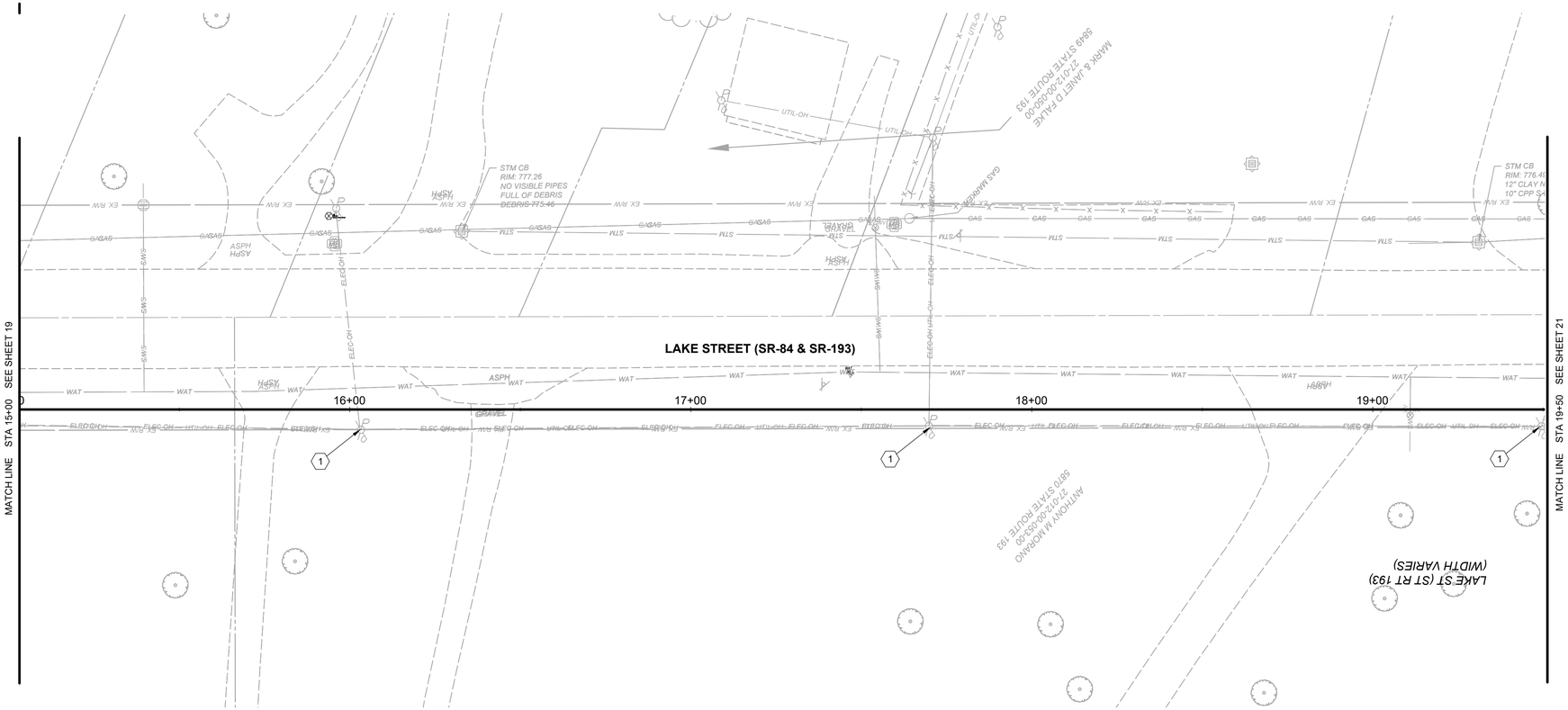
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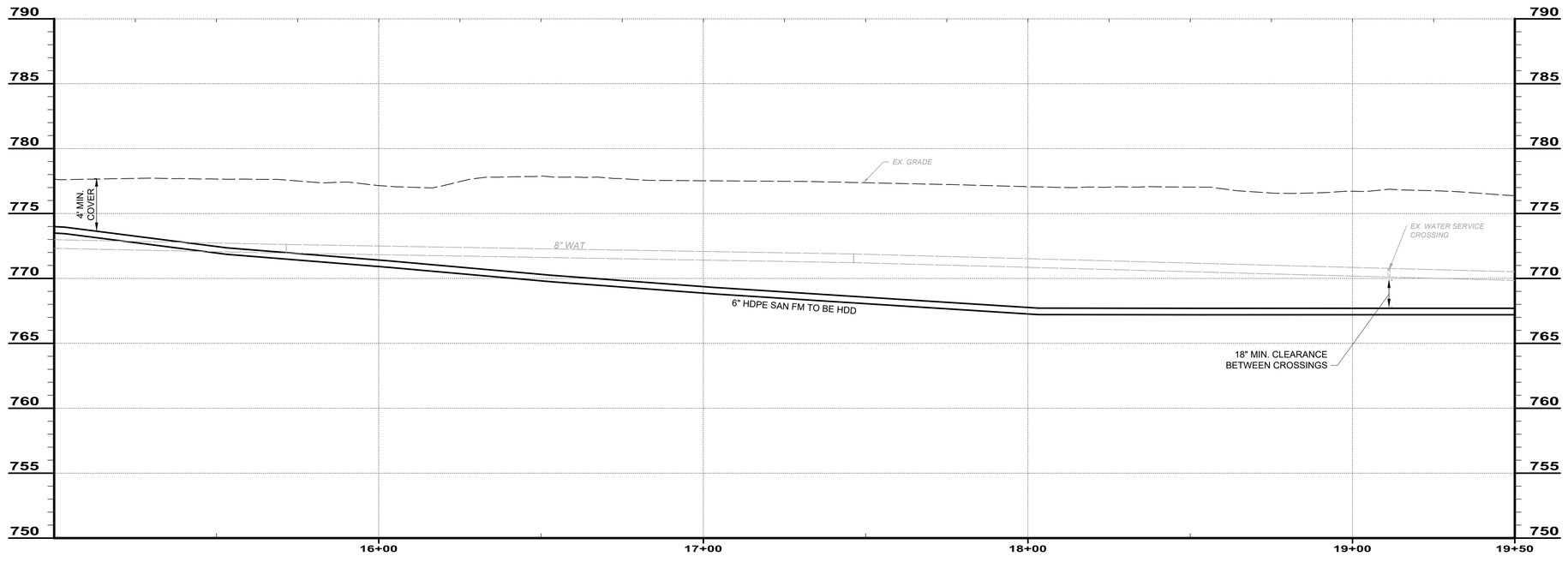
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 10+00 TO STA 15+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-03
SHEET 19 OF 49





6 - INCH FORCE MAIN 15+00 - 20+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

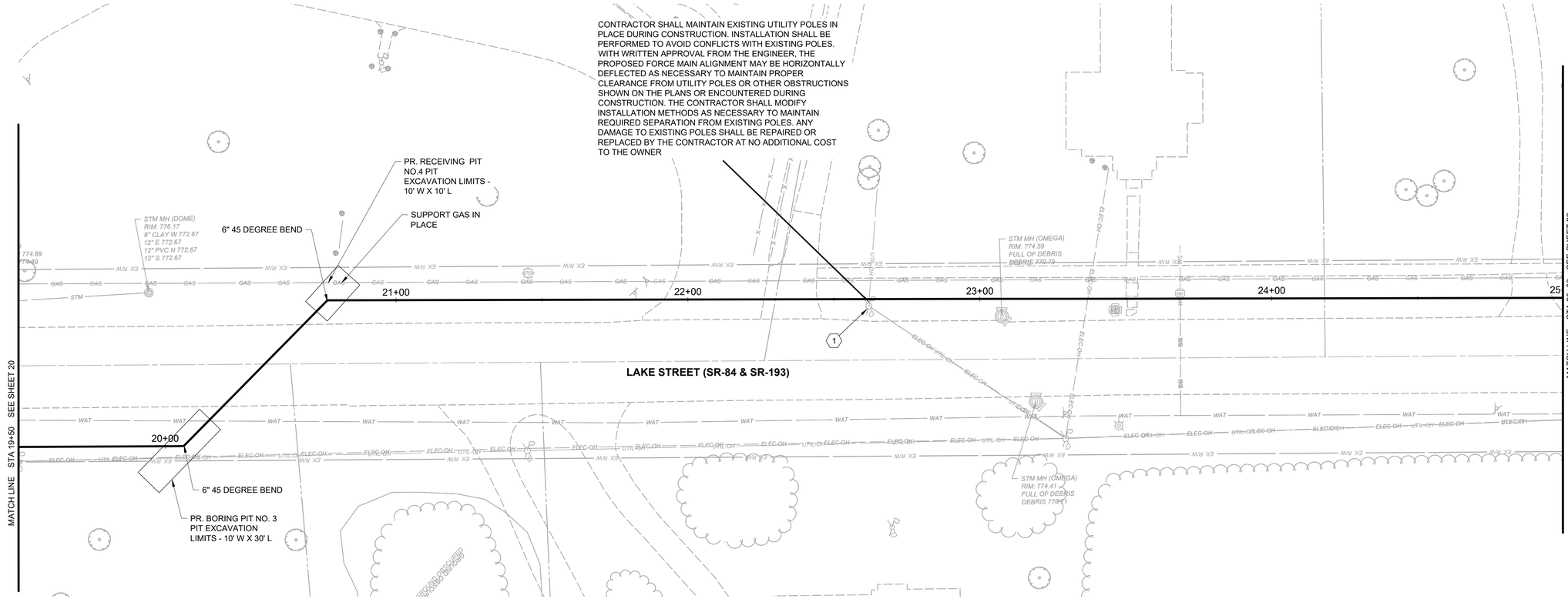
ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 15+00 TO STA 19+50

PROJECT NO. 232478
DISCIPLINE CIVIL
SHEET NAME 30PP-04
SHEET 20 OF 49

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CONTRACTOR SHALL MAINTAIN EXISTING UTILITY POLES IN PLACE DURING CONSTRUCTION. INSTALLATION SHALL BE PERFORMED TO AVOID CONFLICTS WITH EXISTING POLES. WITH WRITTEN APPROVAL FROM THE ENGINEER, THE PROPOSED FORCE MAIN ALIGNMENT MAY BE HORIZONTALLY DEFLECTED AS NECESSARY TO MAINTAIN PROPER CLEARANCE FROM UTILITY POLES OR OTHER OBSTRUCTIONS SHOWN ON THE PLANS OR ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL MODIFY INSTALLATION METHODS AS NECESSARY TO MAINTAIN REQUIRED SEPARATION FROM EXISTING POLES. ANY DAMAGE TO EXISTING POLES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER



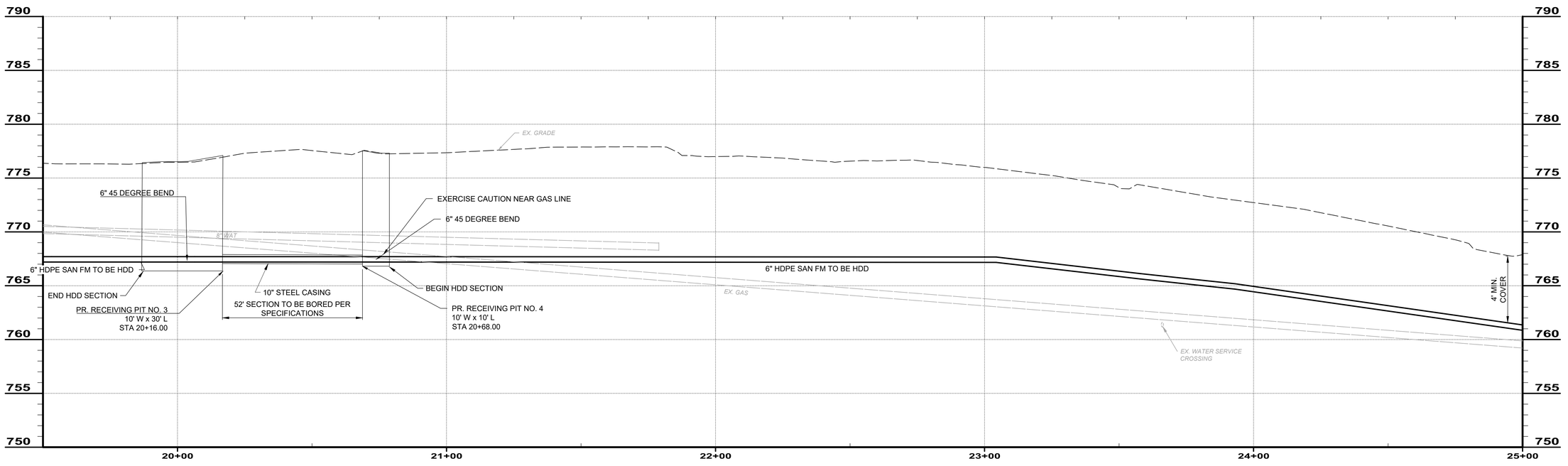
LEGEND:

- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES



6 - INCH FORCE MAIN 20+00 - 25+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
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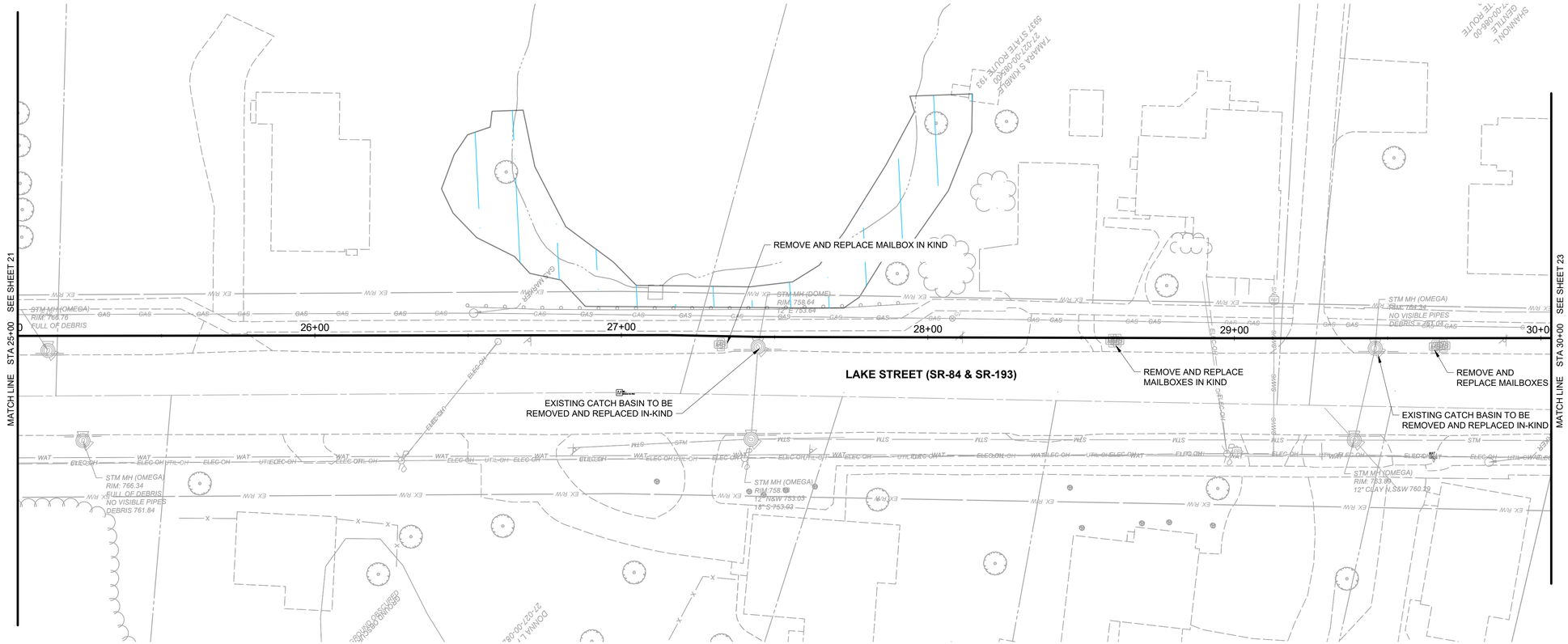
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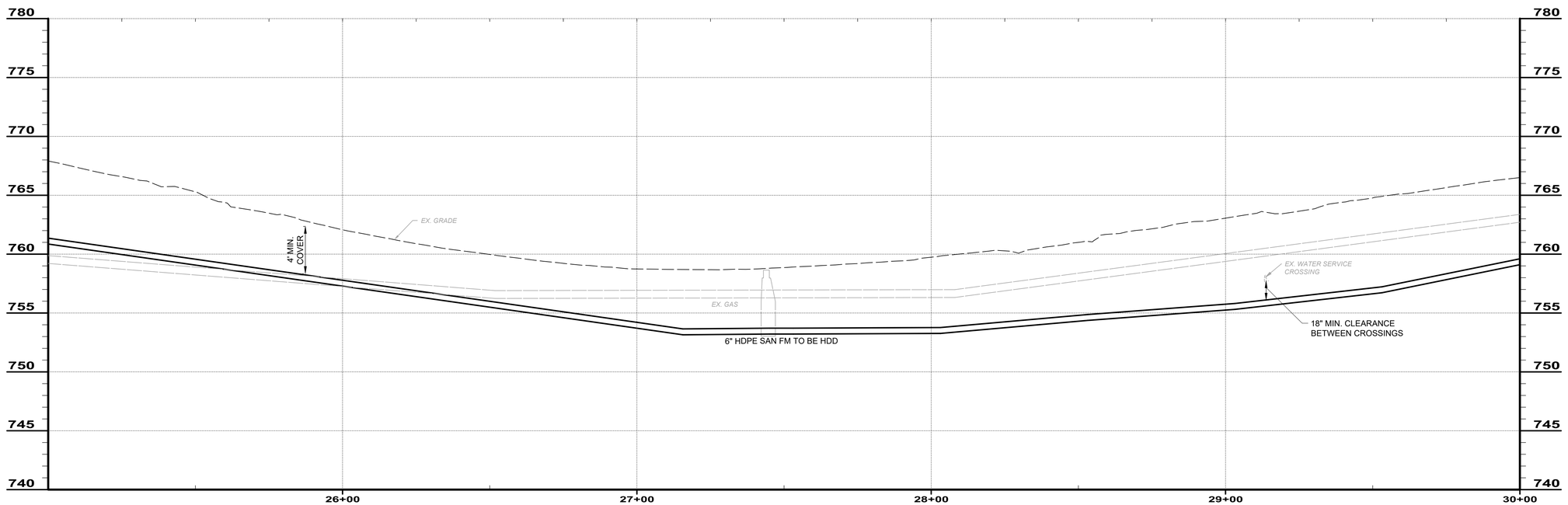
ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
KINGSVILLE, OHIO
ASHTABULA COUNTY
6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 19+50 TO STA 25+00

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 30PP-05
SHEET 21 OF 49

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6 - INCH FORCE MAIN 25+00 - 30+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

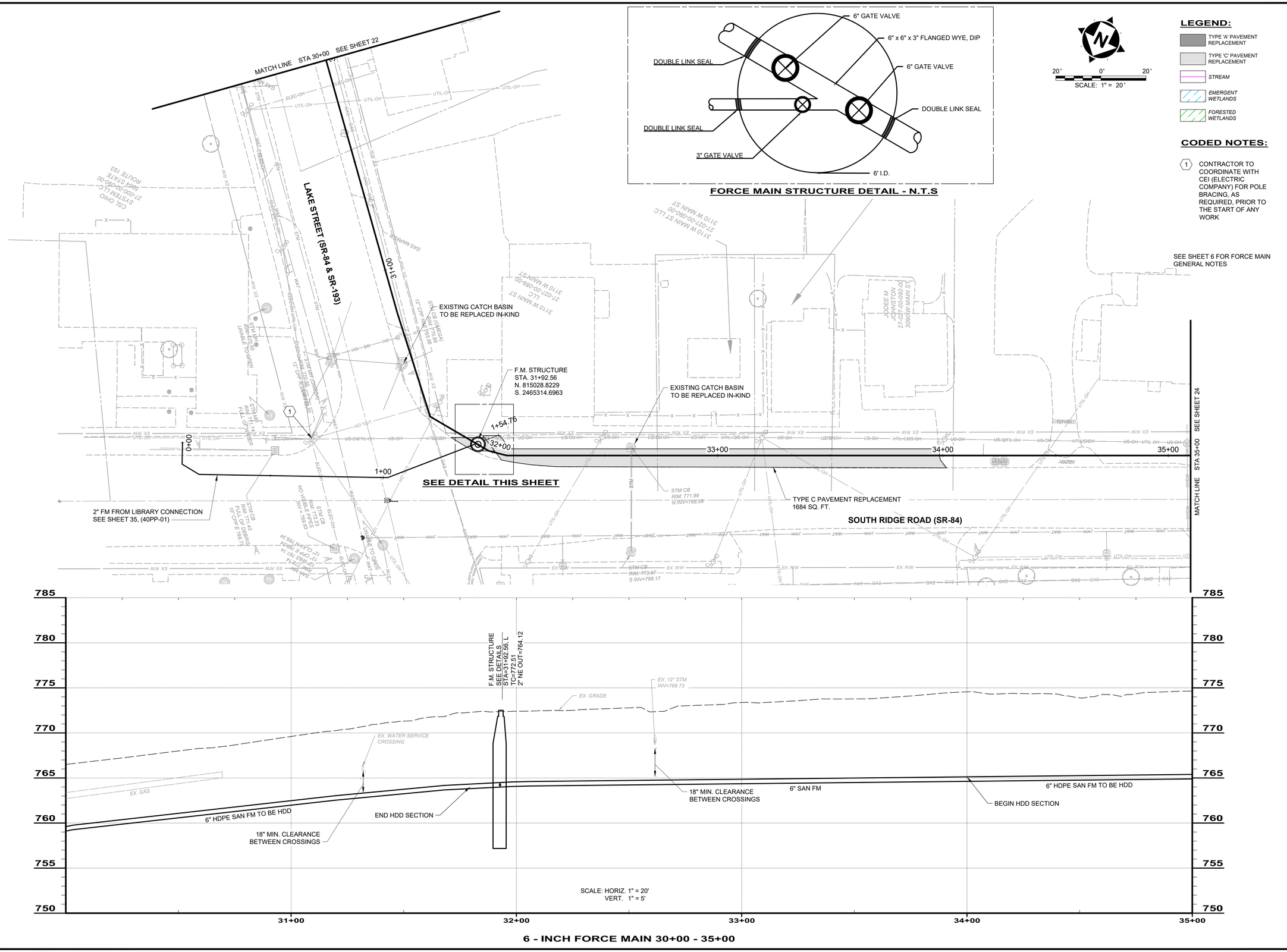
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 25+00 TO STA 30+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-06
SHEET 22 OF 49

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STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 30+00 TO STA 35+00

PROJECT NO.	
232478	
DISCIPLINE	
CIVIL	
SHEET NAME	
30PP-07	
SHEET	OF
23	49

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

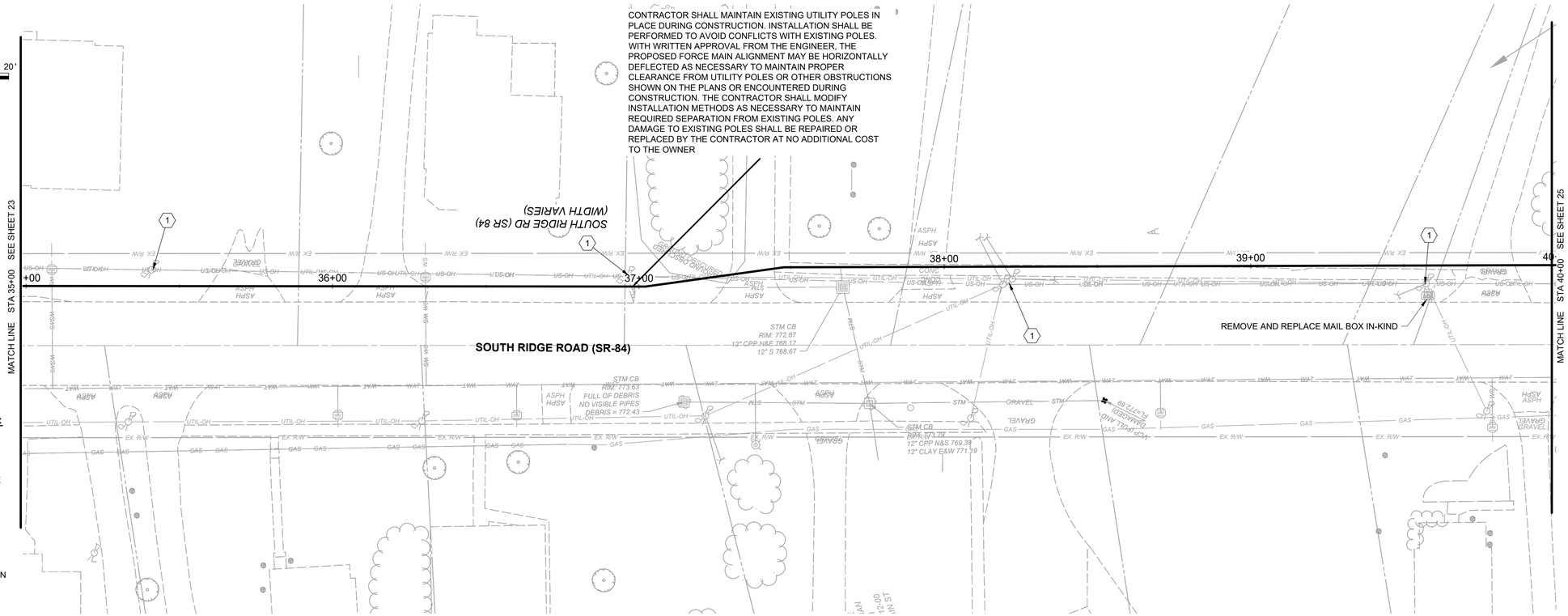
- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'A' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

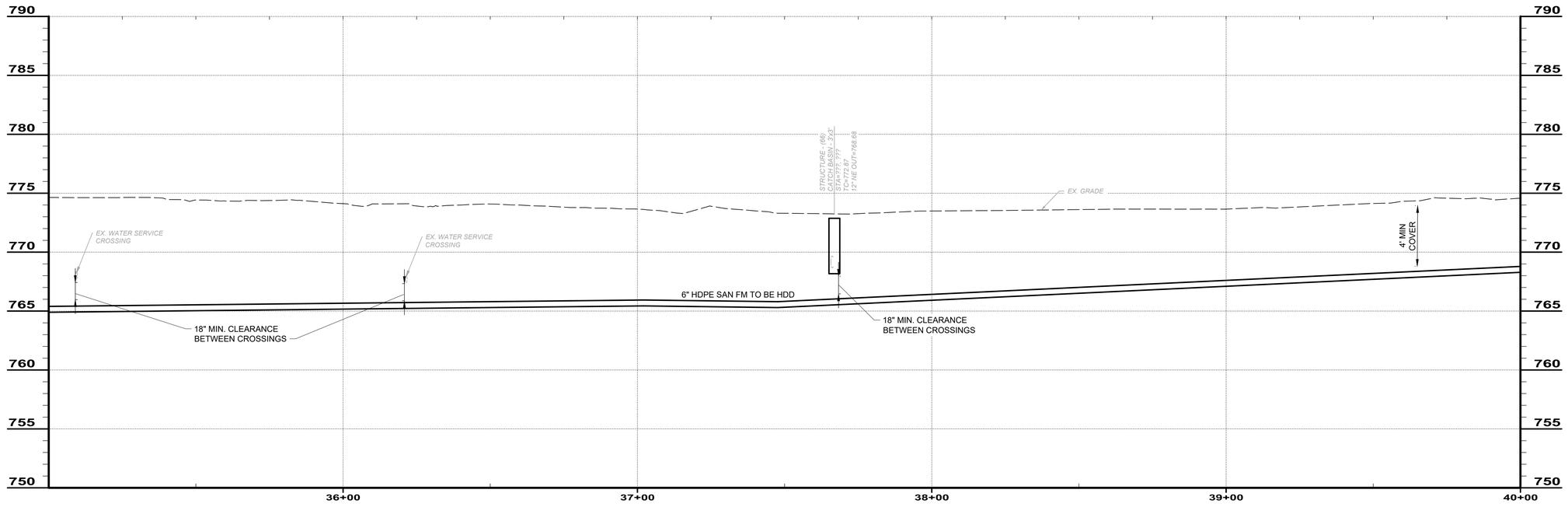
CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

CONTRACTOR SHALL MAINTAIN EXISTING UTILITY POLES IN PLACE DURING CONSTRUCTION. INSTALLATION SHALL BE PERFORMED TO AVOID CONFLICTS WITH EXISTING POLES. WITH WRITTEN APPROVAL FROM THE ENGINEER, THE PROPOSED FORCE MAIN ALIGNMENT MAY BE HORIZONTALLY DEFLECTED AS NECESSARY TO MAINTAIN PROPER CLEARANCE FROM UTILITY POLES OR OTHER OBSTRUCTIONS SHOWN ON THE PLANS OR ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL MODIFY INSTALLATION METHODS AS NECESSARY TO MAINTAIN REQUIRED SEPARATION FROM EXISTING POLES. ANY DAMAGE TO EXISTING POLES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER





6 - INCH FORCE MAIN 35+00 - 40+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
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CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 35+00 TO STA 40+00

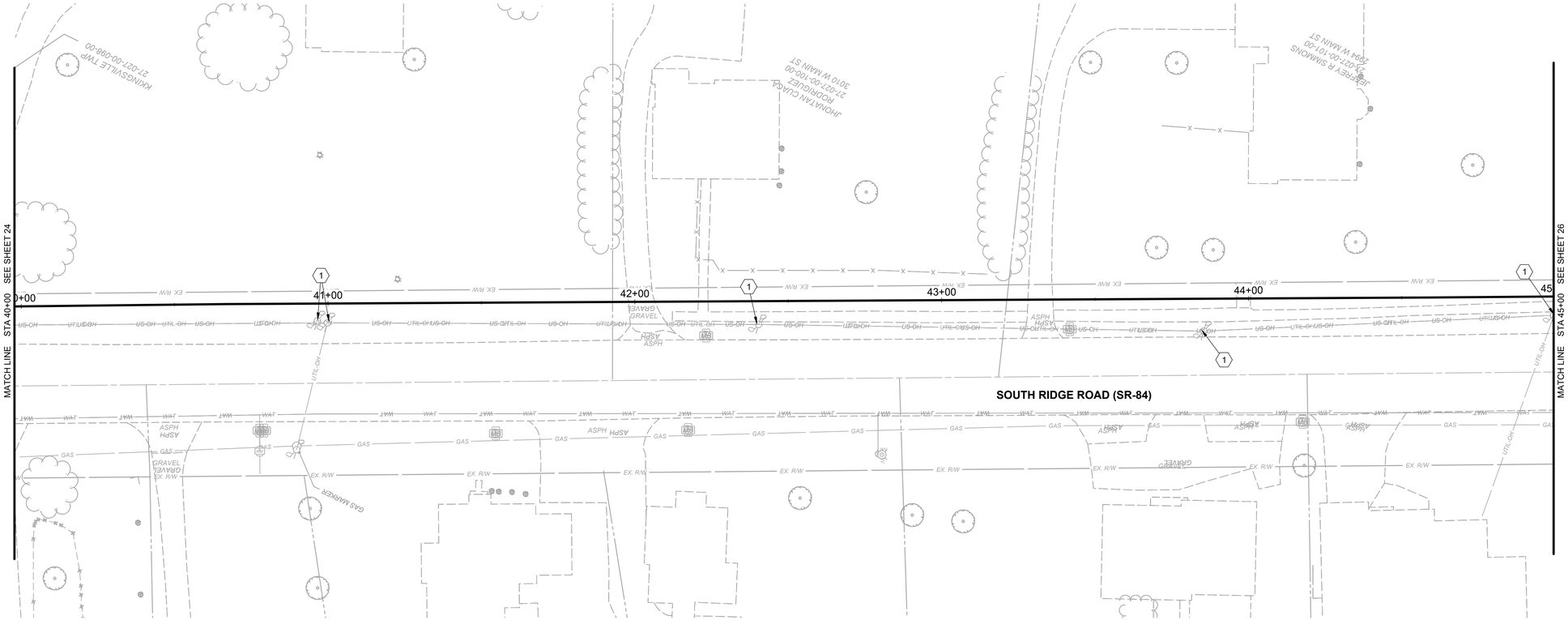
PROJECT NO.
232478

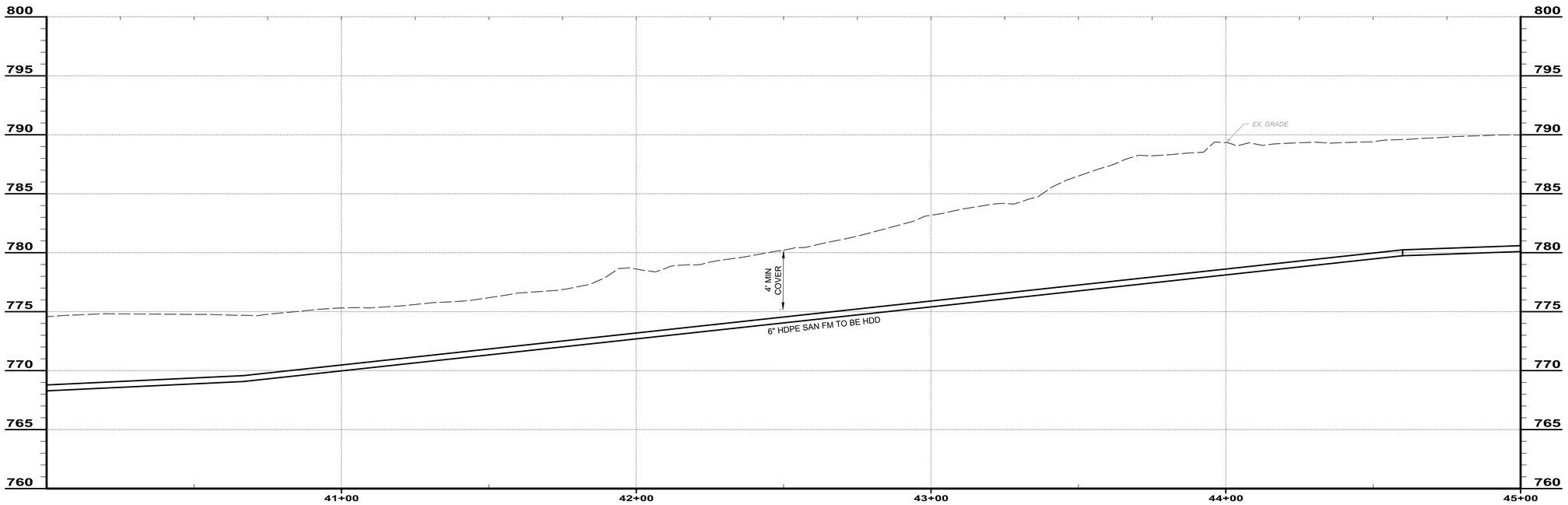
DISCIPLINE
CIVIL

SHEET NAME
30PP-08

SHEET 24 OF 49

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6 - INCH FORCE MAIN 40+00 - 45+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 40+00 TO STA 45+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-09
SHEET 25 OF 49

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20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'A' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

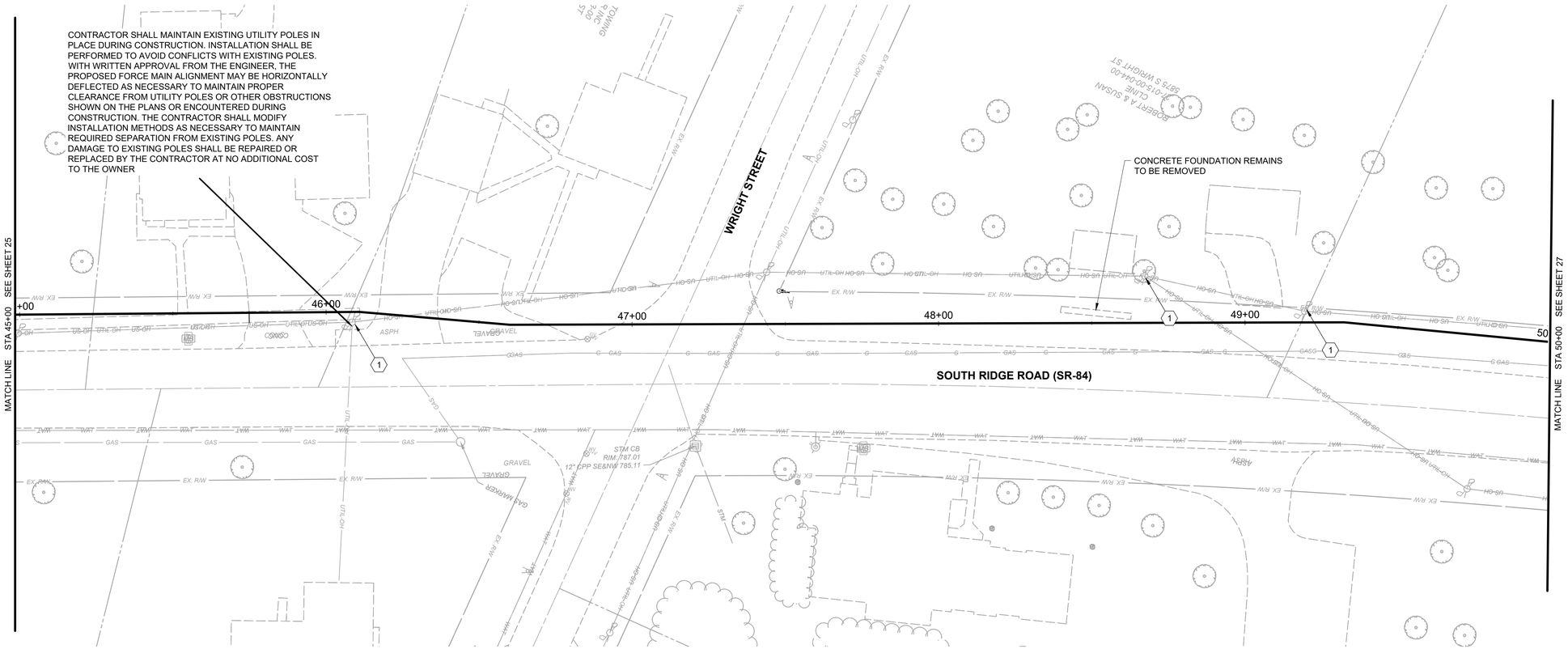
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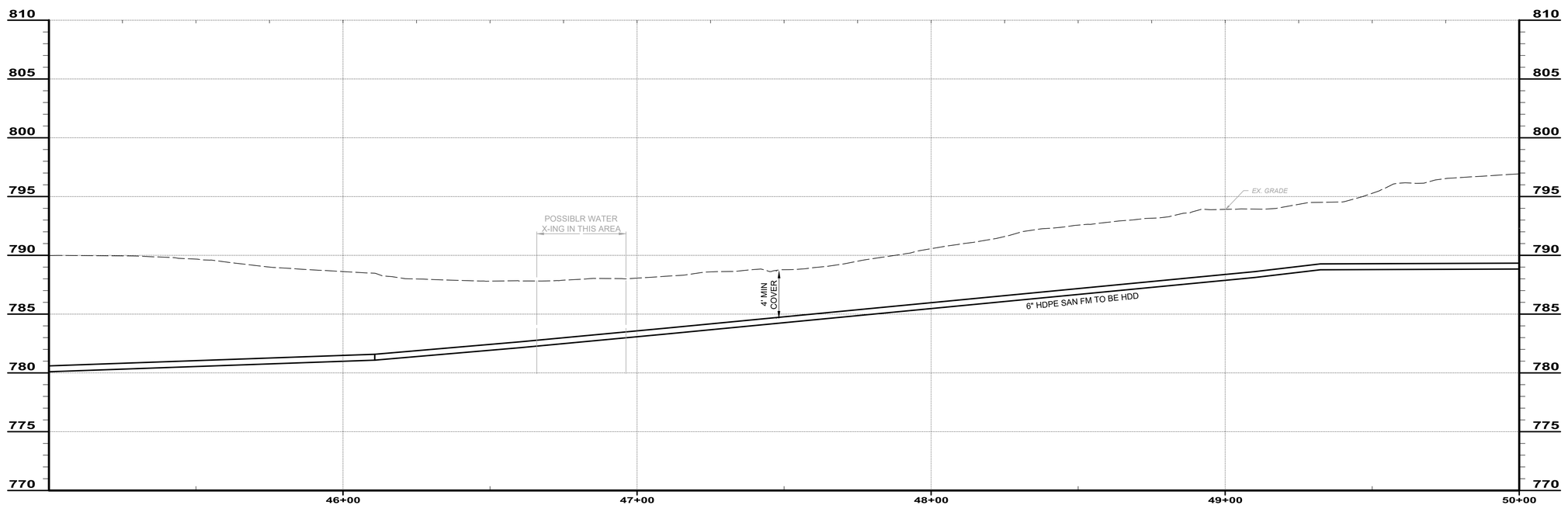
1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

CONTRACTOR SHALL MAINTAIN EXISTING UTILITY POLES IN PLACE DURING CONSTRUCTION. INSTALLATION SHALL BE PERFORMED TO AVOID CONFLICTS WITH EXISTING POLES. WITH WRITTEN APPROVAL FROM THE ENGINEER, THE PROPOSED FORCE MAIN ALIGNMENT MAY BE HORIZONTALLY DEFLECTED AS NECESSARY TO MAINTAIN PROPER CLEARANCE FROM UTILITY POLES OR OTHER OBSTRUCTIONS SHOWN ON THE PLANS OR ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL MODIFY INSTALLATION METHODS AS NECESSARY TO MAINTAIN REQUIRED SEPARATION FROM EXISTING POLES. ANY DAMAGE TO EXISTING POLES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER

CONCRETE FOUNDATION REMAINS TO BE REMOVED





6 - INCH FORCE MAIN 45+00 - 50+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

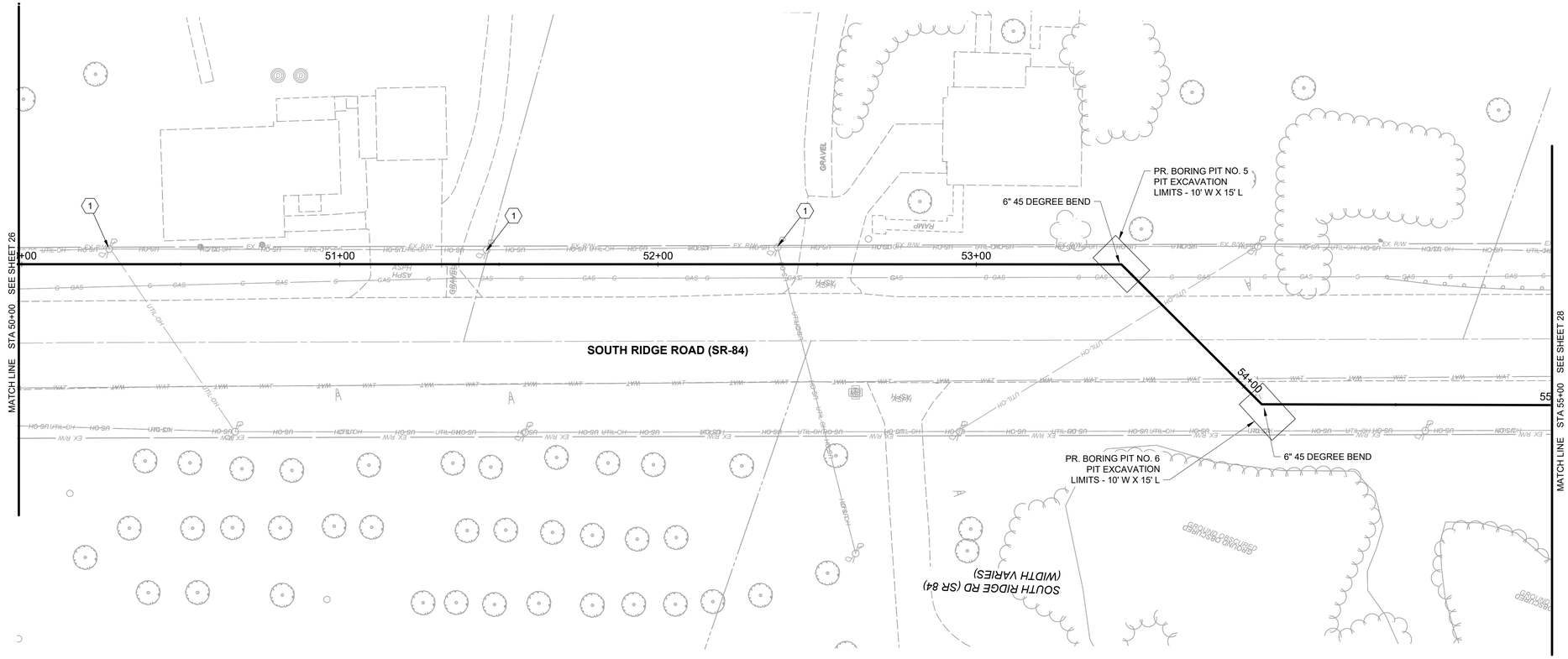
NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
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DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 45+00 TO STA 50+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-10
SHEET 26 OF 49



20' 0' 20'

SCALE: 1" = 20'

LEGEND:

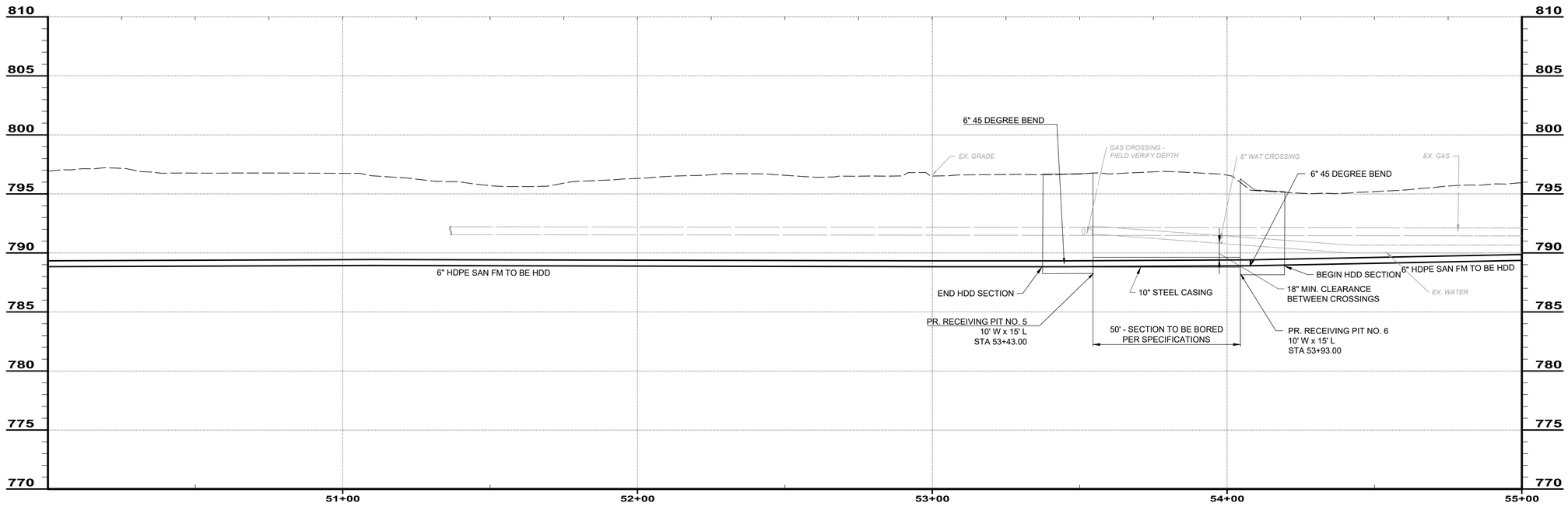
- TYPE 'F' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

NOTE:
FOR ANY WORK REQUIRING USAGE OF PRIVATE PROPERTY, THE CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNER. ALSO, ANY DISTURBANCE, WHETHER DIRECT OR INCIDENTAL, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RESTORE TO IN-KIND OR BETTER.



6 - INCH FORCE MAIN 50+00 - 55+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
PROFESSIONAL ENGINEER
REGISTERED

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

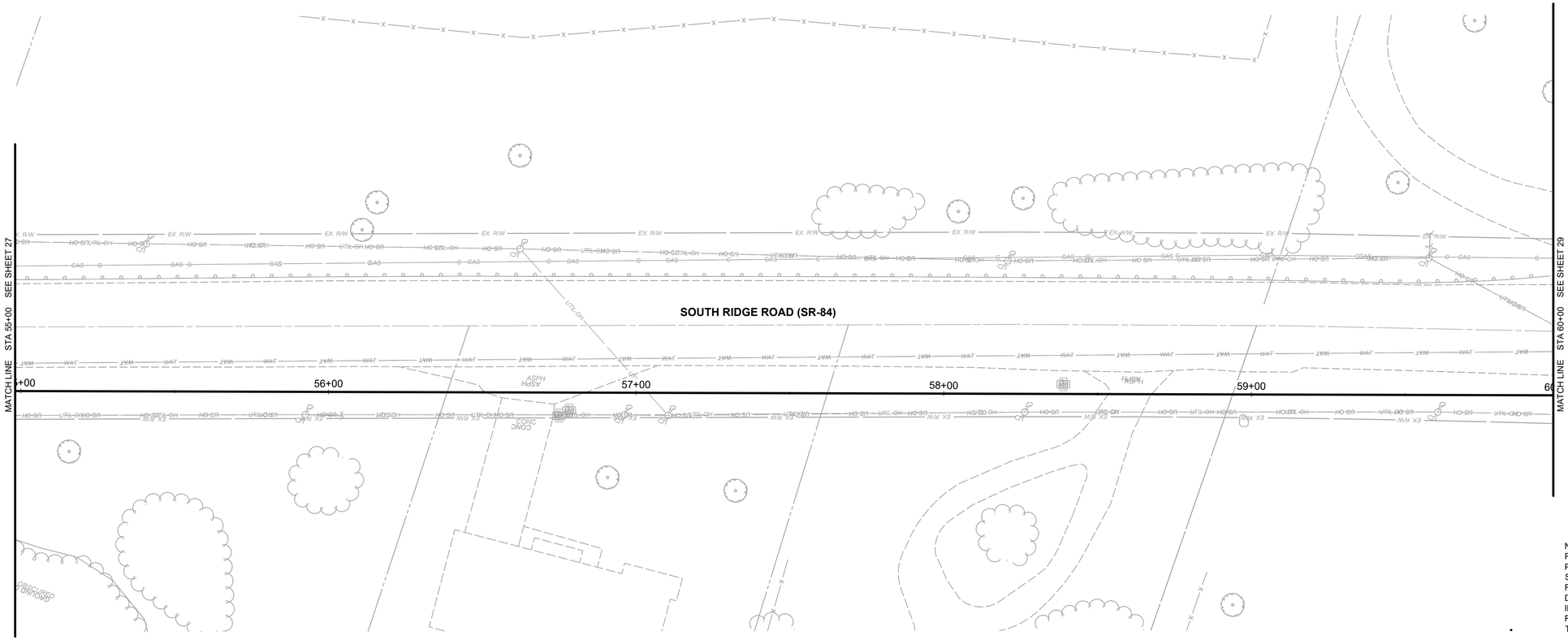
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SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 50+00 TO STA 55+00

PROJECT NO. 232478
DISCIPLINE CIVIL
SHEET NAME 30PP-11
SHEET 27 OF 49

H:\2023\232478\DWG\SHEETS\FORCE MAIN\C_232478 FORCE MAIN.DWG - 25 FM STA 50+00 TO STA 55+00 - 9/30/2026 3:35:34 PM - CORY SCOTT



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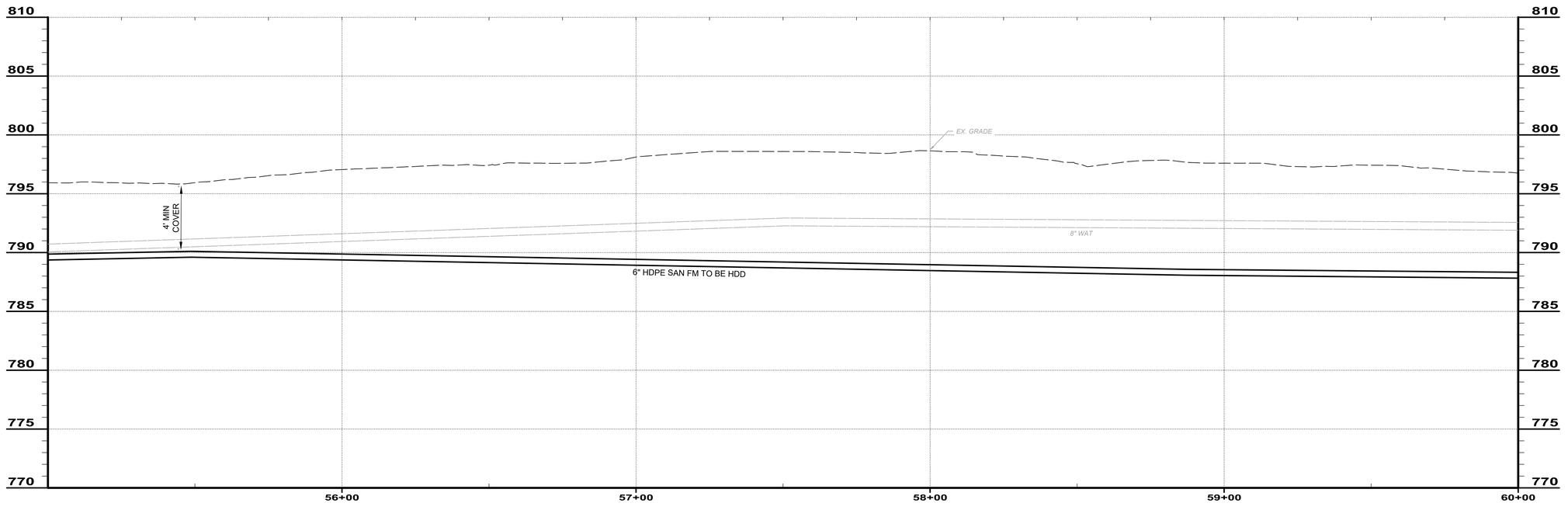
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

(1) CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

NOTE:
FOR ANY WORK REQUIRING USAGE OF PRIVATE PROPERTY, THE CONTRACTOR SHALL OBTAIN WRITTEN AUTHORIZATION FROM PROPERTY OWNER. ALSO, ANY DISTURBANCE, WHETHER DIRECT OR INCIDENTAL, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RESTORE TO IN-KIND OR BETTER.



6 - INCH FORCE MAIN 55+00 - 60+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

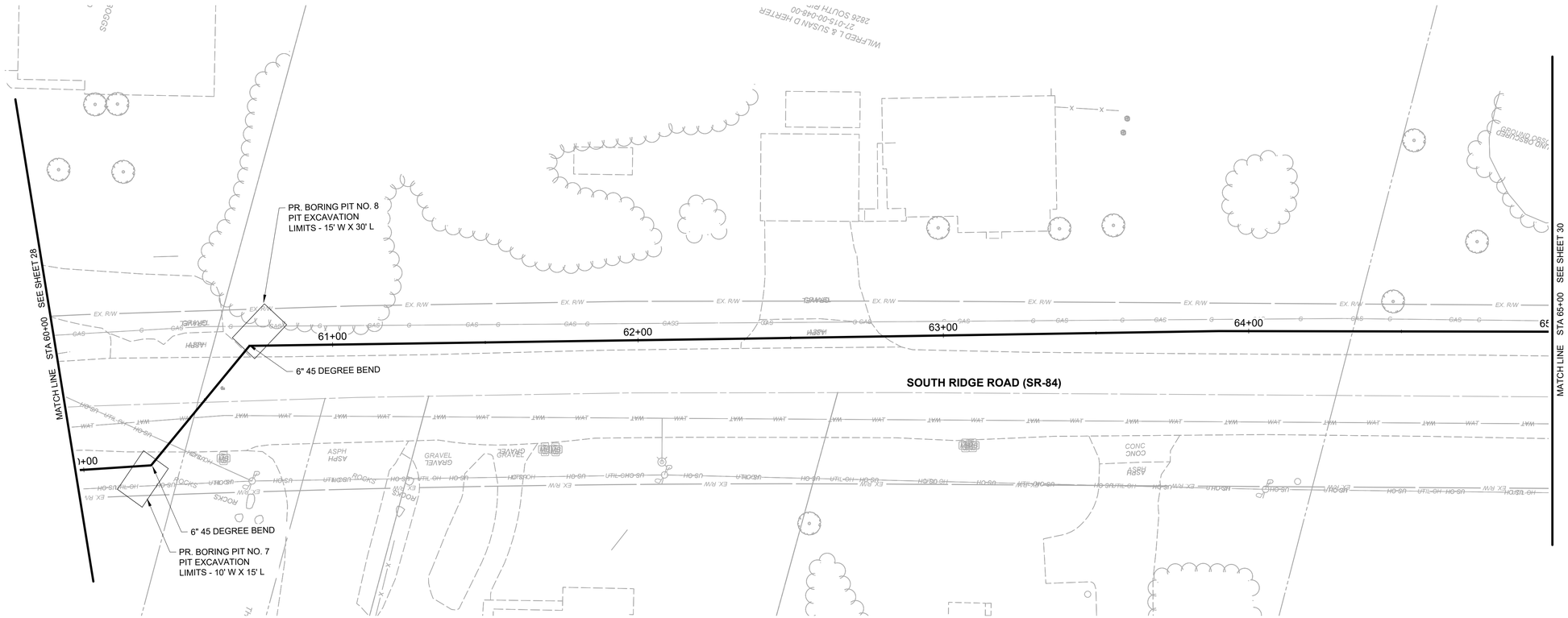
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

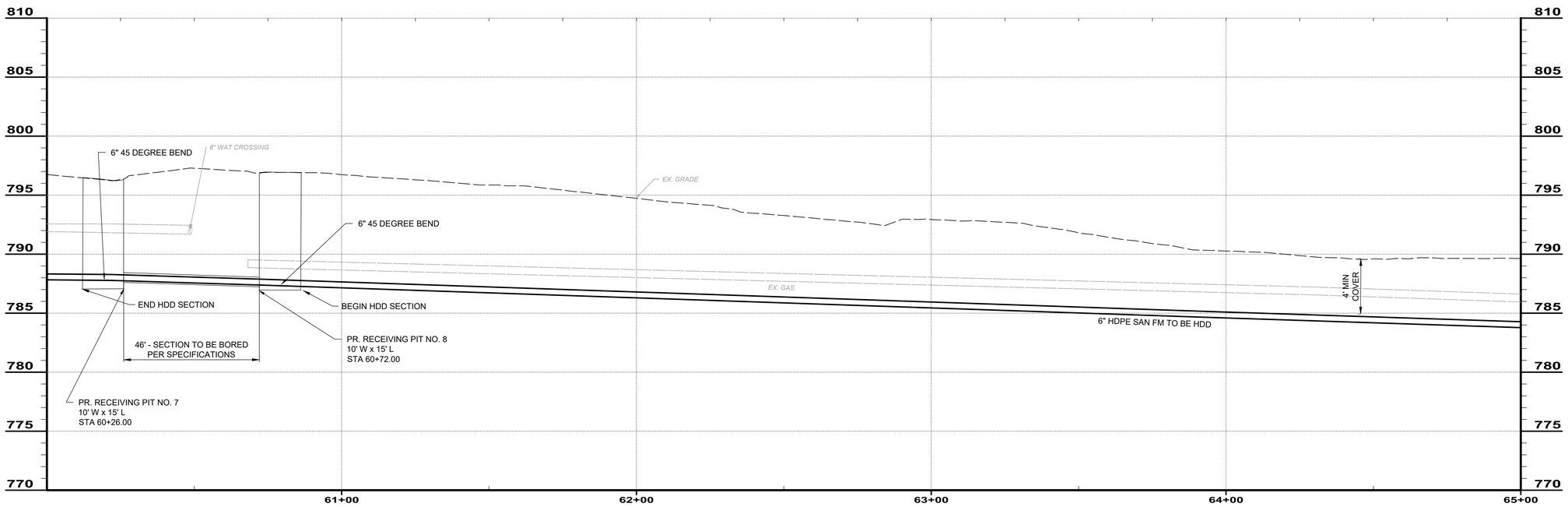
ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 55+00 TO STA 60+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-12
SHEET 28 OF 49

H:\2023\232478\DWG\SHEETS\FORCE MAIN\C_232478 FORCE MAIN.DWG - 26 FM STA 55+00 TO STA 60+00 - 9/30/2026 3:35:34 PM - CORY SCOTT





6 - INCH FORCE MAIN 60+00 - 65+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

20' 0' 20'
SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

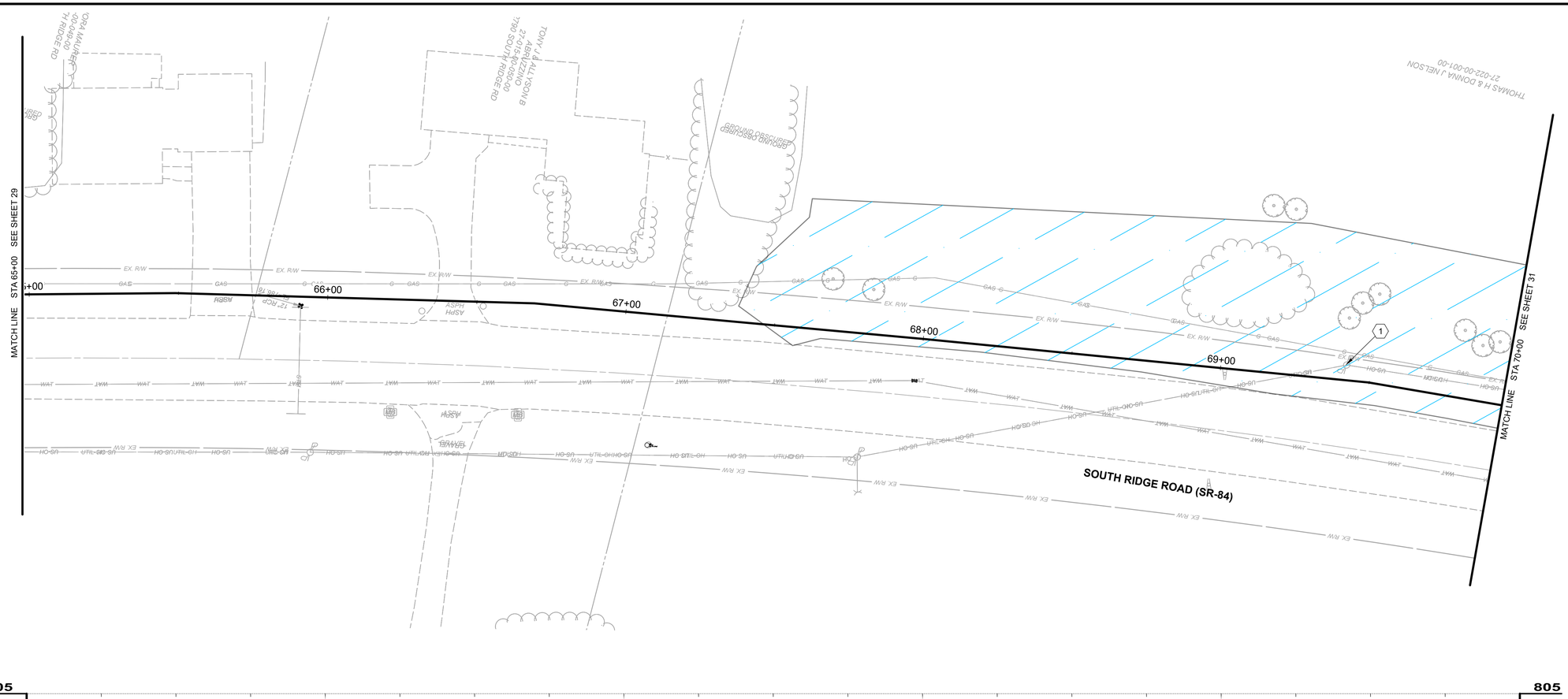
6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 60+00 TO STA 65+00

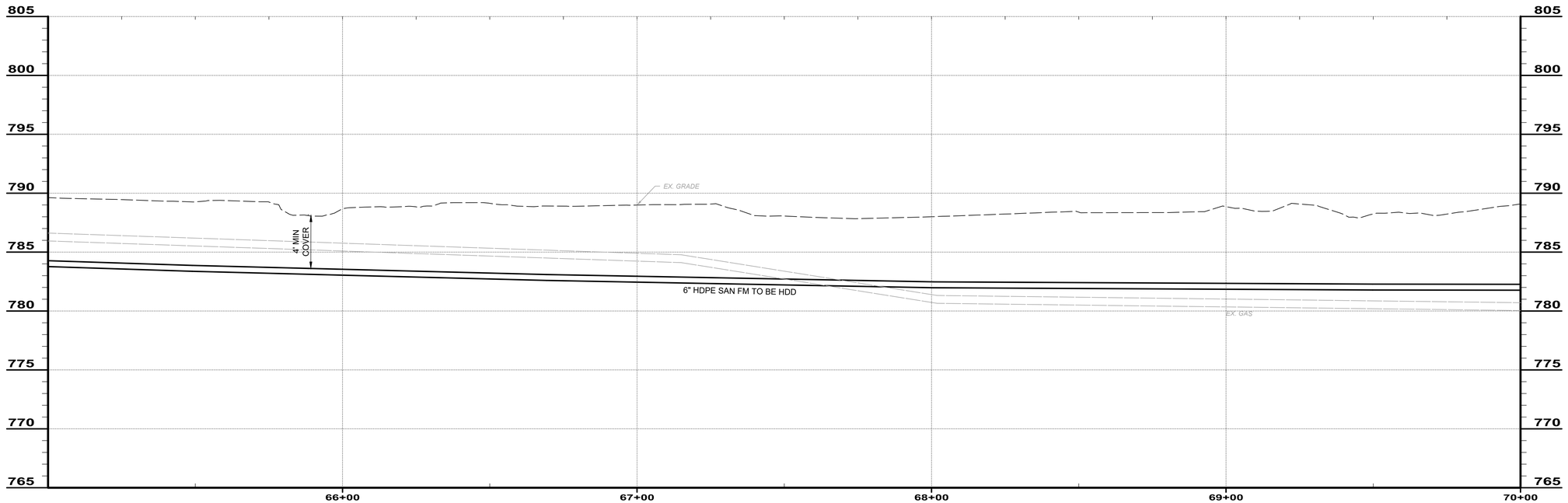
PROJECT NO.
232478

DISCIPLINE
CIVIL

SHEET NAME
30PP-13

SHEET 29 OF 49





6 - INCH FORCE MAIN 65+00 - 70+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

LEGEND:

- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

CODED NOTES:

1. CONTRACTOR TO COORDINATE WITH CEI (ELECTRIC COMPANY) FOR POLE BRACING, AS REQUIRED, PRIOR TO THE START OF ANY WORK

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

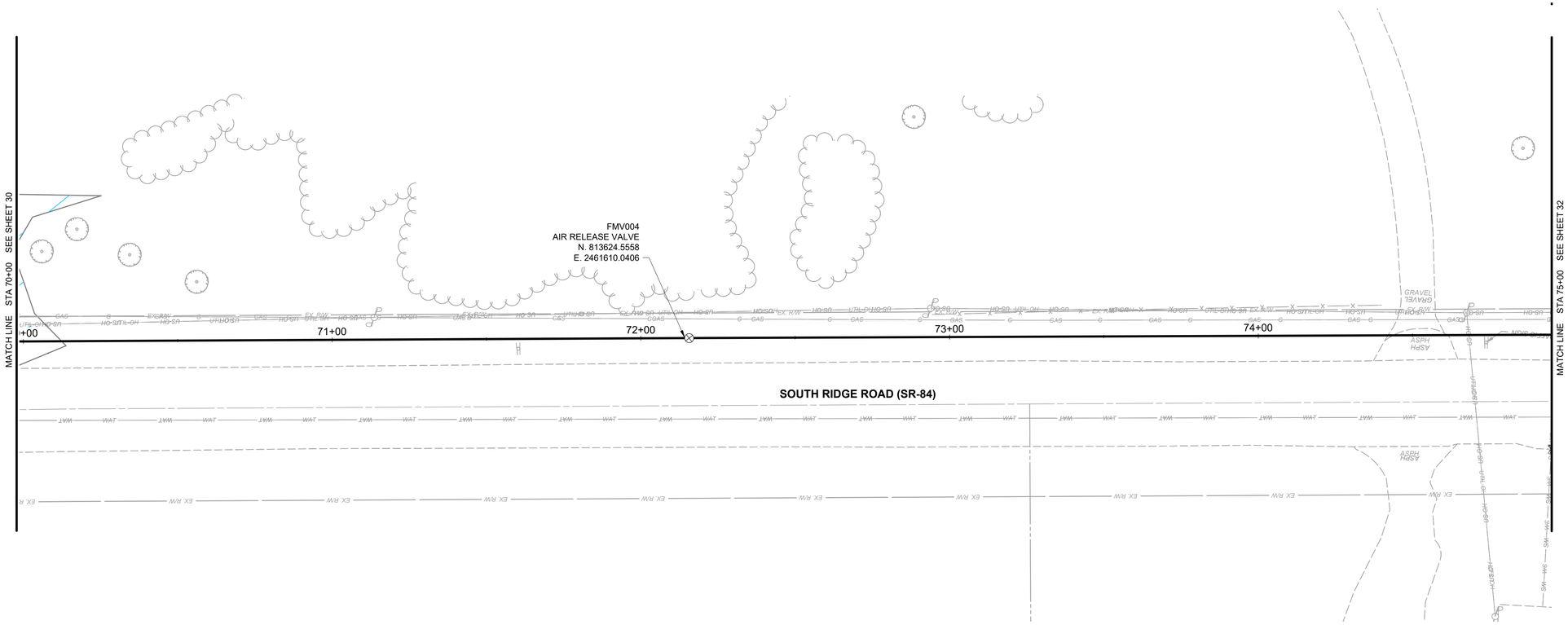
NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 65+00 TO STA 70+00

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 30PP-14
SHEET 30 OF 49

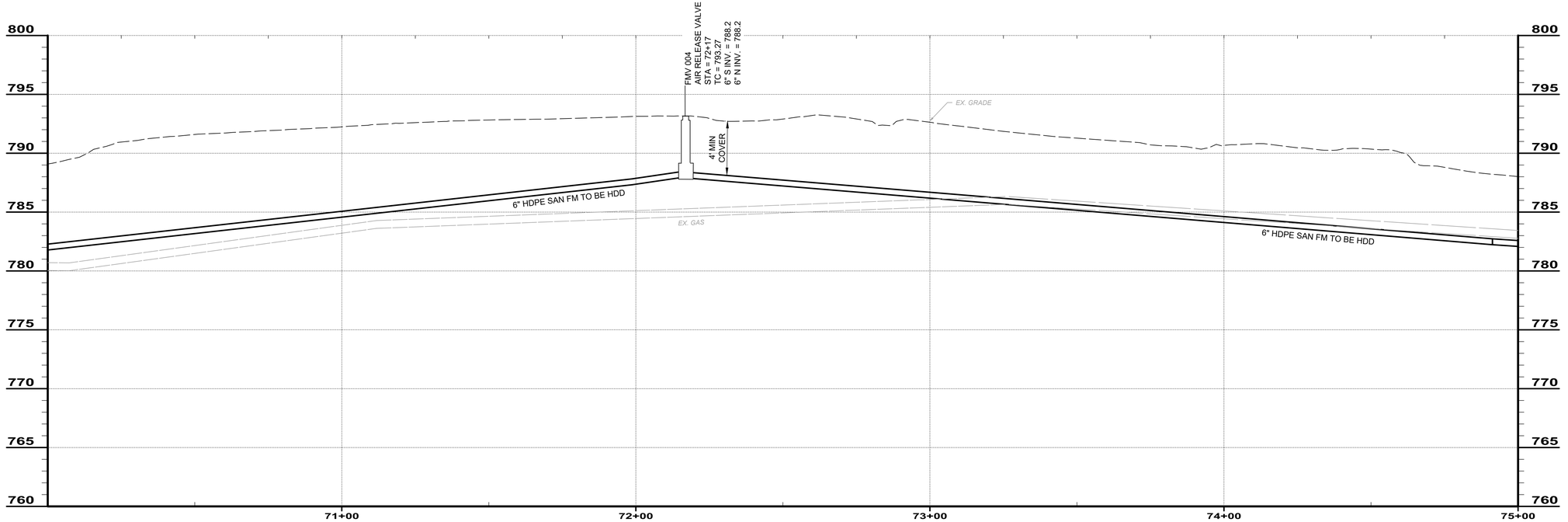




LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES



6 - INCH FORCE MAIN 70+00 - 75+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

TIMOTHY MCLAUGHLIN
E-83985
STATE OF OHIO
PROFESSIONAL ENGINEER
REGISTERED

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

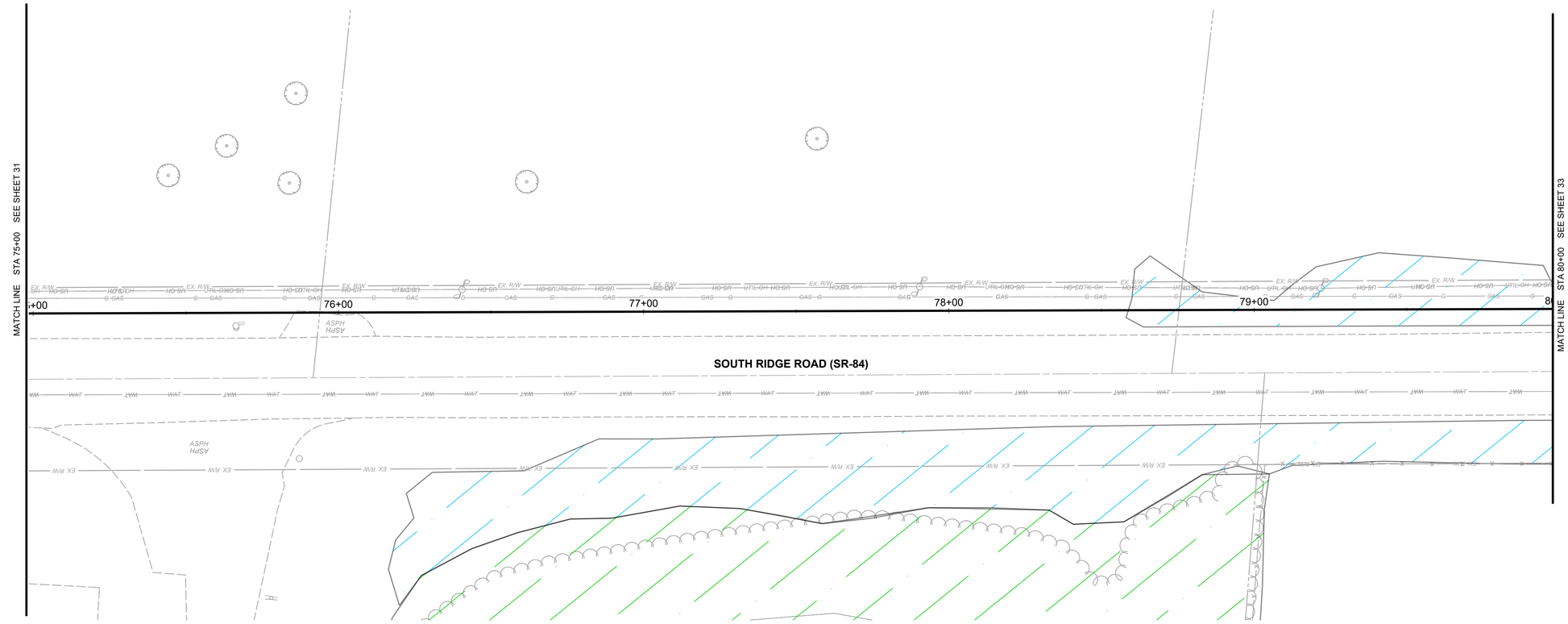
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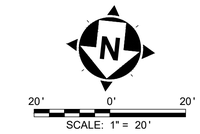
ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: REL
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 70+00 TO STA 75+00

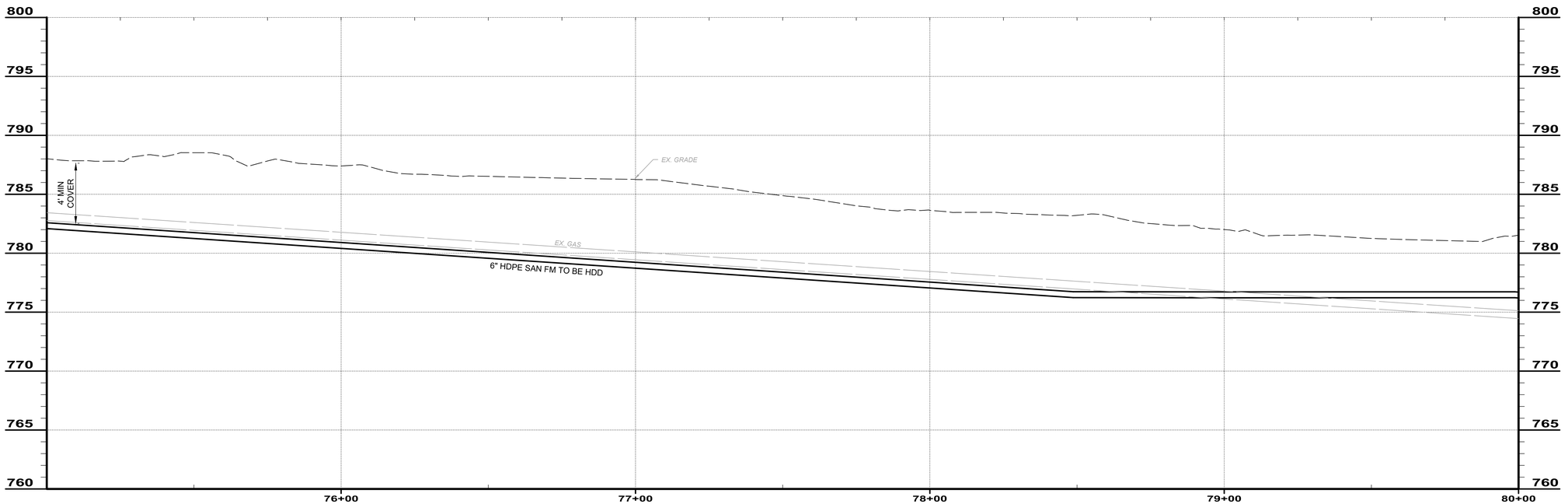
PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-15
SHEET 31 OF 49





LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS



6 - INCH FORCE MAIN 75+00 - 80+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

TIMOTHY MCLAUGHLIN
E-83985
STATE OF OHIO
PROFESSIONAL ENGINEER
REGISTERED

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

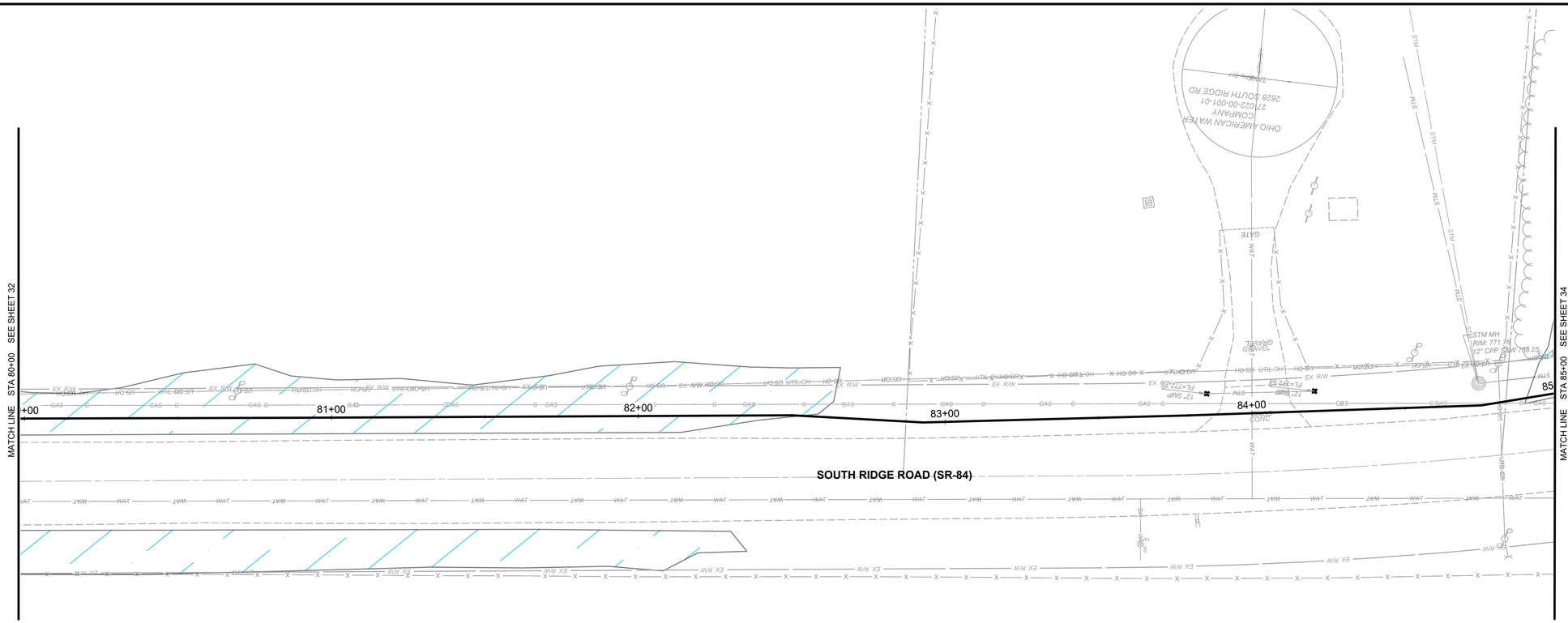
6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 75+00 TO STA 80+00

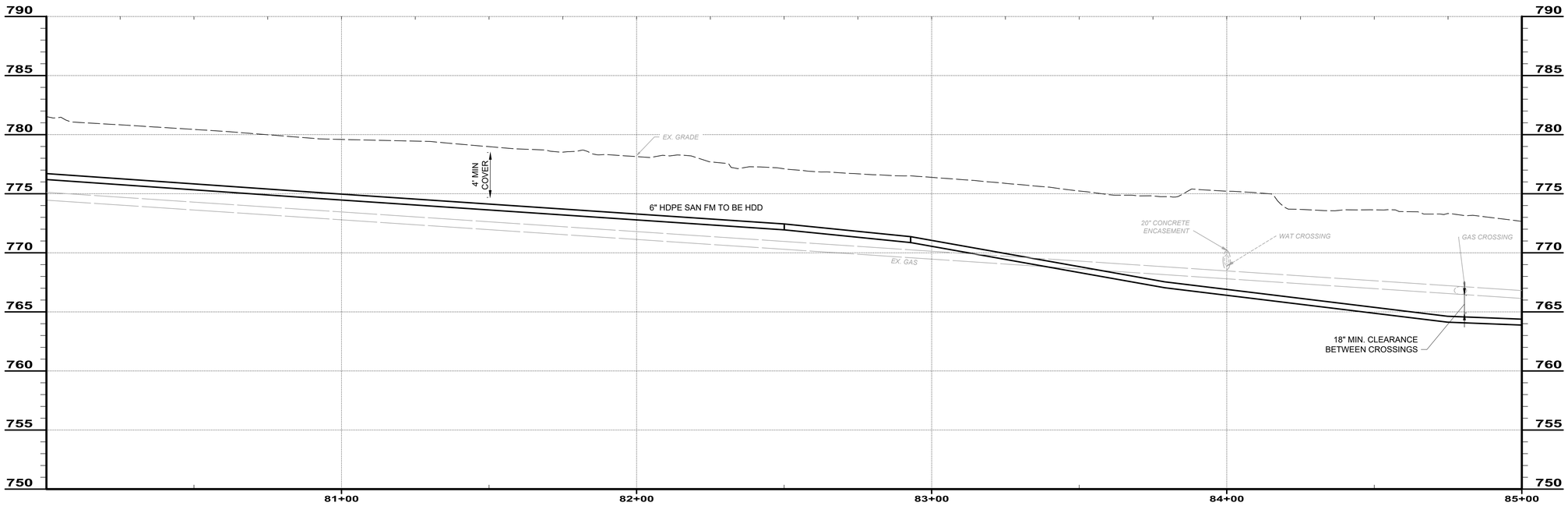
PROJECT NO.
232478

DISCIPLINE
CIVIL

SHEET NAME
30PP-16

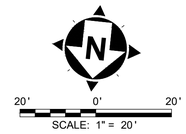
SHEET 32 OF 49





6 - INCH FORCE MAIN 80+00 - 85+00

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



SCALE: 1" = 20'

LEGEND:

- TYPE 'F' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

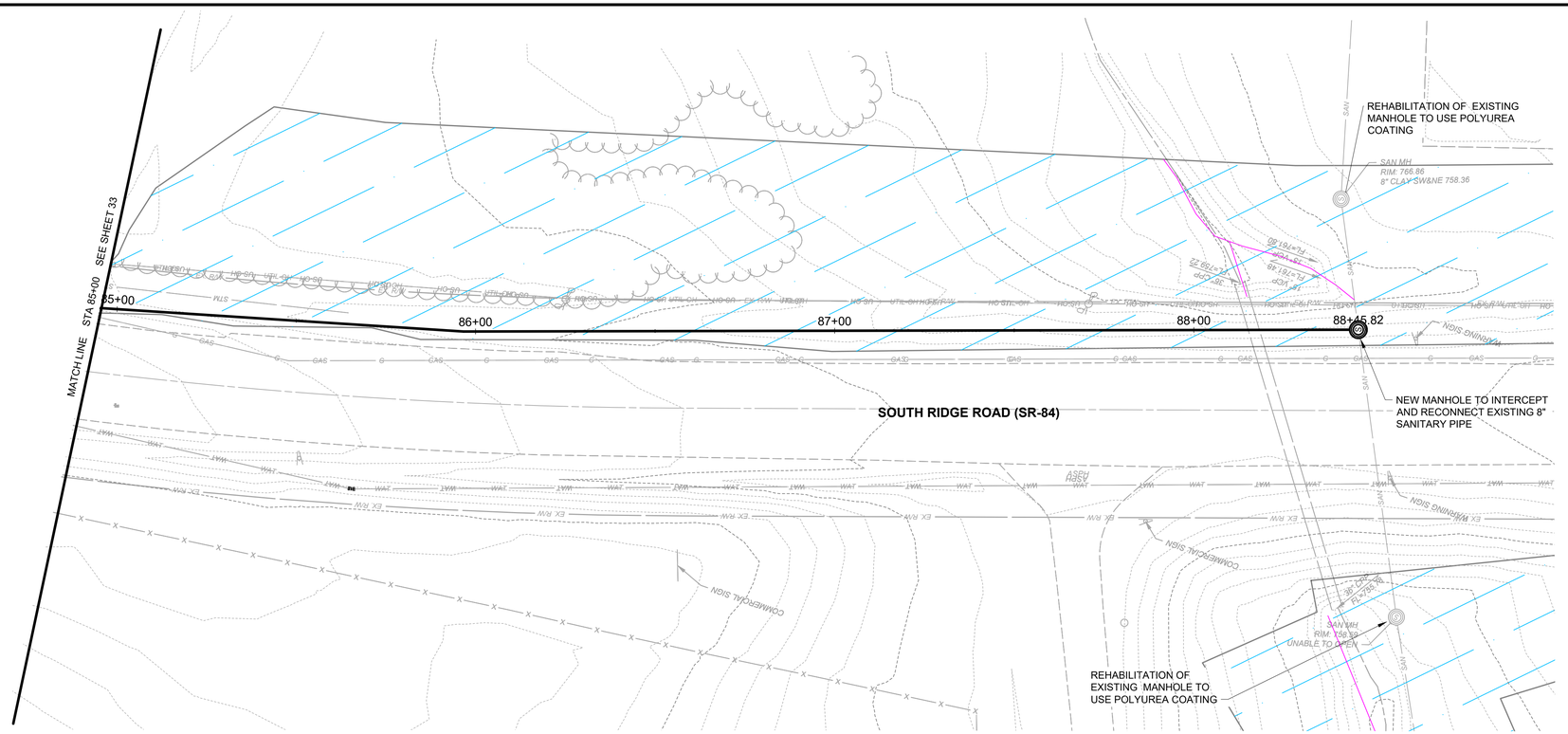
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
KINGSVILLE, OHIO
ASHTABULA COUNTY

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 80+00 TO STA 85+00

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
30PP-17
SHEET 33 OF 49

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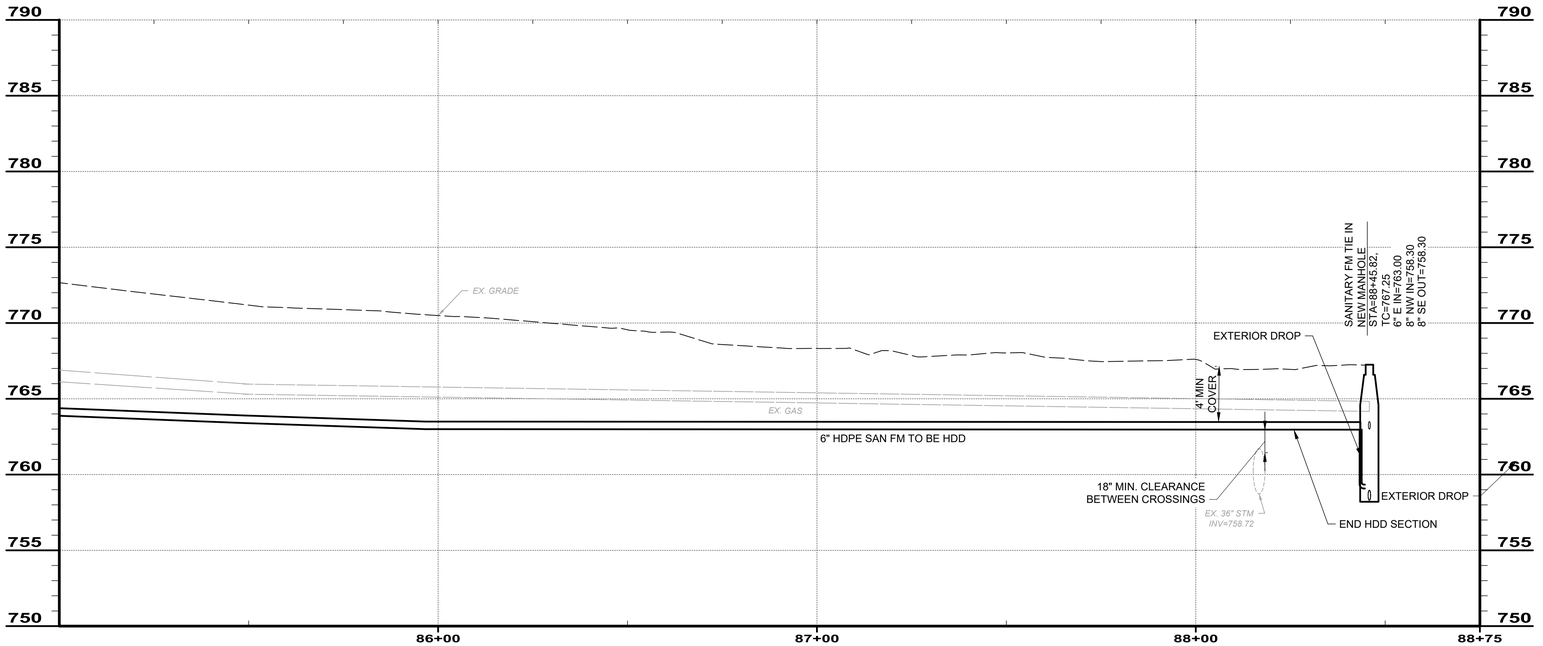
20' 0' 20'

SCALE: 1" = 20'

LEGEND:

- STREAM
- EMERGENT WETLANDS
- FORESTED WETLANDS

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES



6 - INCH FORCE MAIN 85+00 - END

SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

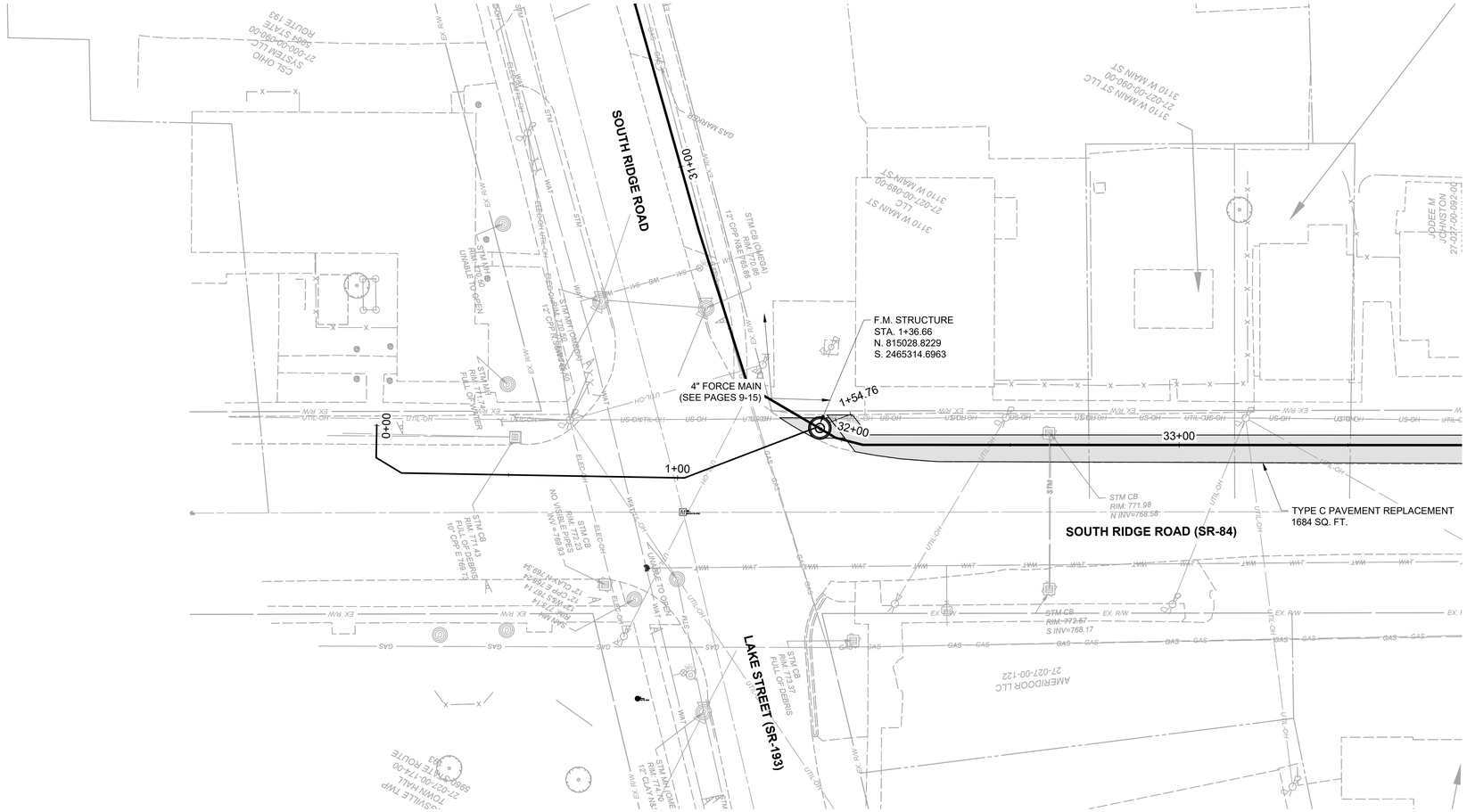
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ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	REL
DRAWN BY:	REL
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

6 INCH FM PLAN & PROFILE - 30 SERIES
FM STA 85+00 TO END

PROJECT NO.	
232478	
DISCIPLINE	
CIVIL	
SHEET NAME	
30PP-18	
SHEET	OF
34	49



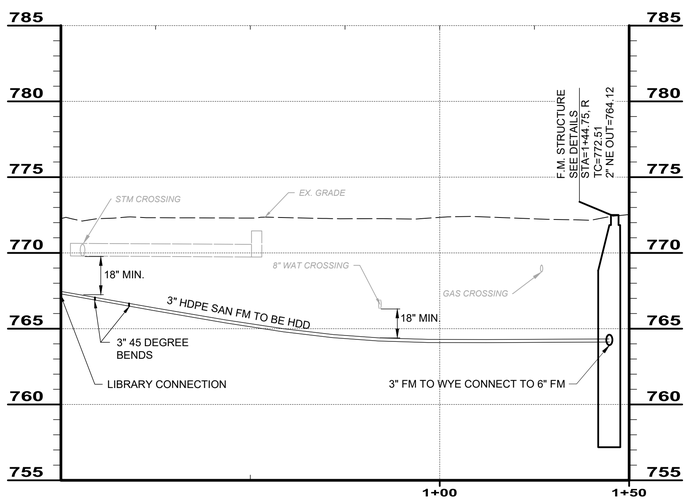
20' 0' 20'

SCALE: 1" = 20'

LEGEND:

- TYPE 'A' PAVEMENT REPLACEMENT
- TYPE 'C' PAVEMENT REPLACEMENT
- *STREAM*
- *EMERGENT WETLANDS*
- *FORESTED WETLANDS*

SEE SHEET 6 FOR FORCE MAIN GENERAL NOTES



2-INCH FORCE MAIN FULL

FORCE MAIN GENERAL NOTES:

1. THE CONTRACTOR SHALL NOT PERFORM ANY EXCAVATION WITHIN ODOT RIGHT-OF-WAY OR DISTURB ANY ROADWAY PAVEMENT. ALL WORK WITHIN THESE LIMITS THAT REQUIRES LANE CLOSURES OR TRAFFIC CONTROL SHALL BE APPROVED THE ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. THE CONTRACTOR MAY PERFORM SECTION OR ALL OF THE CONSTRUCTION OF THE FORCE MAIN BY TRENCHLESS METHODS. IF THE CONTRACTOR ELECTS FOR A TRENCHLESS METHOD, THEY SHALL PROVIDE THE LOCATIONS, LIMITS, DEPTH, SHORING, AND DEWATERING REQUIREMENTS NECESSARY FOR LAUNCH AND RECEIVE PITS TO THE ENGINEER FOR APPROVAL.
3. THE CONTRACTOR IS RESPONSIBLE TO LOCATE ANY AND ALL WATER SERVICE, SEWER LATERALS, GAS SERVICE, OR OTHER EX. UTILITY SERVICE CROSSINGS THAT MAY CROSS THE PROPOSED FORCE MAIN AND ADJUST THE ELEVATION AS NECESSARY TO LIMIT THE NEED FOR LOWERINGS THAT WILL REQUIRE FITTINGS.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: REL
DRAWN BY: CAS
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

2 INCH FM PLAN & PROFILE - 40 SERIES
FORCE MAIN

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
40PP-01
SHEET 35 OF 49

H:\2023\232478\DWG\SHEETS\FORCE MAIN\C_232478 FORCE MAIN.DWG - 33 FORCE MAIN - 9/30/2026 3:35:34 PM - CORY SCOTT

NORTHERN GRAVITY & FORCE MAIN SANITARY SEWER SERVICE LATERAL AS-BUILT TABLE					
DESIGNED STATION AT MAIN	STREET ADDRESS/ PARCEL ID	STATION AT MAIN (AS-BUILT)	SLOPE (AS-BUILT)	INVERT OF LATERAL AT MAIN (AS-BUILT)	RISER (AS-BUILT)
10+46	5551 STATE RT. 193				

SOUTHERN GRAVITY - SANITARY LATERAL AS-BUILT TABLE

SOUTHERN GRAVITY SANITARY SEWER SERVICE LATERAL AS-BUILT TABLE					
DESIGNED STATION AT MAIN	STREET ADDRESS/ PARCEL ID	STATION AT MAIN (AS-BUILT)	SLOPE (AS-BUILT)	INVERT OF LATERAL AT MAIN (AS-BUILT)	RISER (AS-BUILT)
00+49	VACANT PARCEL 27-013-00-009-00				
1+93	VACANT PARCEL 27-013-00-008-00				
3+85	5535 STATE RT. 193				
4+09	5538 STATE RT. 193				
5+33	5552 STATE ROUTE 193				
6+42	5569 STATE RT. 193				
6+59	VACANT PARCEL 27-012-00-029-00				
7+93	5580 STATE RT. 193				
9+89	5596 STATE RT. 193				
24+68	5730 STATE RT. 193				
26+29	5713 STATE RT. 193				
27+12	VACANT PARCEL 27-012-00-037-00				
27+24	VACANT PARCEL 27-12-00-021-01				
28+18	5759 STATE RT. 193				
28+71	5750 STATE RT. 193				
28+89	5760 STATE RT. 193				
29+74	5753 STATE RT. 193				
31+75	5761 STATE RT. 193				

NORTHERN GRAVITY & FORCE MAIN - SANITARY LATERAL AS-BUILT TABLE

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
PROFESSIONAL ENGINEER
REGISTERED

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

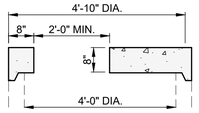
NO	REVISION	DATE

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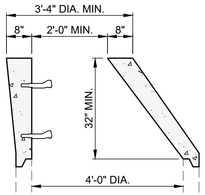
ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
CIVIL - 50 SERIES
IMPROVEMENT SCHEDULE TABLES

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 50C-01
SHEET 36 OF 49

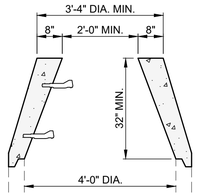
BASE I.D.	MIN. "t"
4'-0"	5"
5'-0"	5"
6'-0"	6"
7'-0"	7"
8'-0"	8"



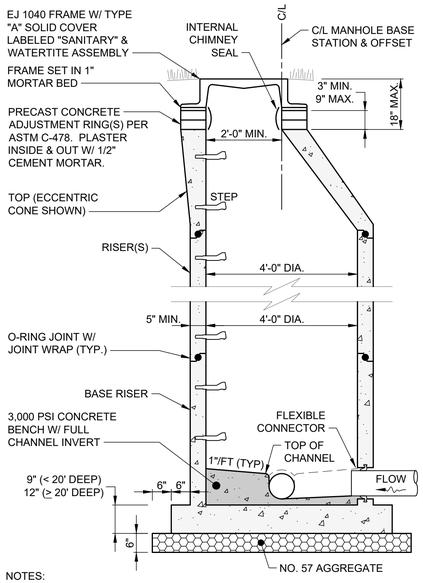
FLAT SLAB TOP



ECCENTRIC CONE TOP



CONCENTRIC CONE TOP

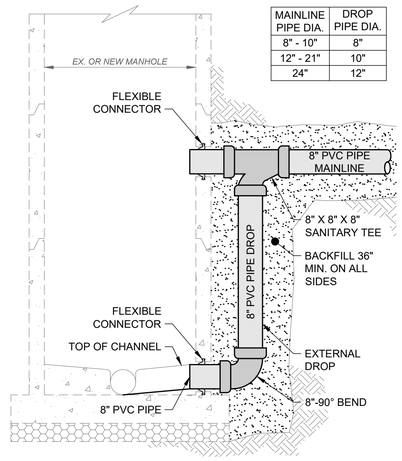


NOTES:

1. TOP SECTION SHALL BE AN ECCENTRIC CONE. ROTATE CONE TO OFFSET MANHOLE CASTING TO AVOID SIDEWALKS, UNDERDRAINS AND CURBS. USE FLAT SLAB TOP IF MANHOLE IS LESS THAN 6'-3" DEEP.
2. O-RING JOINT BETWEEN PRECAST MANHOLE SECTIONS SHALL BE RESILIENT WATERTIGHT GASKET PER ASTM C-443.
3. PRECAST MANHOLE AND REINFORCEMENT SHALL CONFORM TO ASTM C-478.
4. BASE MUST BE PRECAST MONOLITHIC WITH BASE RISER.
5. ALL PIPE OPENINGS MUST BE PRECAST WITH FLEXIBLE CONNECTIONS (Z-LOK OR A-LOK) PER ASTM C-923.
6. WRAP ALL INSIDE AND OUTSIDE MANHOLE JOINTS WITH 24" WIDE EXTERIOR JOINT WRAP PER ASTM C-877 TYPE III, CONSEAL CS-212.
7. CONCRETE CHANNEL TOP SHALL EXTEND TO FULL HEIGHT OF PIPE(S).
8. CONCRETE BENCH AND CHANNEL(S) SHALL BE PRECAST AS ONE PIECE IN THE BASE SECTION. ALL PIPES SHALL HAVE POURED INVERTS.
9. ALL PRECAST CONCRETE SECTIONS SHALL BE MANUFACTURED AND FURNISHED AS SOLID SECTIONS WITHOUT LIFT HOLES OF ANY KIND.
10. USE REINFORCED PLASTIC MANHOLE STEPS.
11. FIRST STEP SHALL NOT BE MORE THAN 2'-0" BELOW TOP OF FRAME. MAKE PROJECTION 3-1/2" IF IN 24" DIA. SECTION.
12. MANHOLE MUST PASS A VACUUM TEST PER ASTM C-1244.
13. ANY PRECAST CONCRETE SECTION DAMAGED IN TRANSIT OR ON-SITE AND WHERE THE WATER TIGHTNESS OF THE SECTION HAS BEEN ADVERSELY AFFECTED SHALL BE REPLACED AND NOT UTILIZED IN THE CONSTRUCTION OF THE MANHOLE.

PRECAST CONCRETE MANHOLE (SANITARY) DETAIL

SCALE: NONE



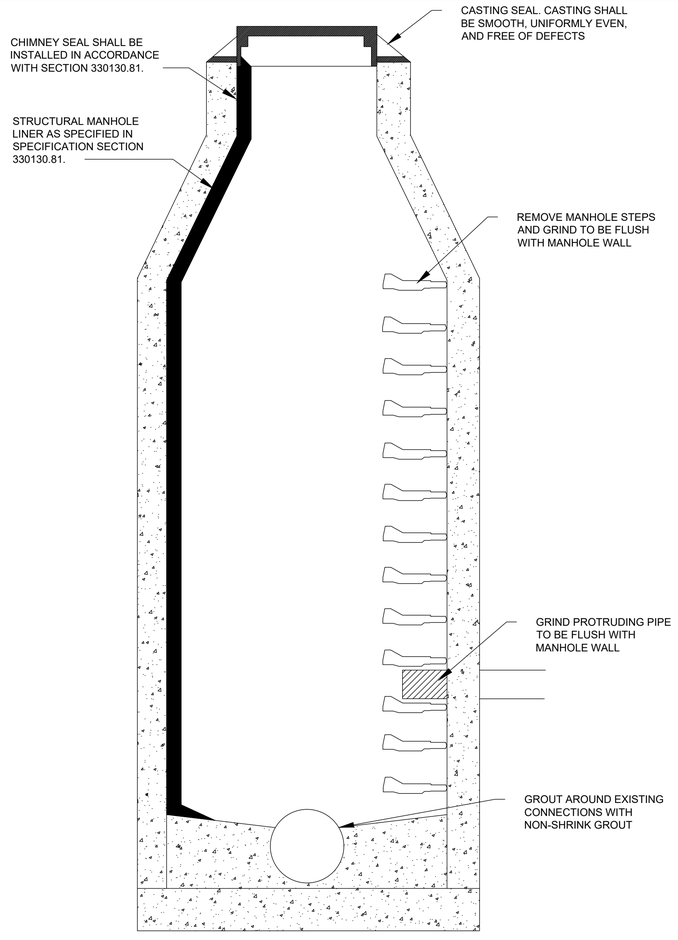
MAINLINE PIPE DIA.	DROP PIPE DIA.
8" - 10"	8"
12" - 21"	10"
24"	12"

NOTES:

1. SEE PRECAST CONCRETE MANHOLE (SANITARY) AND TRENCH BEDDING DETAILS FOR SPECIFICATIONS.
2. THIS DETAIL SHOWS AN 8" PIPE FOR REFERENCE ONLY. SEE UTILITY PLAN FOR ACTUAL PIPE SIZE.
3. PIPE AND FITTINGS MATERIALS SHALL BE PVC SDR 35 OR AS PER PLAN.
4. ALL PIPE OPENINGS MUST BE PREFABRICATED WITH FLEXIBLE CONNECTIONS PER ASTM C-923,A-LOK.
5. TOP OF CONCRETE CHANNEL SHALL EXTEND TO FULL HEIGHT OF PIPE.

PRECAST CONCRETE MANHOLE W/ OUTSIDE DROP DETAIL

SCALE: NONE

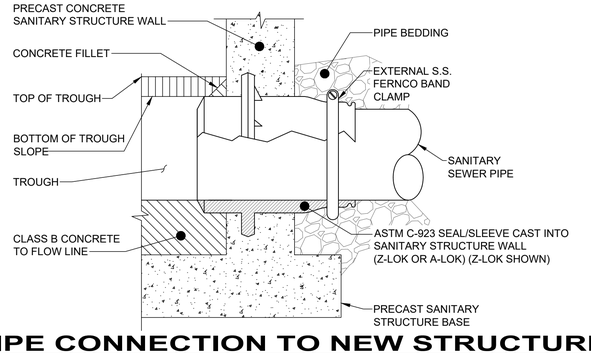


NOTES:

1. REFER TO SPECIFICATION SECTION 330130.81
2. LINER SHALL OVERLAP FRAME BY 2" (MIN) AND BENCH BY 6" (MIN)

REHABILITATION OF EXISTING MANHOLE

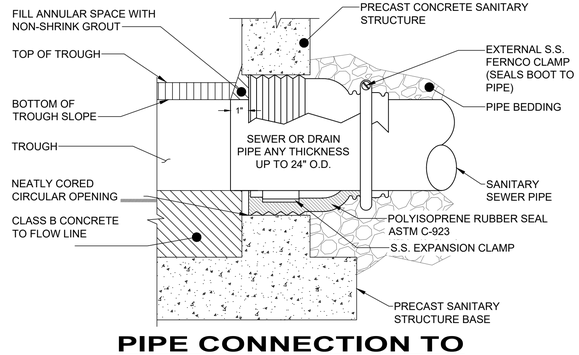
NOT TO SCALE



PIPE CONNECTION TO NEW STRUCTURE DETAIL

NOT TO SCALE

CONTRACTOR SHALL REFER TO MANUFACTURER DETAILS AND SPECIFICATIONS FOR SPECIFIC REQUIREMENTS NOT EXPLICITLY NOTED ON THESE DETAILS FOR INSTALLING NEW PIPE INTO AN EXISTING OR NEW PRE-CAST CONCRETE STRUCTURE.



PIPE CONNECTION TO EXISTING STRUCTURE DETAIL

NOT TO SCALE

CONTRACTOR SHALL REFER TO MANUFACTURER DETAILS AND SPECIFICATIONS FOR SPECIFIC REQUIREMENTS NOT EXPLICITLY NOTED ON THESE DETAILS FOR INSTALLING NEW PIPE INTO AN EXISTING OR NEW PRE-CAST CONCRETE STRUCTURE.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

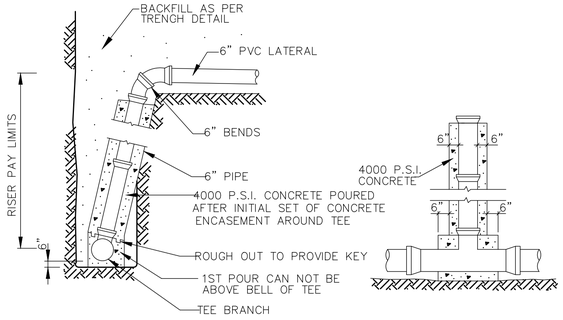
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ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	JBB
DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

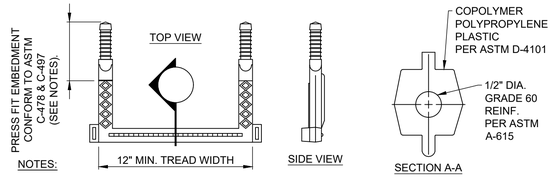
CIVIL - 50 SERIES
CONSTRUCTION DETAILS - 1

PROJECT NO.	
232478	
DISCIPLINE	
CIVIL	
SHEET NAME	
50C-02	
SHEET	OF
37	49



SANITARY LATERAL RISER DETAIL

NOT TO SCALE

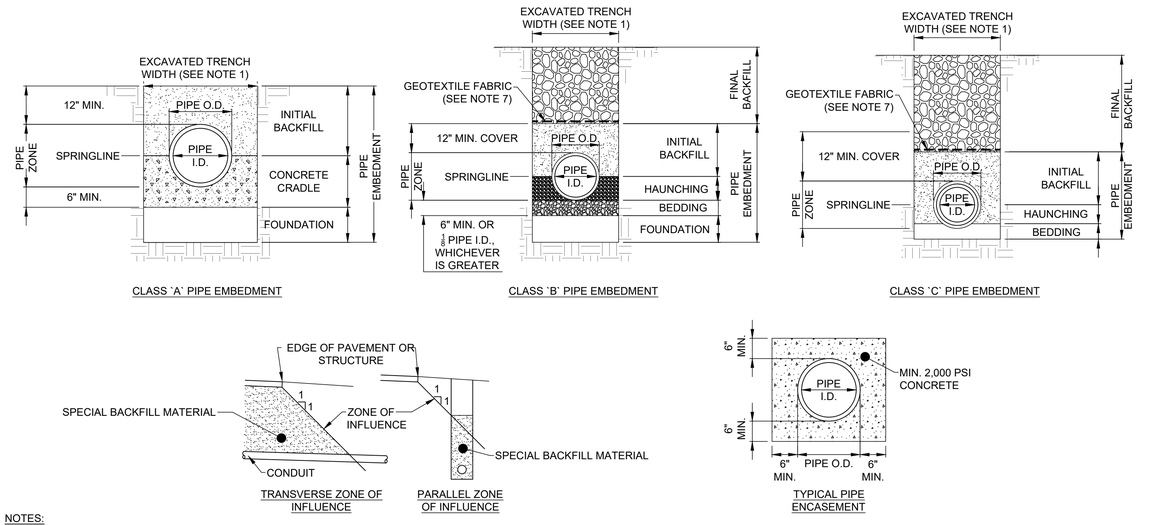


NOTES:

1. MANHOLES AND CIRCULAR STRUCTURES BEING:
   - 1.1. UP TO AND INCLUDING 5'-0" DIA.: USE 16" C/C MIN. STEP SPACING.
   - 1.2. OVER 5'-0" DIA.: USE 12" C/C MIN. STEP SPACING.
2. MOUNTING REQ'S SHALL CONFORM TO THE MFR'S RECOMMENDATIONS.

TYPICAL MANHOLE STEP DETAIL

NOT TO SCALE



NOTES:

1. MAXIMUM EXCAVATED TRENCH WIDTH: THE MAXIMUM EXCAVATED TRENCH WIDTH FROM THE BOTTOM OF THE TRENCH TO 12" OVER THE TOP OF THE PIPE (WITHIN PIPE EMBEDMENT) SHALL BE O.D. + 24" FOR ALL PIPES UP TO AND INCLUDING 24" I.D. + 30" FOR PIPE FROM 24" I.D. TO 54" I.D. AND O.D. + 48" FOR PIPES SIZES 60" I.D. AND OVER.
2. FOUNDATION: IF REQUIRED FOR THIS PROJECT: AS PER THE GEOTECHNICAL REPORT, THE CONTRACTOR SHALL EXCAVATE AND REMOVE AN ADDITIONAL 12" OF MATERIAL AND REPLACE WITH A LAYER OF 6" OF AASHTO NO. 1 AND NO. 2 CRUSHED LIMESTONE, FOLLOWED BY A LAYER OF 6" OF AASHTO NO. 57 GRANULAR LIMESTONE.
3. PIPE EMBEDMENT:

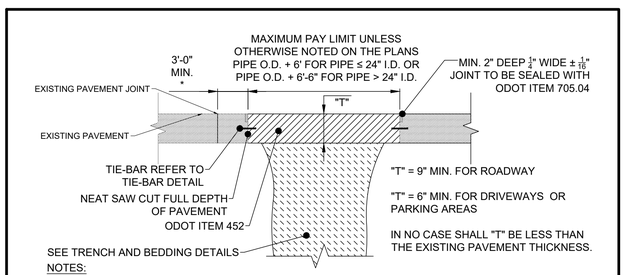
   CLASS A: CLASS A PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNDER PAVEMENT OR STRUCTURES WITH LESS THAN 12 INCHES OF PIPE COVER TO THE SUBGRADE. THE CONCRETE CRADLE SHALL BE IN ACCORDANCE WITH ODOT ITEM 499, CLASS "C". THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT.

   CLASS B: CLASS B PIPE EMBEDMENT SHALL BE USED FOR ALL PIPING UNLESS OTHERWISE NOTED ON THE PLANS OR AUTHORIZED BY THE ENGINEER. THE HAUNCHING SHALL BE AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT. IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE, THE INITIAL BACKFILL SHALL BE AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT. IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE, THE INITIAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER FOR ONLY REINFORCED CONCRETE PIPE AND DUCTILE IRON PIPE. THE INITIAL BACKFILL FOR ALL OTHER PIPES SHALL BE AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT.

   CLASS C: CLASS C PIPE EMBEDMENT SHALL ONLY BE USED FOR DUCTILE IRON WATER MAIN, DUCTILE IRON FORCE MAINS OR AS AUTHORIZED BY THE ENGINEER. THE PIPE EMBEDMENT SHALL BE AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE. THE PIPE EMBEDMENT SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE. WHERE ROCK OR SHALE IS ENCOUNTERED, A MINIMUM 6-INCHES OF AASHTO NO. 57 LIMESTONE GRANULAR PIPE BEDDING OR SAND BEDDING SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
4. FINAL BACKFILL: IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE THE FINAL BACKFILL SHALL BE SPECIAL BACKFILL MATERIAL. IN ALL AREAS OUTSIDE OF PAVEMENT, STRUCTURES OR THE ZONE OF INFLUENCE, THE FINAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL APPROVED BY THE ENGINEER. LSM SHALL BE USED IN PLACE OF SPECIAL BACKFILL MATERIAL WHEN TOP OF PIPE IS WITHIN 5' OF PAVEMENT OR WITHIN CITY RIGHT-OF-WAY OR UNLESS INDICATED ON DRAWINGS
5. SPECIFICATIONS: ALL TRENCHING, PIPE EMBEDMENT AND BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH SPECIFICATION 310000 - EARTHWORK.
6. CLAY TRENCH DAMS: CLAY TRENCH DAMS SHALL BE REQUIRED FOR EACH LATERAL, UPSTREAM OF EVERY MANHOLE, AS SHOWN ON THE DRAWINGS, AND AS DIRECTED BY THE ENGINEER.
7. GEOTEXTILE FABRIC: INSTALL A GEOTEXTILE FABRIC IN ACCORDANCE WITH ODOT 712.09, TYPE A, AFTER ALL INITIAL BACKFILL CONSISTING OF AASHTO NO. 57 LIMESTONE GRANULAR PIPE EMBEDMENT.
8. TYPICAL PIPE ENCASEMENT, AS PER PLAN OR AS DIRECTED BY THE ENGINEER.

TRENCHING, EMBEDMENT, AND BACKFILL DETAIL

NOT TO SCALE



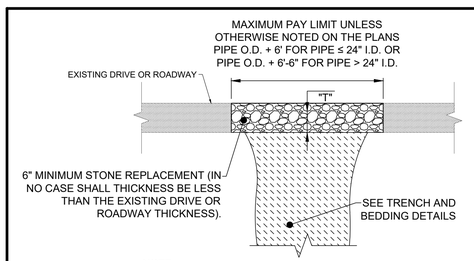
NOTES:

1. EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY ENGINEER.
2. REPLACEMENT SHALL BE REINFORCED AS PER O.D.O.T. ITEM 709.10 OR 709.12 IF EXISTING PAVEMENT IS REINFORCED.
3. 5/8"Ø HOOKBOLT @ 30" O.C. MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

* WHERE WIDTH IS LESS THAN 3'-0" OR EXISTING PAVEMENT IS DETERIORATED, THE CONTRACTOR SHALL REPLACE ADDITIONAL PAVEMENT AS DIRECTED BY THE ENGINEER. PAYMENT FOR ADDITIONAL PAVEMENT REPLACEMENT AS DIRECTED BY THE ENGINEER SHALL BE AT THE SAME UNIT PRICE BID.

TYPE A PAVEMENT REPLACEMENT

NOT TO SCALE

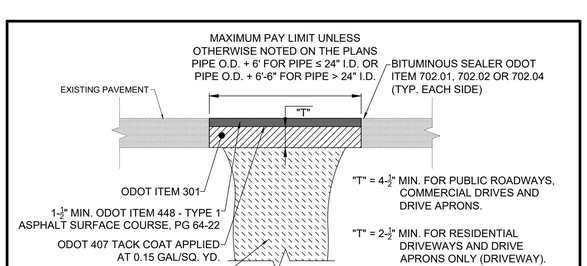


NOTE:

1. REPLACEMENT MATERIAL SHALL BE THE SAME TYPE AND SIZE AS EXISTING.

TYPE F PAVEMENT REPLACEMENT

NOT TO SCALE



NOTE:

1. EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY ENGINEER.

TYPE C PAVEMENT REPLACEMENT

NOT TO SCALE

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

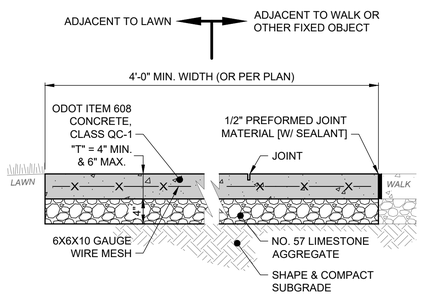
verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

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DRAWN BY: JBB
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
CIVIL - 50 SERIES
CONSTRUCTION DETAILS - 2

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 50C-03
SHEET 38 OF 49

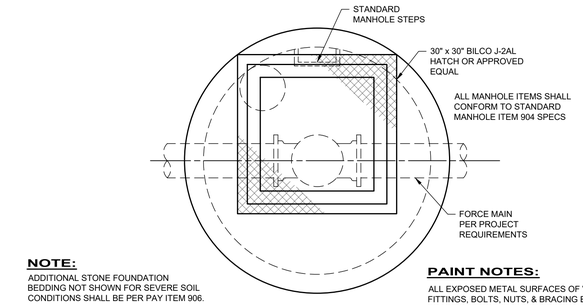


NOTES:

1. THIS DETAIL SHOWS A 4" SIDEWALK AND AGGREGATE FOR REFERENCE ONLY, SEE LAYOUT PLAN FOR ACTUAL THICKNESSES.
2. SEE LAYOUT PLAN FOR JOINT LOCATIONS. IF JOINTS NOT SHOWN, CONTRACTOR SHALL DETERMINE LOCATION OF ALL JOINTS. DIVIDE JOINTS INTO EQUALLY SPACED RECTANGULAR BLOCKS (4' MIN.).
3. SAW CUT OR HAND TOOL JOINT 1/8" WIDE BY 1/4 OF "T" DEEP.
4. ROUND ALL EDGES AND JOINTS WITH A 1/4" RADIUS.
5. INSTALL PREFORMED JOINT MATERIAL EVERY 30', OR BETWEEN SIDEWALK AND FIXED OBJECT (I.E. MANHOLE, WALK, BUILDING).
6. [SEE SEPARATE "EXPANSION JOINT W/ SEALANT" DETAIL.]
7. LIGHTLY BROOM THE FINISH PERPENDICULAR TO THE WALKING PATH OR PER PLAN. IF HAND TOOLED JOINTS AND EDGES ARE SPECIFIED, FINISH AFTER PANEL INTERIOR TEXTURE HAS BEEN APPLIED (I.E WINDOW PANE EFFECT).
8. APPLY LIQUID-MEMBRANE CURING COMPOUND (200 S.F./GAL.).

CONCRETE WALK DETAIL

SCALE: NONE



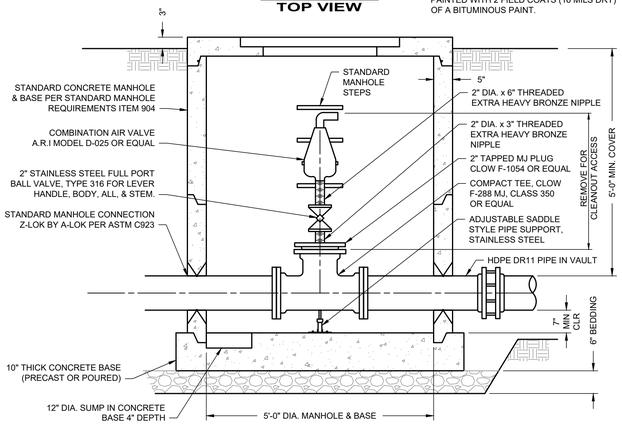
NOTE:

ADDITIONAL STONE FOUNDATION BEDDING NOT SHOWN FOR SEVERE SOIL CONDITIONS SHALL BE PER PAY ITEM 906.

AIR RELEASE TOP VIEW

PAINT NOTES:

ALL EXPOSED METAL SURFACES OF VALVES, FITTINGS, BOLTS, NUTS, & BRACING EXCEPT BRASS OR BRONZE SURFACES SHALL BE PAINTED WITH 2 FIELD COATS (16 MILS DRY) OF A BITUMINOUS PAINT.

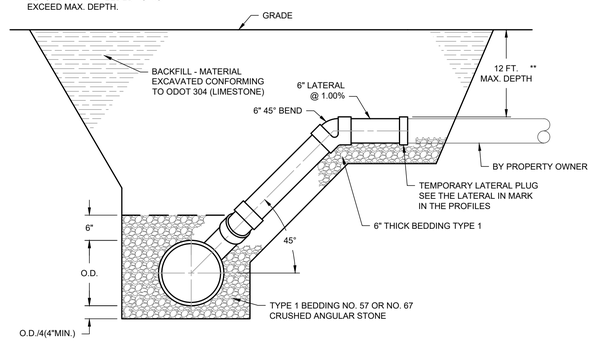


F.M. CLEANOUT WITH AIR RELEASE VALVE

NOT TO SCALE

**** NOTE:**

END OF LATERAL SHALL NOT BE GREATER THAN 12 FT. BELOW GRADE AND SHALL BE EXTENDED BEYOND R/W AS NEEDED TO NOT EXCEED MAX. DEPTH.

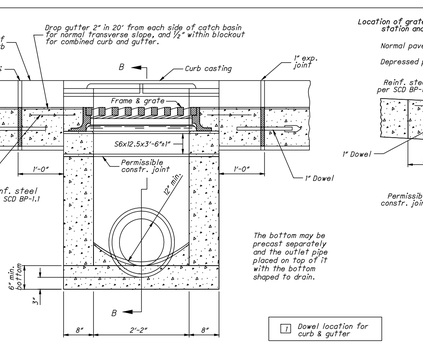


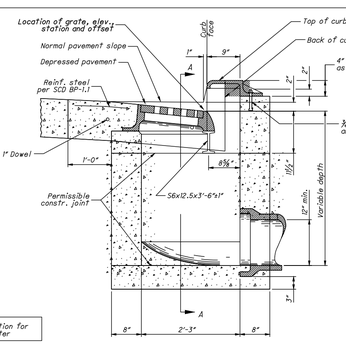
STANDARD SEWER RISER & WYE BRANCH DETAIL

NTS

PIPE SPECIFICATIONS	MATERIAL	JOINT	BEDDING
SANITARY SEWER			
PVC SDR-26; 4"Ø - 15"Ø PVC SDR-35; 4"Ø - 15"Ø HDPE	ASTM D3034 ASTM D3034 ASTM 1248/ASTM D3350-84	ASTM D3212 ASTM D3212 BUTT FUSION	ASTM D2321 ASTM D2321 ASTM D2321
1. SANITARY SEWER PIPE LESS THEN 12 FT DEPTH BELOW GRADE SHALL BE SDR-35. ALL SANITARY SEWER PIPE GREATER THEN 12 FT DEPTH BELOW GRADE SHALL BE SDR-26. 2. IF PIPE ELEVATION VARIES BETWEEN ABOVE & BELOW THE 12 FT THRESHOLD, USE SDR-26 FOR ENTIRE RUN OF PIPE BETWEEN MANHOLES.			
FORCE MAIN			
HDPE	ASTM 1248/ASTM D3350-84	BUTT FUSION	ASTM D2321
1.TRACER WIRE FOR NONMETALLIC PIPE IS REQUIRED FOR BOTH SANITARY SEWER AND FORCEMAIN LINES. 2. FOR FORCEMAINS 4" OR SMALLER USE SDR- 26 AND FOR FORCEMAINS 6" OR LARGER USE SDR-21			

PIPE SPECIFICATION TABLE





NOTES

GRATES: One required. For details, see SCD CB-2.2. Provide Grate "F" unless the plans specifically require the diagonal grate. If the diagonal grate is specified, place it so that the diagonal bars direct drainage flow toward the curb.

CASTINGS: Provide a design essentially the same and equally as strong as the one shown. Minimum weight:

Curb Casting . . . . . 170 lbs.
Standard Grate . . . . . 127 lbs.
Frame . . . . . 320 lbs.
Grate "F" . . . . . 105 lbs.

Lighter weight frames and grates that meet the requirements of CMS 711.14 may also be provided. Provide grate openings and dimensions as shown here unless otherwise shown in the plans.

Cast the following text into the top of the curb casting:

"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Print text in bold, capital letters at least ¾" high. See example on Plan & Section. "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

BEARING AREAS: Fit and finish the frame and grate to provide a firm and even seat. No projections are permitted on bearing areas, and the grate must seat in its frame without rocking.

WALLS: When used in place of concrete, construct brick side walls with 8" nominal thickness.

PRECAST CONSTRUCTION: Permitted, except for the apron. Meet CMS 706.13 concrete requirements. Provide precast walls at least 6" thick with sufficient reinforcing to permit shipping and placement without damage. Reduce the wall thickness from the outside.

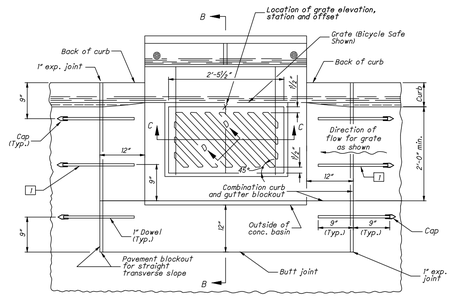
MINIMUM DEPTH: The minimum depth is per the cover requirements for that pipe type.

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

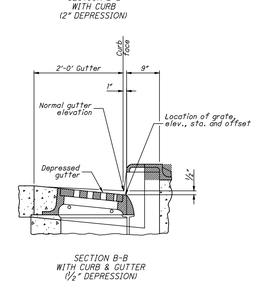
DOWELS: Furnish four 1"x18" dowels for concrete pavement or gutter blockout. See SCD BP-2.2 for dowel details.

BLOCKOUT: Pave blockouts with 4000 psi compressive strength concrete in PCC pavement or gutter. Blockouts are paid for as part of the pavement or gutter with no deduction in pavement, curb or gutter quantities because of the castings. Cast a 4000 psi compressive strength concrete apron, the size of the 2'-0" gutter blockout, in place in asphalt pavement ino dowels required with the cast included in the catch basin bid price. No deduction is made in curb quantities.

PAYMENT: All materials and labor, including excavation and backfilling, are paid for under Item 611 - Catch Basin, No. 3A.



PLAN OF CATCH BASIN AND PAVEMENT JOINTS
(For SECTIONS C-C and D-D, see Sht. 2/2)



CATCH BASIN No. 3A

STATE OF OHIO DEPARTMENT OF TRANSPORTATION — STATE HYDRAULIC ENGINEER

BIDDING: 7-20-01, 7-19-02, 7-15-05, 7-20-10, 1-18-13, 1-17-14, 1-15-16

HYDRAULIC ENGINEERING UNIT (3311)

OFFICE OF HYDRAULIC ENGINEERING

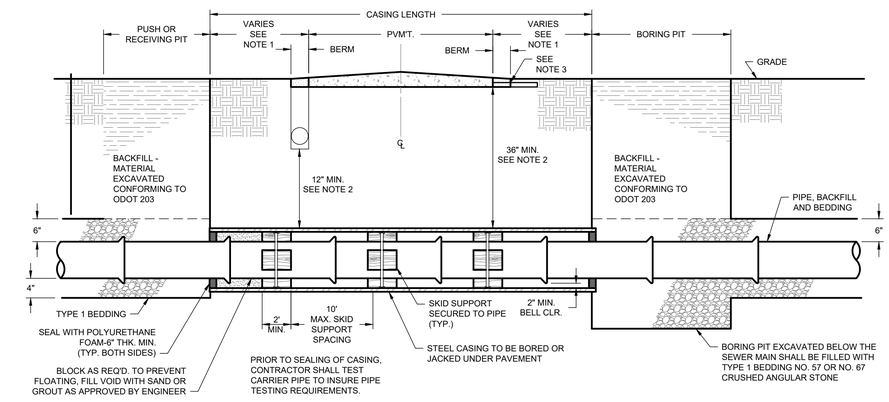
STANDARD HYDRAULIC CONSTRUCTION DRAWING — CATCH BASIN No. 3A

SCD NUMBER CB-2.2

1 / 2

NOTES:

1) MINIMUM DISTANCE SHALL BE 5' FROM THE BACK OF CURB OR THE EDGE OF PAVEMENT.
2) MINIMUM DEPTH FROM THE TOP OF CONDUIT OR CASING TO THE TOP OF PAVEMENT FOR ALL STREETS SHALL BE 36". MINIMUM DEPTH OF 12" BELOW THE UNDERDRAIN IS REQUIRED FOR ALL STREETS.
3) IF AGGREGATE DRAINS ARE DISTURBED, THEY MUST BE REPLACED BY THE CONTRACTOR.
4) THE COUNTY WILL OBTAIN ALL ROAD & RAILROAD CROSSING PERMITS NECESSARY. CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCY OR UTILITY 48 HOURS IN ADVANCE OF COMMENCEMENT OF CONSTRUCTION OF ENCASEMENT



BORED CROSSING WITH CASING

NTS

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
PROFESSIONAL ENGINEER
REGISTERED

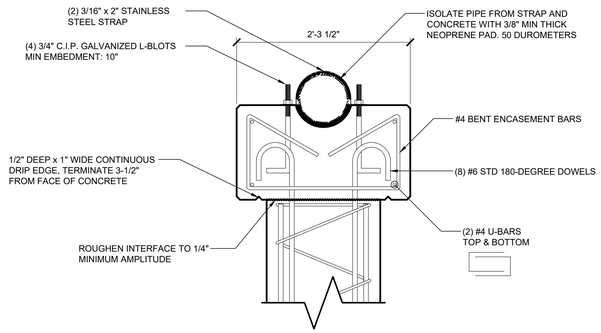
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8150 STERLING COURT
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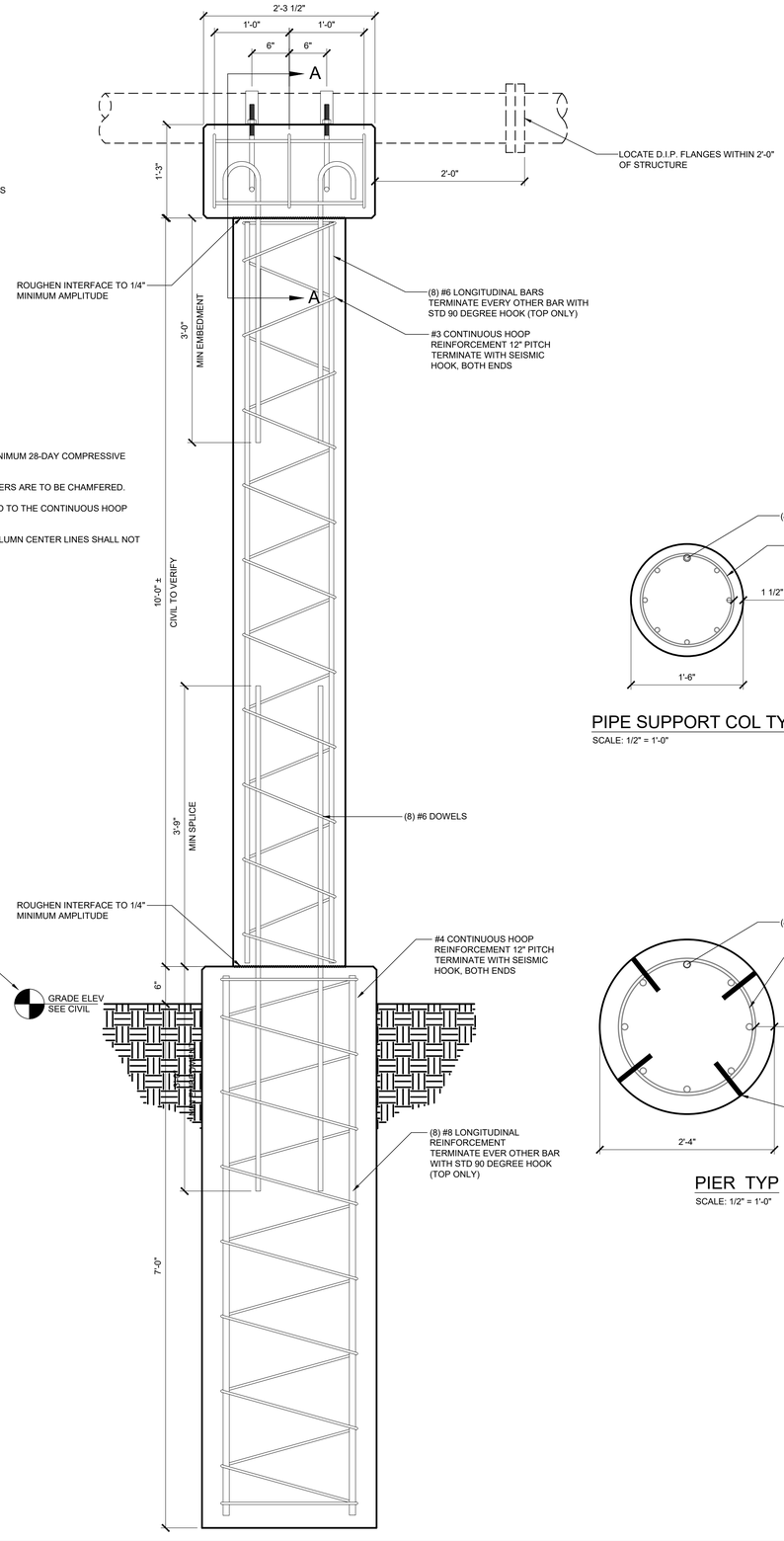
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DESIGNED BY: JBB
DRAWN BY: JBB
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY — KINGSVILLE, OHIO
CIVIL - 50 SERIES
CONSTRUCTION DETAILS - 3

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 50C-04
SHEET: 39 OF 49





NOTES

1) CONCRETE IS TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI.

2) EXPOSED CONCRETE CORNERS ARE TO BE CHAMFERED.

3) ALL DOWELS ARE TO BE TIED TO THE CONTINUOUS HOOP REINFORCEMENT.

4) MAX SPACING BETWEEN COLUMN CENTER LINES SHALL NOT BE GREATER THAN 20'-0".

PIPE SUPPORT COL TYP

SCALE: 1/2" = 1'-0"

PIER TYP

SCALE: 1/2" = 1'-0"

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

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SCALE:	AS NOTED		
DESIGNED BY:	---		
DRAWN BY:	---		
CHECKED BY:	TJM		

ASHTABULA COUNTY

KINGSVILLE REGIONAL SEWER IMPROVEMENTS

ASHTABULA COUNTY **KINGSVILLE, OHIO**

CIVIL - 50 SERIES

CONSTRUCTION DETAILS - 4

PROJECT NO.
232478

DISCIPLINE
CIVIL

SHEET NAME
50C-05

SHEET	OF
40	49

GENERAL:

. THESE NOTES ARE GENERAL REQUIREMENTS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREINAFTER FOR USE ON THIS PROJECT.

. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR CLARIFICATION.

. TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON THE PLANS, BUT APPLY UNLESS NOTED OTHERWISE.

. SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION TO THE ENGINEER.

. SHOP DRAWINGS PREPARED BY THE CONTRACTORS, SUPPLIERS, ETC., WILL BE REVIEWED BY THE ENGINEER ONLY FOR CONFORMANCE WITH DESIGN CONCEPT. NO WORK AFFECTED BY THE SHOP DRAWINGS SHALL BE STARTED WITHOUT SUCH REVIEW.

. THE GENERAL CONTRACTOR SHALL COORDINATE ALL REVISIONS, CORRECTIONS, AND COMMENTS INDICATED ON THE SHOP DRAWINGS BY THE ENGINEER.

. ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR AND SHALL CONFORM TO THOSE SHOWN ON THE CIVIL DRAWINGS.

. THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

1. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.

2. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF-SUPPORTING AT THE COMPLETION OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE-DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL IS NOT INDICATED ON THE DRAWINGS AND, IF PROVIDED, SHALL BE REMOVED, AS CONDITIONS PERMIT AND REMAIN THE PROPERTY OF THE CONTRACTOR.

3. ALL MATERIALS AND EQUIPMENT FURNISHED WILL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

5. EARTHWORK AND OTHER REQUIRED NON-STRUCTURAL ITEMS ARE NOT SHOWN ON THE STRUCTURAL DRAWING COORDINATE WITH CIVIL/SITE DRAWINGS.

GOVERNING CODES AND STANDARDS:

IBC	-INTERNATIONAL BUILDING CODE, 2018 EDITION
ASCE 7	-MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, 2016 EDITION
ACI 318	-BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2014 EDITION
ACI 301	-SPECIFICATIONS FOR STRUCTURAL CONCRETE, 2010 EDITION
ACI 305R	-HOT WEATHER CONCRETING, 2010 EDITION
ACI 306R	-COLD WEATHER CONCRETING, 2010 EDITION

DESIGN LOADS:

. PIPE LOAD UNIFORM (PLF)
a. 8" DUCTILE IRON PIPE 35

.. WIND LOADS

a. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST), MPH 102
b. NOMINAL DESIGN WIND SPEED (3-SECOND GUST), MPH 80
c. RISK CATEGORY I
d. WIND EXPOSURE B
e. DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING SHALL BE COMPUTED PER GOVERNING BUILDING CODE USING EXPOSURE B (SEE DIAGRAM ON SHEET SX.XX)
f. FORCE COEFFICIENT, Cf = 1.4
g. GUST EFFECT FACTOR, G= .85

. EARTHQUAKE DESIGN DATA:
a. OCCUPANCY RISK CATEGORY I
b. SEISMIC IMPORTANCE FACTOR, Ie 1.0
c. MAPPED SPECTRAL RESPONSE ACCELERATIONS .
Ss = 0.13
S1 = 0.047
d. SITE CLASS D
e. DESIGN SPECTRAL RESPONSE ACCELERATIONS
Sds = 0.11
Sd1 = 0.067
f. SEISMIC DESIGN CATEGORY B
g. BASIC SEISMIC REINFORCING SYSTEM
NON-BUILDING STRUCTURE NOT SIMILAR TO BUILDINGS (ASCE 7-16 CH 15)
h. DESIGN BASE SHEAR V = Cs x W
i. SEISMIC RESPONSE COEFFICIENT Cs = 0.083
j. RESPONSE MODIFICATION COEFFICIENT
R = 1.25
k. ANALYSIS PROCEDURE USED EQUIVALENT LATERAL FORCE

SPECIAL INSPECTIONS:

PER THE IBC SECTION 1705, SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING ITEMS:

1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
a. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK DESIGNATED TO ASSURE IT IS CONSTRUCTED IN CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
b. THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION REPORTS AND TESTS TO THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.
c. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK.
d. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED WITHIN THE AGREED UPON TIME TO THE BUILDING OFFICIAL PRIOR TO THE START ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
e. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A STATEMENT OF RESPONSIBILITY ACKNOWLEDGING THE AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.

2. CONCRETE:
a. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT. (PERIODIC)
b. REINFORCING BAR WELDING:
• VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. (PERIODIC)
• INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16
• INSPECT ALL OTHER WELDS (CONTINUOUS)
c. INSPECT ANCHORS CAST IN CONCRETE (PERIODIC)
d. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS:
• ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. (CONTINOUS)
• MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE. (PERIODIC)
e. VERIFY USE OF REQUIRED MIX DESIGN. (PERIODIC)
f. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. (CONTINUOUS)
g. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES. (CONTINUOUS)
h. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES. (PERIODIC)
i. INSPECT PRESTRESSED CONCRETE FOR:
• APPLICATION OF PRESTRESSING FORCES. (CONTINUOUS)
• GROUTING OF BONDED PRESTRESSING TENDONS. (CONTINUOUS)
j. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS. (PERIODIC)
k. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS. (PERIODIC).
l. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED. (PERIODIC).
m. NO INSPECTION IS REQUIRED FOR SLABS-ON-GRADE.

3. SOILS:
a. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY. (PERIODIC)
b. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL. (PERIODIC)
c. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS. (PERIODIC)
d. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. (CONTINUOUS)
e. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PROPERLY PREPARED. (PERIODIC)

4. CAST-IN-PLACE DEEP FOUNDATIONS:
a. INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT. (CONTINUOUS)
b. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS (IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE), AND ADEQUATE END BEARING STRATA CAPACITY. REOCRD CONCRETE OR GROUT VOLUMES. (CONTINUOUS)

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL REPORT NO. xxxxx, PREPARED BY VERDANTAS, DATED XX/XX/XXXX. CONTRACTOR SHALL REVIEW GEOTECHNICAL REPORT PRIOR TO CONSTRUCTION.

2. FOUNDATIONS ARE DESIGNED TO BEAR ON UNDISTURBED NATURAL SOILS OR PROPERLY COMPACTED ENGINEERED FILL WITH A GROSS ALLOWABLE BEARING CAPACITY OF 2,000 PSF. (SEE GEOTECHNICAL REPORT)

3. TOPSOIL, FILL, AND/OR OTHER DELETERIOUS MATERIALS ENCOUNTERED DURING THE SITE PREPARATION MUST BE REMOVED AND REPLACED WITH SELECT ENGINEERED FILL COMPACTED TO 95% PER ASTM D1557 AND MEETING THE SPECIFIED DESIGN BEARING CAPACITY. (SEE GEOTECH REPORT FOR MORE INFORMATION).

4. CONTRACTOR SHALL EMPLOY A SOILS TESTING LABORATORY APPROVED BY THE ENGINEER TO PERFORM TESTING SERVICES AS REQUIRED BY THE SPECIFICATIONS AND TO INSPECT ALL BEARING SURFACES OF SLABS AND FOUNDATIONS.

5. NOTIFY ENGINEER IF FOUNDATION CONDITIONS ENCOUNTERED DIFFER FROM SOILS EXPLORATION INFORMATION MADE AVAILABLE TO THE CONTRACTOR.

6. REMOVE ALL EXISTING PAVEMENT, STRUCTURES AND FOUNDATIONS, AND TOPSOIL, UNSUITABLE FILLS AND ORGANIC SOILS ENCOUNTERED WITHIN AND BELOW THE AREA TO BE OCCUPIED BY SLABS ON GRADE AND FOUNDATIONS. THESE MATERIALS SHALL NOT BE USED FOR FILL WITHIN OR ADJACENT TO THE BUILDING.

7. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL PROVIDE TEMPORARY SHORING, BRACING, UNDERPINNING, AND OTHER MEASURES NECESSARY TO INSURE STABILITY AND SAFETY DURING ERECTION AND CONSTRUCTION AND TO PREVENT MOVEMENT OF SOIL THAT COULD DAMAGE EXISTING STRUCTURES, PAVEMENT, UTILITIES, ETC.

8. CENTER FOOTINGS UNDER COLUMNS UNLESS NOTED.

9. THE DIFFERENCE IN ELEVATION OF THE BACKFILL ON THE INSIDE AND OUTSIDE OF WALLS SHALL NOT EXCEED TWO FEET UNTIL THE FIRST FLOOR STRUCTURE SUPPORTING THE WALLS IS IN PLACE, UNLESS THE WALL IS BRACED TO PREVENT MOVEMENT.

10. UNLESS NOTED OTHERWISE ON THE CIVIL/SITE DRAWINGS, PROVIDE A MINIMUM 2% GRADE WITHIN 10-FEET OF THE PERIMETER OF THE FOUNDATION SYSTEM TO ALLOW SURFACE WATER TO DRAIN AWAY.

11. DO NOT PLACE FILL OR CONCRETE ON FROZEN GROUND.

CAST-IN-PLACE CONCRETE AND REINFORCEMENT:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318.

2. CONCRETE SHALL HAVE THE FOLLOWING 28-DAY COMPRESSIVE STRENGTHS:
CAST-IN-PLACE CONCRETE: 4,500 PSI
FILL CONCRETE: 1,500 PSI

3. USE 6% ±1.5%, ENTRAINED AIR PER ASTM C260 FOR ALL CONCRETE EXPOSED TO WEATHER.

4. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706.

6. ADMIXTURES SHALL CONTAIN NO MORE THAN 0.05% CHLORIDE IONS BY WEIGHT OF CEMENT WHEN TESTED IN ACCORDANCE WITH AASHTO T260.

7. CONTRACTOR SHALL KEEP A COPY OF "FIELD REFERENCE MANUAL: STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE ACI 301 WITH SELECTED ACI REFERENCES", (ACI PUBLICATION SP-15) AT THE PROJECT FIELD OFFICE.

8. ALL REINFORCING DETAILS SHALL CONFORM TO THE ACI DETAILING MANUAL, SP-66, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.

9. SUBMIT FOR APPROVAL CONCRETE MIX DESIGN AND CERTIFICATION OF CONCRETE MATERIALS CONFORMING TO THE FOLLOWING EXPOSURE CATEGORIES:

CATEGORY	PIERS, WALLS, EXTERIOR SLABS AIR ENTRAINED CLASS
FREEZE AND THAWING	F3
SULFATE	S1
IN CONTACT WITH WATER	W1
CORROSION PROTECTION	C2

10. THE CONTRACTOR SHALL EMPLOY A TESTING LABORATORY APPROVED BY THE ENGINEER TO PERFORM THE TESTING SPECIFIED PER PARAGRAPH 1.6.4 OF ACI 301. THE TESTING LABORATORY SHALL MEET THE REQUIREMENTS OF ASTM E329. TESTING SHALL BE MADE BY AN ACI CONCRETE FIELD-TESTING TECHNICIAN GRADE 1 OR APPROVED EQUIVALENT. A TECHNICIAN GRADE 1 SHALL BE PRESENT DURING ALL CONCRETE PLACEMENT.

11. SUBMIT SHOP DRAWINGS FOR REVIEW. THESE DRAWINGS SHALL SHOW ALL CONCRETE MEMBER DIMENSIONS AND DOWELS FOR MASONRY WALLS.

12. PROVIDE DOWELS FROM FOUNDATIONS TO MATCH PIER AND WALL VERTICAL REINFORCING. WHERE SHOWN, PROVIDE DOWELS OUT OF WALLS TO MATCH SLAB REINFORCING.

13. PROVIDE CLASS "B" TENSION LAP SPLICE OR FULL MECHANICAL SPLICE (ACI 318, SECT. 12.14.3)

14. PROVIDE ADEQUATE BOLSTERS, HI-CHAIRS, SUPPORT BARS, ETC., TO MAINTAIN SPECIFIED CLEARANCES FOR THE ENTIRE LENGTH OF ALL REINFORCING BARS. SUPPORTS THAT BEAR DIRECTLY ON EXPOSED SURFACES SHALL BE STAINLESS STEEL.

15. PROVIDE 3/4 INCH CHAMFER ON ALL EXPOSED CORNERS OF SLABS UNLESS OTHERWISE INDICATED. MINIMUM CLEARANCES FOR REINFORCING STEEL SHALL BE MAINTAINED.

16. CURE ALL CONCRETE FOR A MINIMUM 7-DAYS. APPLY CURING COMPOUND AT THE MAXIMUM COVERAGE RATE OF 300 SQUARE FEET PER GALLON. USE PRODUCT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SEE SPECIFICATIONS.

17. FORMWORK, FOR ALL CONCRETE THAT WILL BE EXPOSED IN THE COMPLETED STRUCTURE, SHALL BE CONSTRUCTED FROM A METAL OR SUITABLE SURFACE PLYWOOD THAT WILL PRODUCE AN ACCEPTABLY SMOOTH SURFACE. SEE SPECIFICATIONS..

24. CONCRETE PROTECTION (CLEAR COVER) FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
a. FOOTINGS:
• 3 INCHES, BOTTOM AND UNFORMED EDGES
• 2 INCHES, FORMED EDGES
• 2 INCHES, EXPOSED TO EARTH, WATER OR WEATHER
b. PIERS:
• 1 1/2 INCH TO TIES
• 2 INCH FOR VERTICAL REINFORCEMENT

DRILLED CONCRETE PIERS:

1. DRILLED CONCRETE PIERS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH IBC, THE REFERENCED GEOTECHNICAL REPORT, ACI 336.1-01, AND ACI 336.3R-93 (REAPPROVED 2006). INSTALLATION OF ALL DRILLED PIERS SHALL BE VERIFIED AND MONITORED BY THE GEOTECHNICAL ENGINEER IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND REQUIRED SPECIAL INSPECTIONS. SEE SPECIFICATIONS AND SPECIAL INSPECTIONS SECTION FOR MORE INFORMATION.

2. CONTRACTOR SHALL REVIEW REFERENCED GEOTECHNICAL REPORT PRIOR TO THE START OF CONSTRUCTION.

3. DRILLED CONCRETE PIERS SHALL BE INSTALLED IN SUCH A MANNER AND SEQUENCE TO PREVENT DEFORMING AND/OR DAMAGING ADJACENT PIERS THAT HAVE ALREADY BEEN INSTALLED.

4. ALL DRILLED CONCRETE PIERS SHALL BE INSTALLED BY AN EXPERIENCED CONTRACTOR WHO IS ABLE TO SUBMIT EVIDENCE OF HAVING A MINIMUM OF FIVE (5) YEARS EXPERIENCE IN THE SUCCESSFUL INSTALLATION OF DRILLED CONCRETE PIER WORK.

5. THE CONTRACTOR SHALL CAREFULLY EXAMINE AND DOCUMENT THE PROJECT SITE AND ADJACENT PREMISES PRIOR TO THE START OF CONSTRUCTION TO VERIFY THAT THE EXISTING CONDITIONS WILL NOT CONFLICT WITH THEIR EQUIPMENT OR WITH THE INSTALLATION OF THE DRILLED CONCRETE PIERS.

6. WHEN WORKING NEAR EXISTING AND/OR NEW CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION SO AS NOT TO UNDERMINE, DISTURB, DAMAGE OR, IN ANY WAY, CAUSE UNDESIRABLE MOVEMENT, CRACKING, AND/OR SETTLEMENT OF THE ADJACENT CONSTRUCTION.

7. DRILLED CONCRETE PIER SHAFT DIAMETER SHALL BE 28-INCHES WITH A BELL DIAMETER OF 28-INCHES, UNLESS NOTED OTHERWISE. ALL DRILLED PIERS SHALL BE FOUNDED ON BEDROCK WITH A MINIMUM ALLOWABLE END BEARING CAPACITY OF 1 TONS PER SQUARE FOOT (TSF). SEE GEOTECHNICAL REPORT.

8. BID DEPTH OF DRILLED CONCRETE PIERS SHALL BE 7-FEET BELOW GRADE. DRILLED PIERS SHALL EXTEND AND BEAR UPON EXISTING BEDROCK. ACTUAL DRILLED PIER DEPTHS SHALL BE CONFIRMED BY THE SPECIAL INSPECTOR IN CONJUNCTION WITH THE GEOTECHNICAL ENGINEER.

9. ALL DRILLED CONCRETE PIERS SHALL UTILIZE NORMAL-WEIGHT CONCRETE CONFORMING TO THE MATERIAL PROPERTIES AS STATED IN THE "CONCRETE AND REINFORCEMENT" SECTION OF THESE NOTES IN ADDITION TO THE FOLLOWING MATERIAL PROPERTIES, UNLESS NOTED OTHERWISE:
a. STEEL CASINGS: ASTM A283, GRADE C; A36, A929
b. SLURRY: PULVERIZED BENTONITE, PULVERIZED ATTAPULGITE, OR POLYMERS PER ACI 336.1
c. SLUMP: 4, 6, 7 INCHES

10. THE CONTRACTOR SHALL SUBMIT DATA AND SHOP DRAWINGS FOR THE FOLLOWING ITEMS INCLUDING, BUT NOT LIMITED TO:
a. PRODUCT DATA
b. CONCRETE DESIGN MIXTURES
c. MATERIAL CERTIFICATES/ TEST REPORTS
CEMENTITIOUS MATERIALS
ADMIXTURES
STEEL REINFORCEMENT AND ACCESSORIES
AGGREGATES
d. WELDING CERTIFICATES

11. SOIL SHALL BE EXCAVATED FOR DRILLED PIER CONSTRUCTION TO INDICATED ELEVATIONS USING CONVENTIONAL AUGERS FITTED WITH SOIL OR ROCK TEETH, DRILLING BUCKETS. OR UNDERREAMING TOOLS ATTACHED TO DRILLING EQUIPMENT OF SIZE, POWER, TORQUE, AND DOWNTHRUST NECESSARY TO COMPLETE THE WORK. REMOVE LOOSE MATERIAL FROM BOTTOM OF EXCAVATIONS.

12. SURFACE WATER SHALL BE PREVENTED FROM ENTERING EXCAVATED SHAFT.

13. TEMPORARY CASINGS SHALL BE INSTALLED IN SUFFICIENT LENGTH AND THICKNESS TO PREVENT WATER SEEPAGE INTO SHAFT. CASING SHALL HAVE SUFFICIENT STRENGTH TO RESIST COMPRESSIVE, DISPLACEMENT, AND WITHDRAWAL STRESSES. ALL TEMPORARY CASINGS SHALL MAINTAIN PLUMB POSITION DURING CONCRETE PLACEMENT BEFORE INITIAL SET OF CONCRETE, AND BE REMOVED.

14. REMOVAL OF TEMPORARY SHALL BE COORDINATED WITH CONCRETE PLACEMENT IN AN EFFORT TO MAINTAIN AT LEAST 6-INCHES OF CONCRETE HEAD ABOVE BOTTOM OF CASING.

15. STEEL REINFORCEMENT SHALL BE INSTALLED SYMMETRICALLY ABOUT THE SHAFT AXIS IN A SINGLE UNIT IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS AND THE CONCRETE REINFORCING STEEL INSTITUTE'S "MANUAL OF STANDARD PRACTICE."

16. CONCRETE SHALL BE PLACED IN CONTINUOUS OPERATION AND WITHOUT SEGREGATION IMMEDIATELY AFTER INSPECTION AND APPROVAL OF SHAFT BY THE SPECIAL INSPECTOR.

17. CONCRETE SHALL BE PLACED IN A MANNER TO PREVENT THE SEGREGATION OF THE MIX. CONCRETE SHALL BE PLACED USING SHUTES, TREMIES, AND/OR PIPE AND SHALL BE PLACED AT THE CENTER OF THE FORMS TO MINIMIZE IMPACT WITH THE REINFORCING OR STRIKING THE SIDES OF THE FORMING SURFACE. VIBRATE TOP 60-INCHES OF CONCRETE.

18. THE DRILLED PIERS SHALL BE INSTALLED WITHIN THE FOLLOWING TOLERANCES, UNLESS NOTED OTHERWISE:
a. CENTERLINE OF PILES: 1/24 OF THE SPECIFIED SHAFT DIAMETER OR 3 INCHES, WHICHEVER IS GREATER, FROM THE LOCATION SHOWN ON THE DRAWINGS
b. VERTICAL PLUMBNESS: 1.5% FROM VERTICAL
c. SPACING: NOT LESS THAN 3 SHAFT DIAMETERS
d. TOP OF SHAFT: TOP OF PIER ELEVATION AS SHOWN ON STRUCTURAL DRAWINGS ±1 INCH

19. CONTRACTOR SHALL SUBMIT ALL TEST AND INSPECTION REPORTS TO STRUCTURAL ENGINEER WITHIN 3 DAYS OF COMPLETION. ALL DRILLED PIERS WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS.

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: BS
DRAWN BY: BS
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
CIVIL - 50 SERIES
STRUCTURAL NOTES 1

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
50C-06
SHEET 41 OF 49

SECTION 014000
QUALITY REQUIREMENTS

A. Testing and inspection agencies and services.
B. Defect Assessment.

1.02RELATED REQUIREMENTS

A. Section 012100 - Allowances: Allowance for payment of testing services.

1.03REFERENCE STANDARDS

A. ASTM C1077 - Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation; 2024.
B. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2023.
C. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2021.

1.04SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Designer's Qualification Statement: Submit for Engineer's knowledge as contract administrator, or for Owner's information.
   1. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.
      a. Full name.
      b. Professional licensure information.
      c. Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.
C. Design Data: Submit for Engineer's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
   1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
   2. Include required product data and shop drawings.
   3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
   4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.
D. Test Reports: After each test/inspection, promptly submit two copies of report to Engineer and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Compliance with Contract Documents.
      k. When requested by Engineer, provide interpretation of results.
   2. Test report submittals are for Engineer's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.
E. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.
   1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.
F. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
G. Manufacturer's Field Reports: Submit reports for Engineer's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.
H. Erection Drawings: Submit drawings for Engineer's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

1.05QUALITY ASSURANCE

A. Testing Agency Qualifications:
   1. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.
B. Designer Qualifications: Where professional engineering design services and design data submittals are specifically required of Contractor by Contract Documents, provide services of a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.06TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ services of an independent testing agency to perform certain specified testing.
B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
B. Comply with manufacturers' instructions, including each step in sequence.
C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
E. Have work performed by persons qualified to produce required and specified quality.
F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

A. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Engineer and Contractor of observed irregularities or non-compliance of Work or products.
   5. Perform additional tests and inspections required by Engineer.
   6. Submit reports of all tests/inspections specified.
B. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.
C. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Engineer and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
   6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Engineer.
E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.03 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not complying with specified requirements.

END OF SECTION

SECTION 017000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SUBMITTALS
A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

1.02 QUALIFICATIONS
A. For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained and experienced in collecting and recording accurate data relevant to ongoing construction activities,
B. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State in which the Project is located. Employ only individual(s) trained and experienced in establishing and maintaining horizontal and vertical control points necessary for laying out construction work on project of similar size, scope and/or complexity.

1.03 PROJECT CONDITIONS
A. Use of explosives is not permitted.

1.04 COORDINATION
A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
B. Coordinate completion and clean-up of work of separate sections.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
C. Examine and verify specific conditions described in individual specification sections.

3.02 LAYING OUT THE WORK
A. Verify locations of survey control points prior to starting work.
B. Promptly notify Architect of any discrepancies discovered.
C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.
F. Utilize recognized engineering survey practices.
G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations; and _____.
   2. Grid or axis for structures.
H. Periodically verify layouts by same means.
I. Maintain a complete and accurate log of control and survey work as it progresses.

3.03 GENERAL INSTALLATION REQUIREMENTS
A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.04 PROGRESS CLEANING
A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.05 ADJUSTING
A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.06 FINAL CLEANING
A. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.07 CLOSEOUT PROCEDURES
A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Architect and Owner.
B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.
G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 031000
CONCRETE FORMING AND ACCESSORIES

PART 1 GENERAL

1.01SECTION INCLUDES

A. Formwork for cast-in-place concrete, with shoring, bracing and anchorage.
B. Form accessories.
C. Form stripping.

1.02RELATED REQUIREMENTS

A. Section 032000 - Concrete Reinforcing.
B. Section 033000 - Cast-in-Place Concrete.

1.03REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
B. ACI PRC-347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
C. ACI SPEC-117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
D. ACI SPEC-301 - Specifications for Concrete Construction; 2020.

1.04SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

1.05QUALITY ASSURANCE

A. Perform work of this section in accordance with Highways standards of the State of Ohio.
B. Designer Qualifications: Design formwork under direct supervision of a Professional Structural Engineer experienced in design of concrete formwork and licensed in the State in which the Project is located.
C. Maintain one copy of each installation standard on site throughout the duration of concrete work.

1.06DELIVERY, STORAGE, AND HANDLING

A. Deliver prefabricated forms and installation instructions in manufacturer's packaging.
B. Store prefabricated forms off ground in ventilated and protected manner to prevent deterioration from moisture.

PART 2 PRODUCTS

2.01 FORMWORK - GENERAL

A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in- place concrete work.
B. Design and construct concrete that complies with design with respect to shape, lines, and dimensions.
C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.

2.02 WOOD FORM MATERIALS

A. Form Materials: At the discretion of the Contractor.

2.03 REMOVABLE PREFABRICATED FORMS

A. Tubular Column Type: Round, spirally wound laminated fiber material, surface treated with release agent, non-reusable, of sizes indicated. Provide 18" diameter manufactured by Sonotube .

2.04 FORMWORK ACCESSORIES

A. Form Release Agent: Capable of releasing forms from hardened concrete without staining or discoloring concrete or forming bugholes and other surface defects, compatible with concrete and form materials, and not requiring removal for satisfactory bonding of coatings to be applied.
   1. Do not use materials containing diesel oil or petroleum-based compounds.
   2. Composition: Colorless, reactive, water-based compound.
      a. Products:
         1) Kaufman Products Inc; FormKote Emulsion: www.kaufmanproducts.net/#sle.
         2) Nox-Crete Inc; BIO-NOX: www.nox-crete.com/#sle.
         3) SpecChem, LLC; Bio Strip WB (water-based): www.specchemllc.com/#sle.
B. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.02 ERECTION - FORMWORK

A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI SPEC-301.
B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

3.03 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

3.04 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.
B. Clean formed cavities of debris prior to placing concrete.

3.05 FORMWORK TOLERANCES

A. Construct formwork to maintain tolerances required by ACI SPEC-117, unless otherwise indicated.

3.06 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.

3.07 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

END OF SECTION

SECTION 032000
CONCRETE REINFORCING

PART 1 GENERAL

1.01SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.
B. Supports and accessories for steel reinforcement.

1.02RELATED REQUIREMENTS

A. Section 031000 - Concrete Forming and Accessories.
B. Section 033000 - Cast-in-Place Concrete.

1.03REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
B. ACI MNL-66 - ACI Detailing Manual; 2020.
C. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
D. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
E. CRSI (DA4) - Manual of Standard Practice; 2023.
F. CRSI (P1) - Placing Reinforcing Bars, 10th Edition; 2019.

1.04SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.
B. Shop Drawings: Comply with requirements of ACI MNL-66 Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
   1. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in the State in which the Project is located.
C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

1.05QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301.
   1. Maintain one copy of each document on project site.
B. Provide Engineer with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
   1. Plain billet-steel bars.
B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel components for placement within 1-1/2 inches (38 mm) of weathering surfaces.

2.02 RE-BAR SPLICING:

A. Coupler Systems: Mechanical devices for splicing reinforcing bars.
   1. Comply with ACI CODE-318 steel reinforcing design strength requirements for splices in tension and compression.

2.03 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
B. Welding of reinforcement is not permitted.
C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
B. Comply with applicable code for concrete cover over reinforcement.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 014000 - Quality Requirements, will inspect installed reinforcement for compliance with contract documents before concrete placement.

END OF SECTION

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
SCALE: AS NOTED
DESIGNED BY: BS
DRAWN BY: BS
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
CIVIL - 50 SERIES
STRUCTURAL NOTES 2

PROJECT NO. 232478
DISCIPLINE: CIVIL
SHEET NAME: 50C-07
SHEET 42 OF 49

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01SECTION INCLUDES

A. Concrete formwork.
B. Concrete reinforcement.Joint devices associated with concrete work.
C. Concrete curing.

1.02RELATED REQUIREMENTS

A. Section 031000 - Concrete Forming and Accessories: Forms and accessories for formwork.
B. Section 032000 - Concrete Reinforcing.

1.03REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
C. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
D. ACI PRC-305 - Guide to Hot Weather Concreting; 2020.
E. ACI PRC-306 - Guide to Cold Weather Concreting; 2016.
F. ACI PRC-308 - Guide to External Curing of Concrete; 2016.
G. ACI PRC-347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
H. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
I. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2024.
M. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50 mm [2 in.] Cube Specimens); 2023.
N. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).
P. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
Q. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).
R. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
S. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
T. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2020.
U. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.

1.04SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
   1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.
C. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI SPEC-301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 5 - Concrete Quality, Mixing and Placing.
   3. Indicate proposed mix design complies with admixture manufacturer's written recommendations.
D. Test Reports: Submit report for each test or series of tests specified.
E. Sustainable Design Submittal: If any fly ash, ground granulated blast furnace slag, silica fume, rice hull ash, or other waste material is used in mix designs to replace Portland cement, submit the total volume of concrete cast in place, mix design(s) used showing the quantity of portland cement replaced, reports showing successful cylinder testing, and temperature on day of pour if cold weather mix is used.

1.05QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.
   1. Maintain one copy of each document on site.
B. Follow recommendations of ACI PRC-305 when concreting during hot weather.
C. Follow recommendations of ACI PRC-306 when concreting during cold weather.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 031000.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
   1. Type: Deformed billet-steel bars.
   2. Finish: Unfinished, unless otherwise indicated.
B. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel, galvanized, plastic, or plastic coated steel components for placement within 1-1/2 inches (38 mm) of weathering surfaces.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type II, I/IV, V low alkali, and ASTM C595M, Type IP.
   A.A. Use one brand of cement throughout project, unless otherwise acceptable to Engineer.
   A.B. Portland cement shall contain less than 0.60 percent alkalis. Portland-pozzolan cement shall be low alkali.
B. Fine and Coarse Aggregates: ASTM C33/C33M.
C. Fly Ash: ASTM C618, Class F.
D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
B. Air Entrainment Admixture: ASTM C260/C260M.
C. High Range Water Reducing Admixture: ASTM C494/C494M Type F.
   1. Products:
      a. Euclid Chemical Company; PLASTOL 6420: www.euclidchemical.com/#sle.
D. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.
   1. Products:
      a. Euclid Chemical Company; ACCELGUARD 80: www.euclidchemical.com/#sle.
E. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.
   1. Products:
      a. Master Builders Solutions; MasterSet DELVO: www.master-builders- solutions.com/en-us/#sle.
F. Accelerating Admixture: ASTM C494/C494M Type C.
   1. Products:
      a. Master Builders Solutions; MasterSet AC 534: www.master-builders- solutions.com/en-us/#sle.
      b. W. R. Meadows, Inc; Hydraset: www.wrmeadows.com/#sle.
G. Water Reducing Admixture: ASTM C494/C494M Type A.
H. Corrosion Inhibiting Admixture:
   1. ASTM C494/C494M, Type C.
   2. Products:
      a. Euclid Chemical Company; EUCON CIA: www.euclidchemical.com

2.05 ACCESSORY MATERIALS

A. Non-Shrink Cementitious Grout: Premixed compound consisting of nonmetallic aggregate, cement, water reducing and plasticizing agents.
   1. Grout: Comply with ASTM C1107/C1107M.
   2. Minimum Compressive Strength at 48 Hours, ASTM C109/C109M: 2,000 pounds per square inch (13.7 MPa).
   3. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch (13.7 MPa).
   4. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch (48 MPa).
   5. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch (48 MPa).

2.06 BONDING AND JOINTING PRODUCTS

A. Epoxy Bonding System:

2.07 CURING MATERIALS

A. Curing Compound, Non-Dissipating: Liquid, membrane-forming, clear, nonyellowing acrylic; complying with ASTM C309.
   1. Application: Use at_____.
   2. Vehicle: Water-based.
   3. Gloss: Low.
   4. Solids by Mass: 15 percent, minimum.
   5. VOC Content: OTC compliant.
   6. Products:
      a. LATICRETE International, Inc; Dress & Seal WB: www.laticrete.com/#sle.
      b. W. R. Meadows, Inc; VOCOMP-20: www.wrmeadows.com/#sle.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.
   1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.
B. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and at rates recommended or required by manufacturer.
C. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Water-Cement Ratio: Maximum 40 percent by weight.
   4. Maximum Aggregate Size: 5/8 inch (16 mm).

2.09 MIXING

A. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

PART 3 EXECUTION

3.01 PREPARATION

A. Formwork: Comply with requirements of ACI SPEC-301. Design and fabricate forms to support all applied loads until concrete is cured and for easy removal without damage to concrete.
B. Verify that forms are clean and free of rust before applying release agent.
C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
   1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.02 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI SPEC-301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

3.03 PLACING CONCRETE

A. Place concrete in accordance with ACI PRC-304.
B. Notify Engineer not less than 24 hours prior to commencement of placement operations.
C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

3.04 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch (6 mm) or more in height.
C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch (6 mm) or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

3.05 CURING AND PROTECTION

A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than seven days.

3.06 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - Quality Requirements.
B. Provide free access to concrete operations at project site and cooperate with appointed firm.
C. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

3.07 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Engineer and Contractor within 24 hours of test.
B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
C. Repair or replacement of defective concrete will be determined by the Engineer. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

TABLE 1705.8		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. INSPECT DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATED RECORDS FOR EACH ELEMENT.	X	-
2. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIAMETERS(IF APPLICABLE), LENGTHS, EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CAPACITY. RECORD CONCRETE OR GROUT VOLUMES.	X	-
3. FOR CONCRETE ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTONS IN ACCORDANCE WITH SECTION 1705.3.	-	-

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARNIG CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAL.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR: REVIEW SET
ISSUE DATE: 9/30/26
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DESIGNED BY: BS
DRAWN BY: BS
CHECKED BY: TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
CIVIL - 50 SERIES
STRUCTURAL NOTES 3

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
50C-08
SHEET 43 OF 49

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS OF CONCRETE CONSTRUCTION					
REQUIRED	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
X	1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	-	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
X	2. REINFORCING BAR WELDING:				
X	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	-	X	AWS D1.4 ACI 318: 26.6.4	-
X	b. INSPECT SINGLE-PASS FILLET WELDS, MAZIMUM 5/16"; AND		X		
X	c. INSPECT ALL OTHER WELDS	X			
X	5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
X	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
X	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
X	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: CH. 26.11.2(b)	-

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

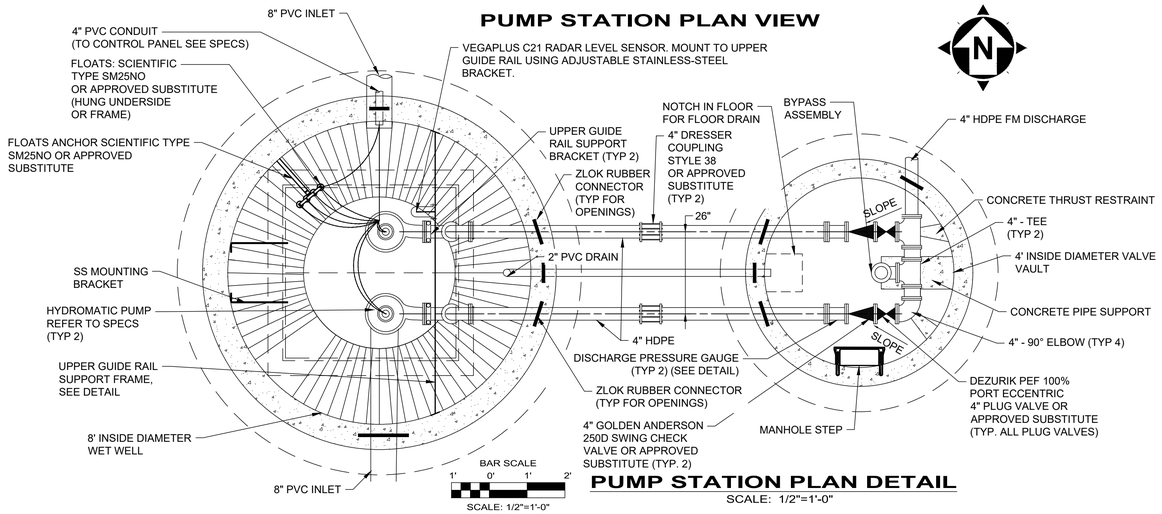
NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	BS
DRAWN BY:	BS
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY
KINGSVILLE, OHIO

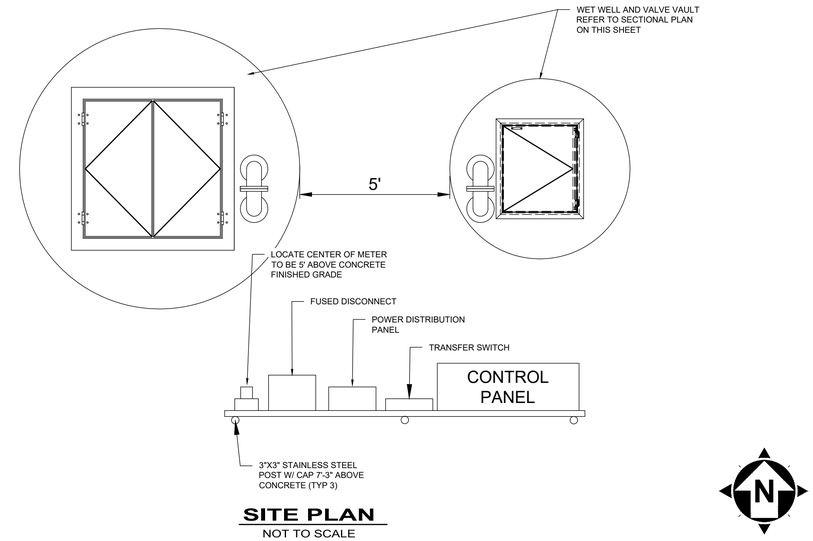
CIVIL - 50 SERIES
STRUCTURAL NOTES 4

PROJECT NO.
232478
DISCIPLINE
CIVIL
SHEET NAME
50C-09
SHEET 44 OF 49



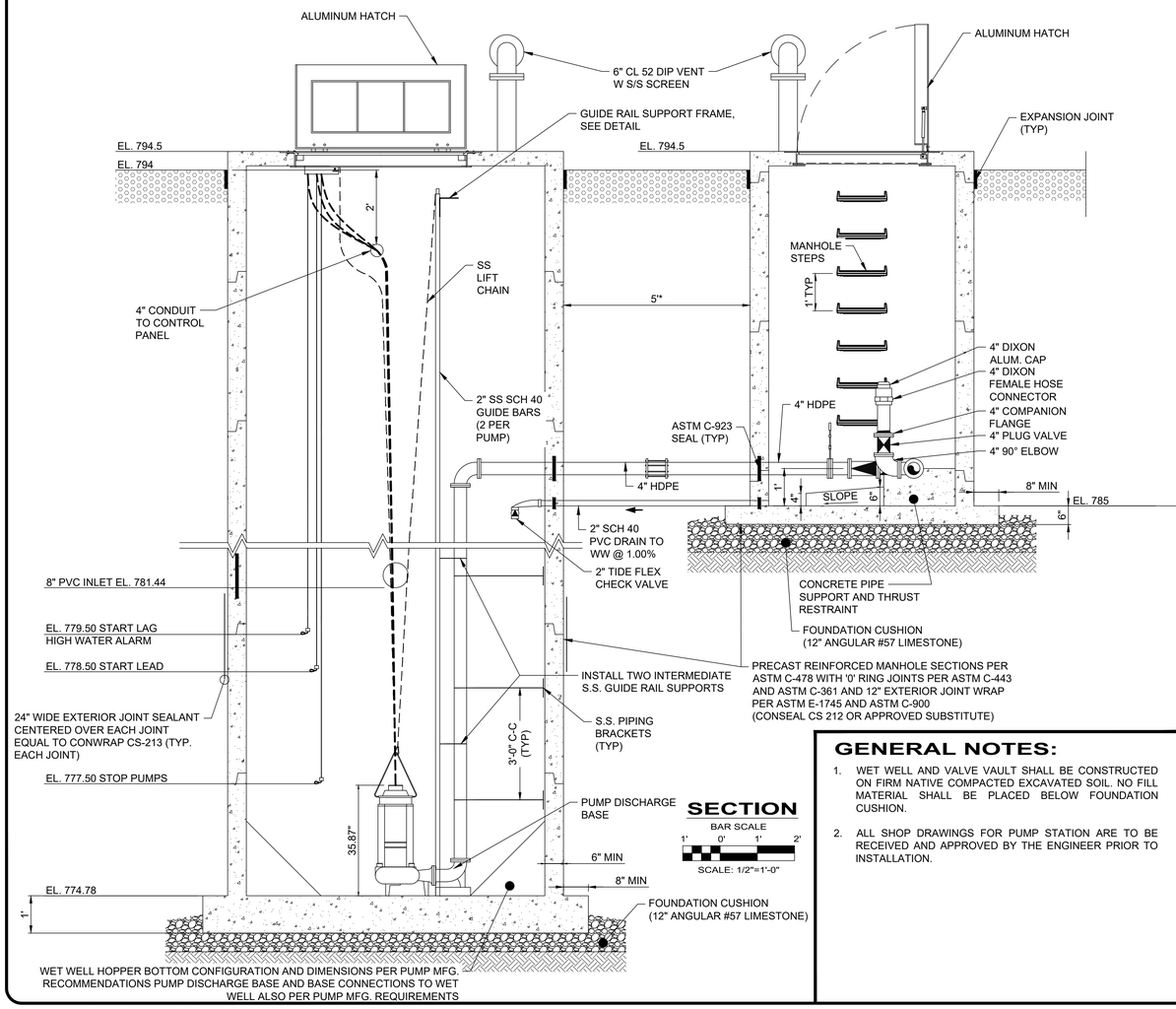
PUMP STATION PLAN DETAIL

SCALE: 1/2"=1'-0"



SITE PLAN

NOT TO SCALE



SECTION

BAR SCALE
1' 0' 1' 2'
SCALE: 1/2"=1'-0"

GENERAL NOTES:

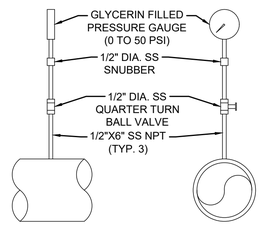
1. WET WELL AND VALVE VAULT SHALL BE CONSTRUCTED ON FIRM NATIVE COMPACTED EXCAVATED SOIL. NO FILL MATERIAL SHALL BE PLACED BELOW FOUNDATION CUSHION.
2. ALL SHOP DRAWINGS FOR PUMP STATION ARE TO BE RECEIVED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

PUMP STATION NOTES:

1. OPENINGS IN RISER SECTIONS OF PRECAST CONCRETE MANHOLE AND VAULTS SHALL HAVE A.S.T.M. SPEC. C-923 OR MODULAR MECHANICAL TYPE SEAL OF INTERLOCKING SYNTHETIC RUBBER LINKS (LINKSEAL OR APPROVED EQUIVALENT). WATERTIGHT PIPE SEALS.
2. JOINT SEAL BETWEEN PRECAST MANHOLE SECTIONS SHALL COMPLY WITH A.S.T.M. C-443 OR LATEST EDITION. FOLLOW SAME TONGUE AND GROOVE DETAIL AS ON MANHOLE DETAIL. ALSO FOLLOW SAME EXTERNAL JOINT DETAIL AS ON MANHOLE DETAIL.
3. PRECAST STEEL REINFORCED CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF A.S.T.M. C-478. FOR BOTH THE PUMP STATION WET WELL AND THE VALVE VAULT.
4. SEAL LIFT HOLES WITH APPROVED NON-SHRINK GROUT AND COAT WITH BITUMASTIC SEALANT.
5. ALL PUMP STATION WET WELL AND VALVE VAULT PIPING TO BE FLANGED DUCTILE IRON PIPE CL. 52.
6. PREP AND PAINT ALL EXPOSED PIPING, VALVES AND FERROUS METAL ITEMS IN WET WELL AND VALVE PIT WITH 1 COAT (3.5 MIL) OMNITHANE PRIMER AND 1 FINISH COAT OF (4 MIL) SERIES N69 HI-BUILD EPOXOLINE II. THE INTERIOR WALLS AND CEILING OF THE PRECAST CONCRETE VALVE VAULT SHALL BE PAINTED COLOR WHITE WITH THE PRODUCT THOROSEAL OR APPROVED EQUAL.
7. SEE ELECTRICAL SHEETS FOR WATER LEVEL DETECTOR MOUNTING AND ELECTRICAL WIRING (OR APPROVED EQUAL).
8. DISCHARGE PRESSURE GAUGES SHALL BE INSTALLED UPSTREAM OF CHECK VALVE.
9. EACH PUMP SHALL BE EQUIPPED WITH A STAINLESS STEEL LIFTING CHAIN AND BAIL EXTENDING FROM THE PUMP TO THE TOP OF THE WET WELL WITH AN EXTRA 5-L.F. OF CHAIN. CHAIN SHALL BE ABLE TO CONNECT TO A S.S. CLASP AT THE TOP OF THE WET WELL SO THAT OPERATIONS STAFF CAN UNCLASP CHAIN AND HOOK TO A JIB CRANE. DESIGN OF CHAIN SHALL BE COMMENSURATE WITH PUMP LOAD AND FACTOR OF SAFETY OF 3.
10. CONCRETE MIX DESIGN IN CONTACT WITH WASTEWATER MUST BE IN ACCORDANCE WITH ACI 350R AND SUCH CONCRETE SHALL UTILIZE TYPE II CEMENT. XYPEX ADMIX C-1000 SHALL BE USED FOR CONCRETE WATERPROOFING.
11. ALL EXPANSION JOINTS AND CONTROL JOINTS SHALL BE SEALED WITH SIKAFLEX-1C SL.

SANITARY PUMP STATION PUMP DATA

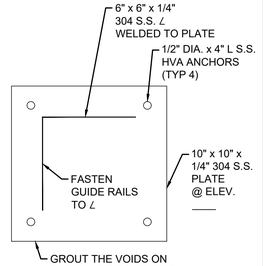
TYPE OF PUMP:	SUBMERSIBLE SOLIDS
ARRANGEMENT:	DUPLEX
PUMPED FLUID:	RAW SEWAGE
ENCLOSURE:	STANDARD SUBMERSIBLE, CASTER IRON
LIQUID TEMPERATURE:	UP TO 140 F
EACH:	680 GPM
T.D.H.:	106 Ft
IMPELLER DIAMETER:	8.38 IN, RECESSED VORTEX
MIN. NAMEPLATE H.P.:	5 H.P.
MOTOR SPEED:	1750 RPM
MODEL:	MYERS 4VHA, OR APPROVED SUBSTITUTE
POWER REQUIREMENTS:	200 VOLT, 3 PHASE, 60 HZ
DISCHARGE SIZE:	4 INCH



SECTION VIEW (GAUGE ONLY)

TYPICAL DISCHARGE PRESSURE GAUGE

NOT TO SCALE



UPPER GUIDE RAIL SUPPORT FRAME DETAIL

NOT TO SCALE

STATE OF OHIO
TIMOTHY MCLAUGHLIN E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
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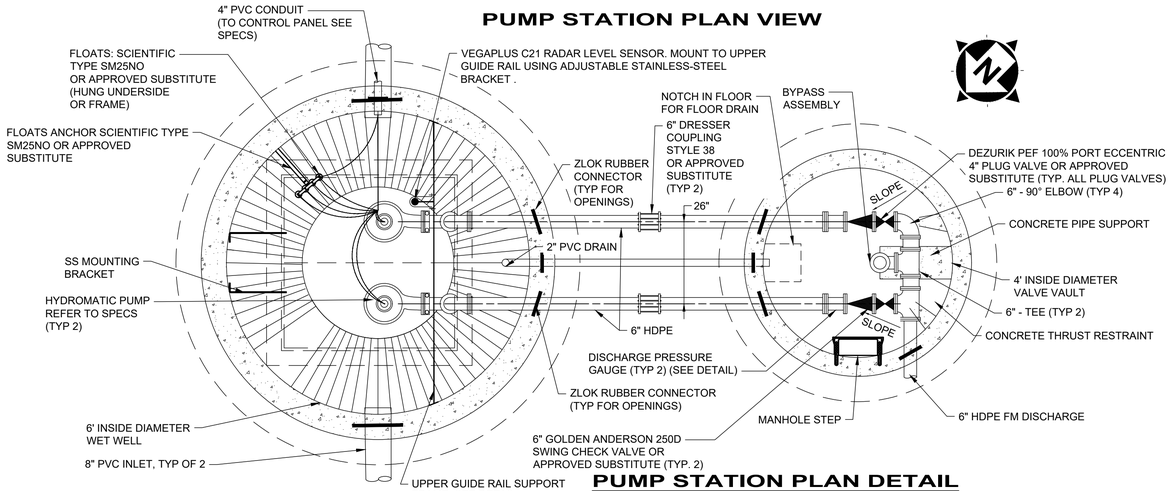
NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	AMM
DRAWN BY:	AMM
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
PUMP STATIONS - 60 SERIES
PUMP STATION NO. 1

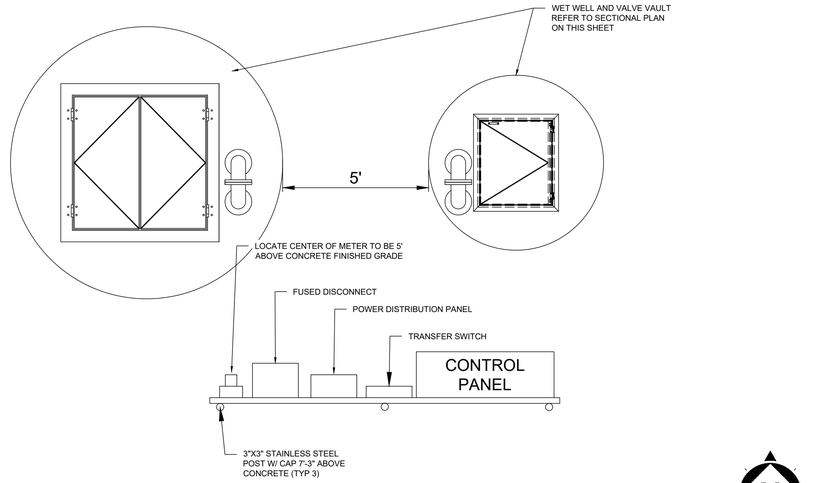
PROJECT NO.	232478
DISCIPLINE	PROCESS
SHEET NAME	60D-01
SHEET	45
OF	49

PUMP STATION PLAN VIEW



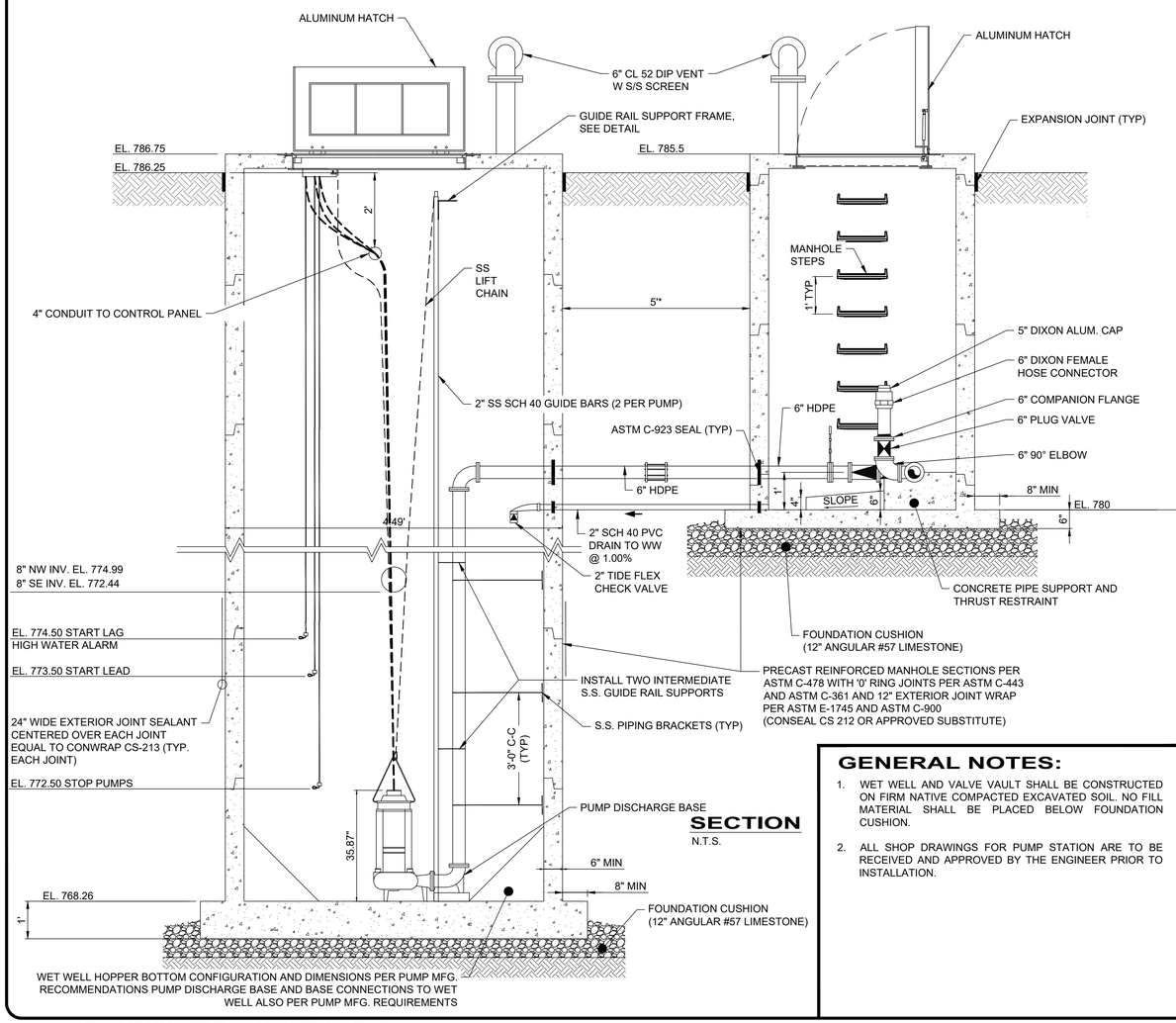
PUMP STATION PLAN DETAIL

SCALE: N.T.S.



SITE PLAN

NOT TO SCALE



SECTION

N.T.S.

WET WELL HOPPER BOTTOM CONFIGURATION AND DIMENSIONS PER PUMP MFG. RECOMMENDATIONS PUMP DISCHARGE BASE AND BASE CONNECTIONS TO WET WELL ALSO PER PUMP MFG. REQUIREMENTS

GENERAL NOTES:

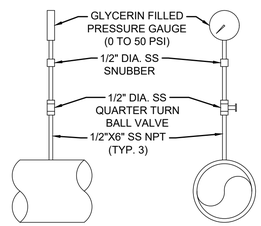
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SANITARY PUMP STATION PUMP DATA

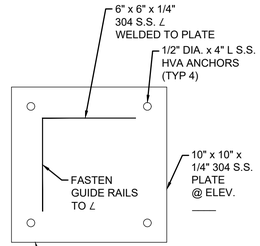
TYPE OF PUMP:	SUBMERSIBLE SOLIDS
ARRANGEMENT:	DUPLEX
PUMPED FLUID:	RAW SEWAGE
ENCLOSURE:	STANDARD SUBMERSIBLE, CASTER IRON
LIQUID TEMPERATURE:	UP TO 140 F
EACH:	680 GPM
T.D.H.:	106 Ft
IMPELLER DIAMETER:	8.38 IN, RECESSED VORTEX
MIN. NAMEPLATE H.P.:	5 H.P.
MOTOR SPEED:	1750 RPM
MODEL:	MYERS 4VHA, OR APPROVED SUBSTITUTE
POWER REQUIREMENTS:	200 VOLT, 3 PHASE, 60 HZ
DISCHARGE SIZE:	4 INCH



SECTION VIEW (GAUGE ONLY)

TYPICAL DISCHARGE PRESSURE GAUGE

NOT TO SCALE



UPPER GUIDE RAIL SUPPORT FRAME DETAIL

NOT TO SCALE

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	AMM
DRAWN BY:	AMM
CHECKED BY:	TJM

ASHTABULA COUNTY

KINGSVILLE REGIONAL SEWER IMPROVEMENTS

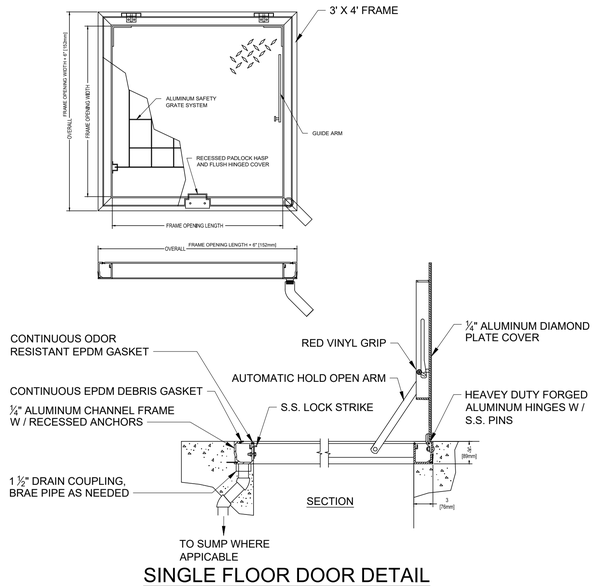
KINGSVILLE, OHIO

ASHTABULA COUNTY

PUMP STATIONS - 60 SERIES

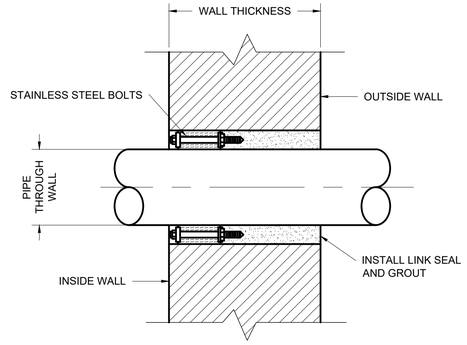
PUMP STATION NO. 2

PROJECT NO.	
232478	
DISCIPLINE	
PROCESS	
SHEET NAME	
60D-02	
SHEET	OF
46	49



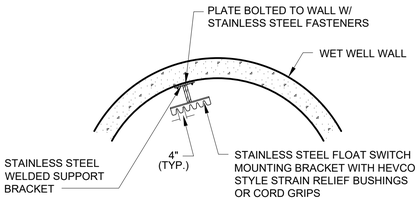
SINGLE FLOOR DOOR DETAIL

SCALE: NTS



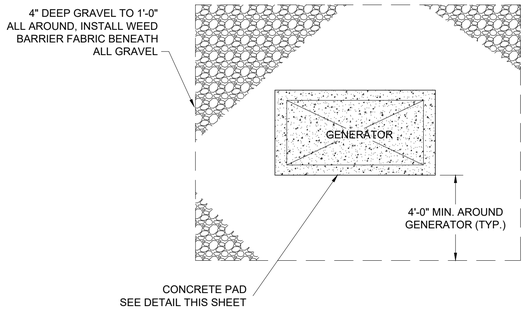
LINK SEAL WALL DETAIL

SCALE: NTS



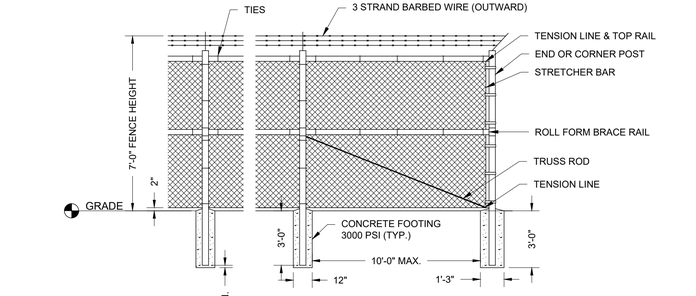
FLOAT SUPPORT BRACKET DETAIL

SCALE: NTS



BACKUP GENERATOR SITE DETAIL

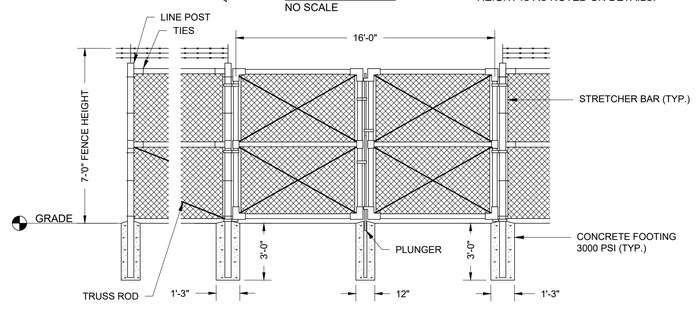
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TYPICAL FENCE

NO SCALE

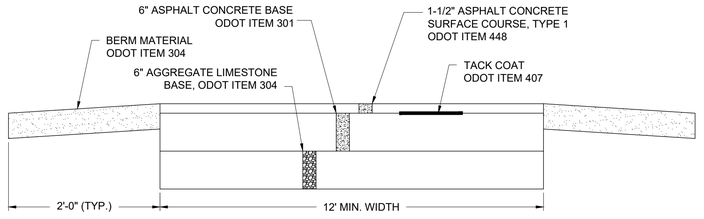
NOTE: FOLLOW ODOT ITEM 607 FENCE TYPE CL. HEIGHT IS AS NOTED ON DETAILS.



TYPICAL GATE

NO SCALE

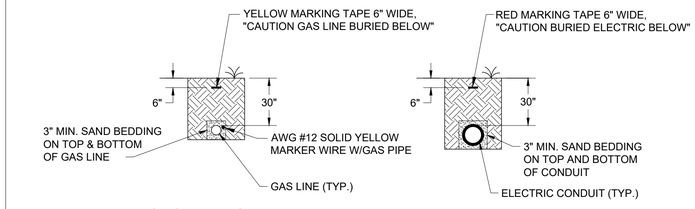
CHAIN LINK FENCE DETAILS



NOTE:
PREPARE SUBGRADE IN ACCORDANCE WITH ODOT 204

DRIVEWAY PLACEMENT DETAIL

SCALE: NTS

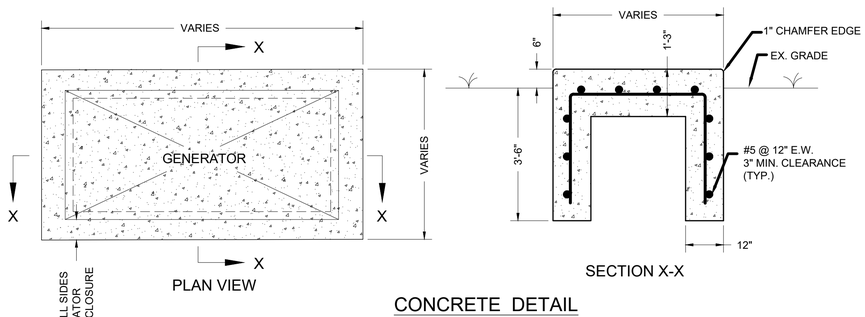


GAS TRENCH DETAIL

SCALE: NTS

ELECTRIC TRENCH DETAIL

SCALE: NTS

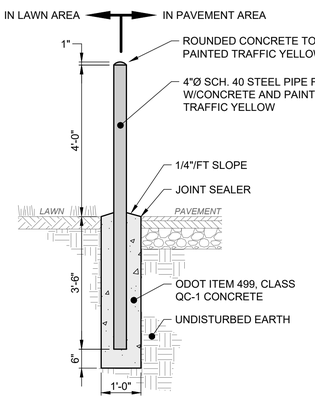


CONCRETE DETAIL

SCALE: 1/2" = 1'-0"

CONCRETE NOTES:

1. CONCRETE PAD MEASUREMENTS TO BE FIELD VERIFIED AND SIZE BASED ON GENERATOR.
2. CONCRETE PAD AND FOUNDATION CONSTRUCTION SHALL BE MONOLITHIC.
3. REINFORCEMENT REBAR SHALL BE HELD IN PLACE WITH WIRE TIES AND CHAIR SUPPORTS, OTHER MATERIALS AND STONE SUPPORT ARE PROHIBITED.



BOLLARD (4") DETAIL

SCALE: NONE

TIMOTHY MCLAUGHLIN
E-83985
STATE OF OHIO
REGISTERED
PROFESSIONAL ENGINEER

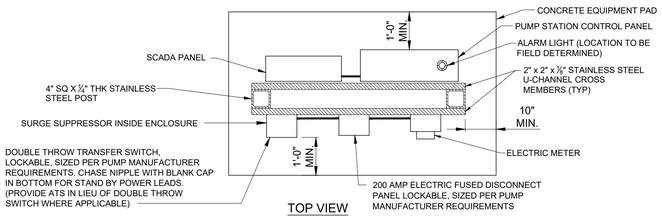
verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	AMM
DRAWN BY:	AMM
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO
PUMP STATIONS - 60 SERIES
STANDARD PUMP STATION DETAILS - 1

PROJECT NO.
232478
DISCIPLINE
PROCESS
SHEET NAME
60D-03
SHEET 47 OF 49



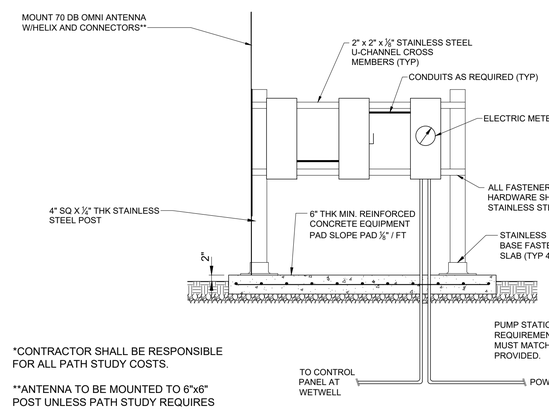
TOP VIEW

NOTES:

1. ALL ELECTRICAL CONTROL PANELS SHALL BE NEMA 4X STAINLESS STEEL WHEN MOUNTED OUTSIDE ON SERVICE PANEL.
2. WHEN PUMP STATION REQUIRES A BUILDING, ALL ELECTRICAL CONTROL PANELS SHALL BE NEMA 12 PAINTED STEEL AND MOUNTED INSIDE PUMP STATION BUILDING.

SEPARATE BREAKER SWITCHES FOR:

LIGHTING
RECEPTACLES
METER
SCADA

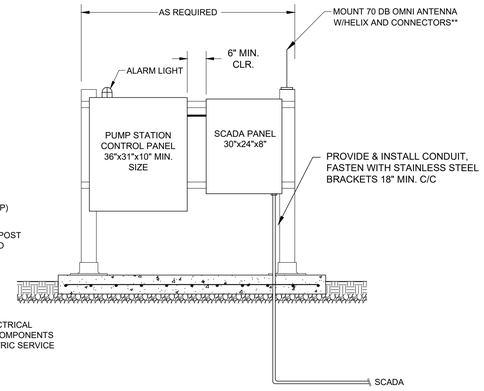


*CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PATH STUDY COSTS.

**ANTENNA TO BE MOUNTED TO 6"x6" POST UNLESS PATH STUDY REQUIRES ACTUAL POLE TO BE SET. (IF POLE IS REQUIRED, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS.

FRONT VIEW

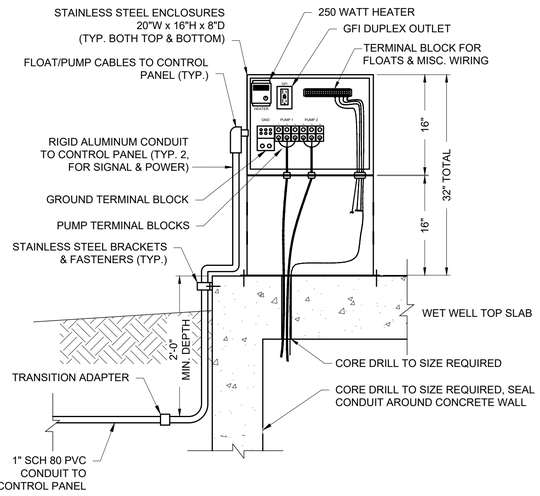
ELECTRIC SERVICE:
277/480V 3Ø 4 WIRE

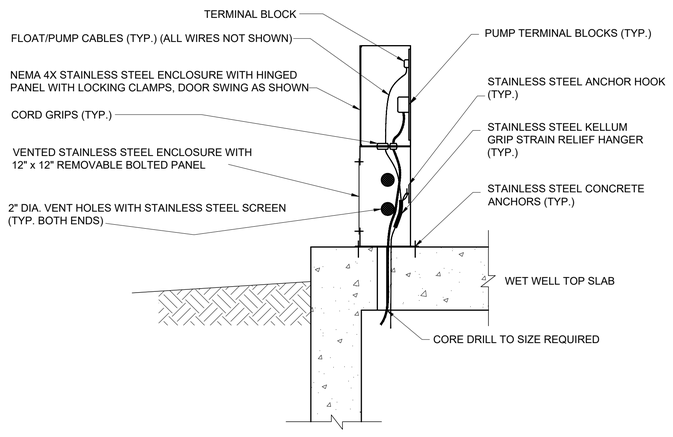


REAR VIEW

MINIMUM REQUIREMENTS FOR UNDERGROUND PUMP STATION SERVICE PANEL

SCALE: NTS





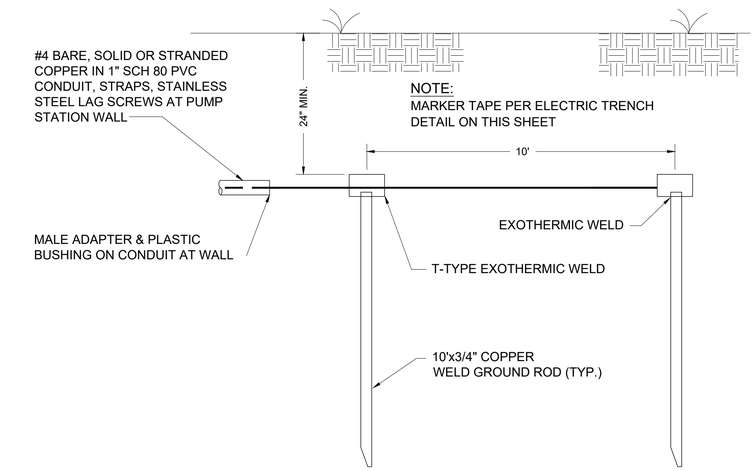
NOTE:
1. JUNCTION BOX SHOWN WITHOUT PANELS
2. ALL CONDUIT CONNECTIONS SHALL HAVE GROMMETS AND BE WATER-TIGHT. CONDUIT SIZE PER REQUIRED EQUIPMENT WIRE SIZE AND NEC, 1 INCH MINIMUM AND SCH. 80 PVC.
3. ELECTRICAL BREAKERS & CONTROLS SHALL BE LABELED ACCORDING TO THEIR FUNCTION BY USE OF "BRADY" LABELS OR APPROVED EQUAL.

FRONT SECTION VIEW

SIDE SECTION VIEW

JUNCTION BOX DETAIL

SCALE: 1" = 1'-0"



GROUNDING ROD SECTION VIEW DETAIL

SCALE: NTS

STATE OF OHIO
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(440) 951-9000

NO	REVISION	DATE

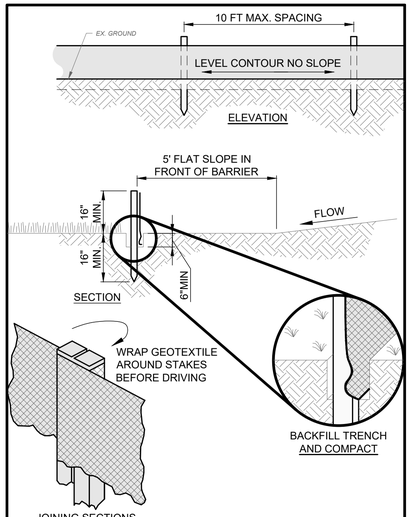
ISSUED FOR:	REVIEW SET
ISSUE DATE:	9/30/26
SCALE:	AS NOTED
DESIGNED BY:	AMM
DRAWN BY:	AMM
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

PUMP STATIONS - 60 SERIES

STANDARD PUMP STATION DETAILS - 2

PROJECT NO.	232478
DISCIPLINE	PROCESS
SHEET NAME	60D-04
SHEET	48
OF	49

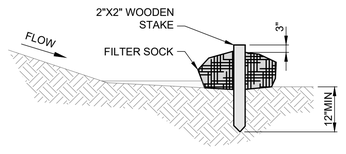


NOTES:

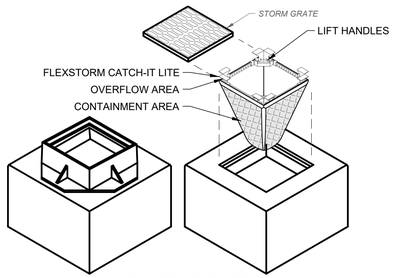
1. PRESERVE VEGETATION FOR 5 FEET, OR AS MUCH AS POSSIBLE, UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RE-ESTABLISHED WITHIN 7 DAYS FROM SILT FENCE INSTALLATION.
2. SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. PERFORM ONE OF THE FOLLOWING IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW:
   - CHANGE THE LAYOUT OF THE SILT FENCE.
   - REMOVE ACCUMULATED SEDIMENT.
   - INSTALL OTHER PRACTICES.

FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MIN	ASTM D-1682
MULLEN BURST STRENGTH	190 PSI MIN	ASTM D-3786
SLURRY FLOW RATE	0.3 GAL./MIN./S.F. MAX.	
EQUIVALENT OPENING SIZE	40-80	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MIN	ASTM-G-26

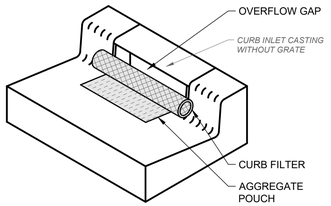
SILT FENCE
SCALE: NONE



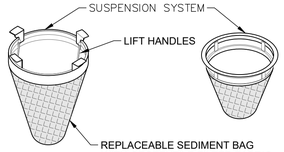
FILTER SOCK DETAIL
SCALE: NONE



INLET FILTER FOR SQUARE OR RECTANGULAR INLET BASIN WITH OR WITHOUT CASTING FRAME

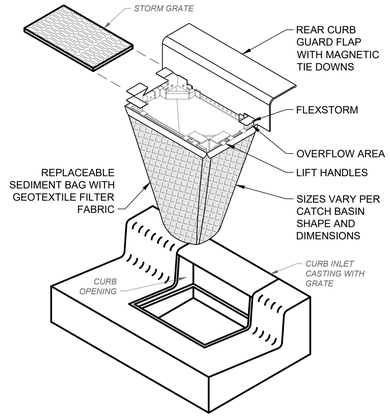


INLET FILTER FOR CURB INLET BASIN WITHOUT GRATE



INLET FILTER FOR ROUND INLET BASIN WITH OR WITHOUT CASTING FRAME

INLET FILTER FOR NYLOPLAST CASTING

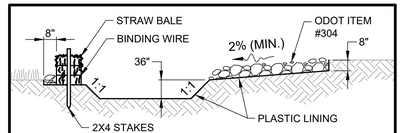


INLET FILTER FOR CURB INLET BASIN WITH GRATE

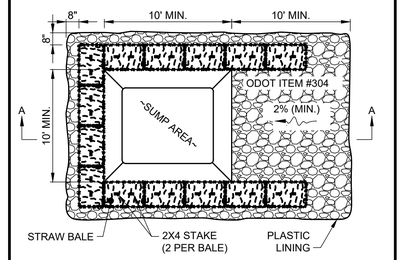
NOTES:

1. ALL FRAMING SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
2. CONTRACTOR SHALL PROVIDE EXISTING OR PROPOSED STRUCTURE DETAILED DIMENSIONS, CASTING CALLOUT, MAKE AND MODEL TO CONFIGURE AND ASSEMBLE CUSTOMIZED FLEXSTORM INLET FILTERS.

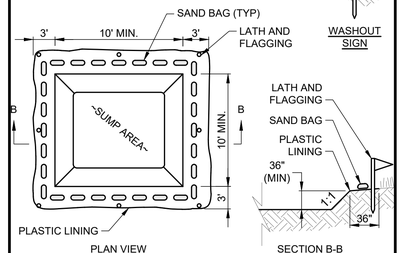
STORM DRAIN INLET PROTECTION DETAIL
SCALE: NONE



SECTION A-A

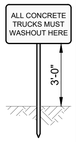


PLAN VIEW
SINGLE LOCATION FOR ENTIRE PROJECT



PLAN VIEW — SECTION B-B

TEMPORARY LOCATION FOR MULTIPLE PHASE PROJECT

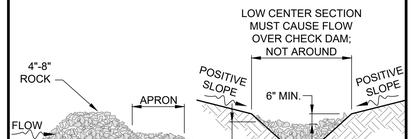


WASHOUT SIGN

NOTES:

1. WASHOUT PIT SHALL BE LOCATED 100' MINIMUM FROM INLETS, STREAMS, WETLANDS AND ANY OTHER SURFACE WATERS.
2. ALL EXCESS CONCRETE AND CONCRETE WASHOUT, INCLUDING FROM HAND MIXERS AND LIGHT EQUIPMENT, SHALL BE DISPOSED OF IN THE CONCRETE WASHOUT AREA. DISPOSAL OF EXCESS CONCRETE OR CONCRETE WASHOUT ON THE GROUND, OR IN STORM DRAINS, DITCHES OR WATER BODIES, IS PROHIBITED.
3. CONCRETE WASHOUT AREA SHALL BE SUFFICIENT SIZE TO CONTAIN CONCRETE WASTE GENERATED. FOR LARGER SITES, MULTIPLE CONCRETE WASHOUT AREAS MAY BE REQUIRED.
4. IF CONCRETE WASHOUT AREA IS LOCATED AWAY FROM A PAVED SURFACE, CONSTRUCT A GRAVEL ACCESS ROUTE EQUAL IN COMPOSITION TO THE CONSTRUCTION ENTRANCE.
5. PLASTIC LINING SHALL BE DOUBLE-LINED, CONTINUOUS 10-ML POLYETHYLENE SHEETING FREE OF HOLES, TEARS OR OTHER DEFECTS, AND INSTALLED ON A SMOOTH, LEVEL SURFACE, FREE OF ROCKS OR DEBRIS.
6. CONCRETE WASHOUT SIGNAGE SHALL BE CLEARLY VISIBLE AND LOCATED WITHIN 30 FEET OF EACH WASHOUT AREA.
7. CONCRETE WASHOUT AREAS SHALL BE COVERED DURING INCLEMENT WEATHER TO PREVENT OVERFLOWS.
8. PREFABRICATED, PORTABLE AND RE-USABLE CONCRETE WASHOUT CONTAINERS ARE ACCEPTABLE, BUT MUST BE SPECIFICALLY DESIGNED FOR CONCRETE WASHOUT USE.
9. CONCRETE WASHOUT AREA SHALL BE INSPECTED DAILY TO CHECK FOR DAMAGE AND TO DETERMINE IF IT NEEDS CLEANED OR REPLACED. ANY DAMAGE TO THE SIDEWALLS OR POLYETHYLENE SHEETING SHALL BE REPAIRED IMMEDIATELY. THE CONCRETE WASHOUT AREA SHALL BE CLEANED OR REPLACED WHEN IT IS 75% FULL. THE POLYETHYLENE SHEETING SHALL BE REPLACED AFTER EACH CLEANING.
10. SAW CUT CONCRETE, RESIDUE FROM SAW CUT, AND GRINDINGS SHALL BE DISPOSED OF IN THE WASHOUT PIT.

CONCRETE WASHOUT DETAIL
SCALE: NONE



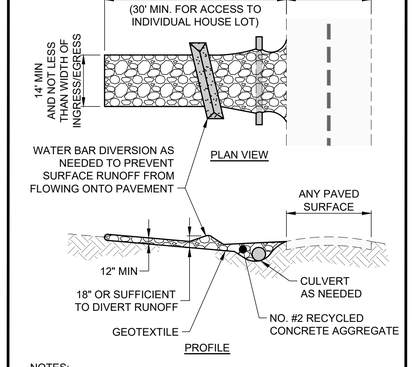
PROFILE — CROSS SECTION

NOTES:

1) THE CHECK DAM SHALL BE CONSTRUCTED OF 4" TO 8" DIAMETER STONE, PLACED SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL.
2) THE TOP OF THE CHECK DAM SHALL BE CONSTRUCTED SO THE CENTER IS APPROXIMATELY 6" LOWER THAN THE OUTER EDGES; SO WATER WILL FLOW ACROSS THE CENTER AND NOT AROUND THE ENDS.
3) THE MAXIMUM HEIGHT OF THE CHECK DAM AT THE CENTER OF THE WEIR SHALL NOT EXCEED 36".
4) SPACING BETWEEN DAMS SHALL BE AS SHOWN IN THE CONSTRUCTION PLANS OR BY THE FOLLOWING TABLE:

DAM HEIGHT	CHECK DAM SPACING: CHANNEL SLOPE < 5%	5% - 10%	10% - 15%	15% - 20%
1 FT.	65 FT.	30 FT.	20 FT.	15 FT.
2 FT.	130 FT.	65 FT.	40 FT.	30 FT.
3 FT.	200 FT.	100 FT.	65 FT.	50 FT.

CHECK DAM DETAIL
SCALE: NONE



NOTES:

1. PLACE GEOTEXTILE OVER THE ENTIRE AREA PRIOR TO PLACING STONE MEETING THE MIN. SPECIFICATIONS:
   - A. TENSILE STRENGTH = 200 LBS.
   - B. PUNCTURE STRENGTH = 80 PSI
   - C. TEAR STRENGTH = 50 LBS.
   - D. BURST STRENGTH = 320 PSI
   - E. ELONGATION = 20%
   - F. EQUIVALENT OPENING SIZE $\leq$ 0.6 MM
   - G. PERMITTIVITY = 0.001 CM/SEC
2. APPLY ADDITIONAL STONE AS CONDITIONS DEMAND AND REPLENISH STONE WHEN THE DEPTH IS LESS THAN 6". REMOVE AND REPLACE IF STONES BECOMES MUD-LADEN.
3. IMMEDIATELY REMOVE MUD DROPPED, WASHED OR TRACKED ONTO ROADS OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS BY SCRAPING OR SWEEPING.
4. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES OR TO PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

CONSTRUCTION ENTRANCE
SCALE: NONE

STATE OF OHIO
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

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DRAWN BY:	JBB
CHECKED BY:	TJM

ASHTABULA COUNTY
KINGSVILLE REGIONAL SEWER IMPROVEMENTS
ASHTABULA COUNTY KINGSVILLE, OHIO

EROSION CONTROL - 70 SERIES
EROSION CONTROL DETAILS

PROJECT NO.	
232478	
DISCIPLINE	
CIVIL	
SHEET NAME	
70EC-01	
SHEET	OF
49	49