

CITY OF RICHMOND HEIGHTS, OHIO

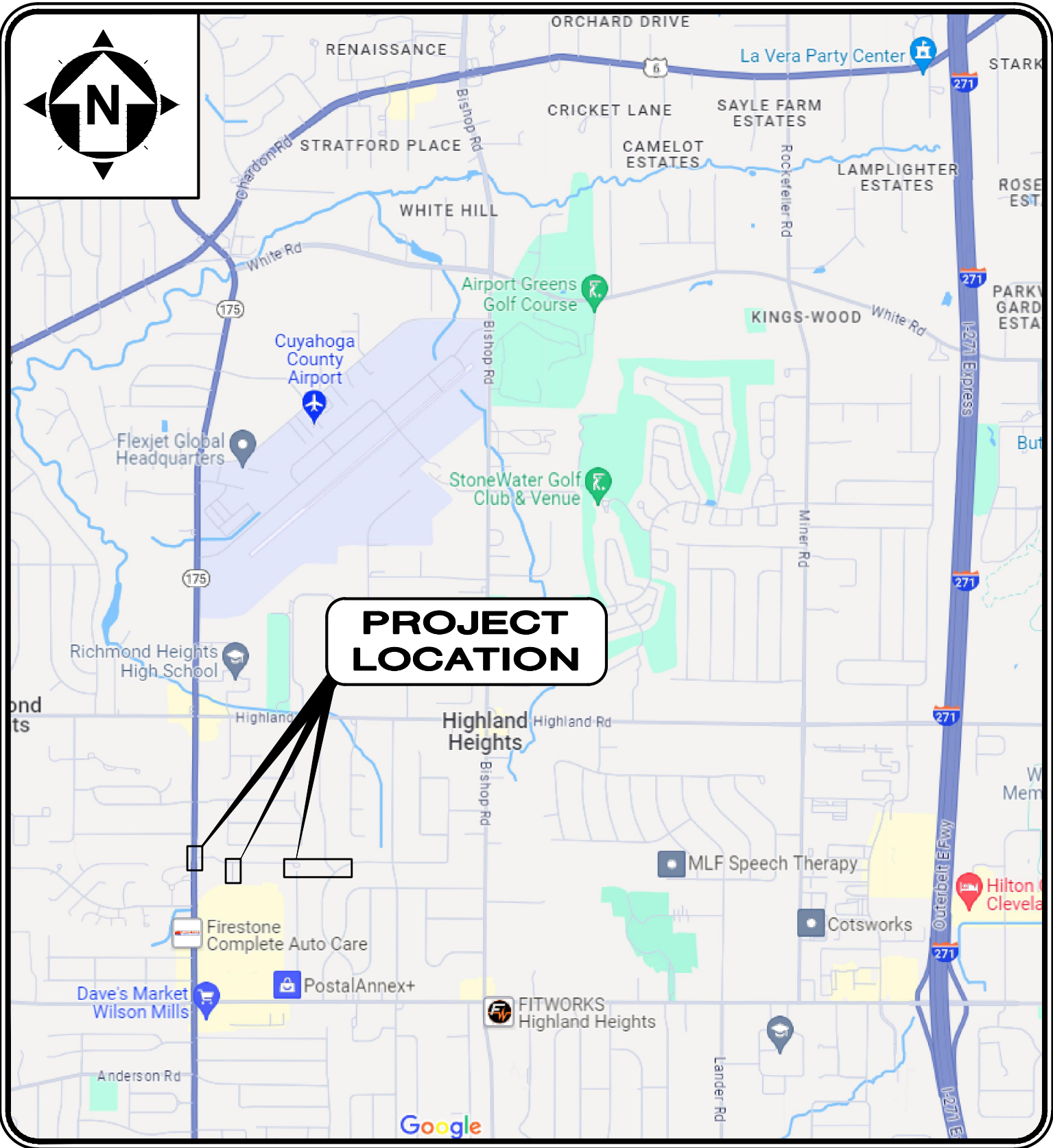
IIJA - RICHMOND HEIGHTS

SANITARY SEWER IMPROVEMENTS

CUYAHOGA COUNTY, OHIO



MAY 2025



LOCATION MAP
NOT TO SCALE



Brown AND Caldwell

ENGINEER'S PROJECT No. 231100

RICHMOND HEIGHTS OFFICERS

KIM A. THOMAS	MAYOR
RYAN TIEDMAN	SERVICE DIRECTOR
TOM DILELLIO	INTERIM FINANCE DIRECTOR
CALVIN D. WILLIAMS	POLICE CHIEF
MARC NEUMANN	FIRE CHIEF
R. TODD HUNT	LAW DIRECTOR
JUSTIN HASELTON	CITY ENGINEER

RICHMOND HEIGHTS CITY COUNCIL

BOBBY JORDAN	PRESIDENT OF COUNCIL
TRACY JUSTICE	COUNCILPERSON WARD 1
ASU MOOK ROBINSON	COUNCILPERSON WARD 2
CASSANDRA A. NELSON	COUNCILPERSON WARD 3
BRIAN SILVER	COUNCILPERSON WARD 4
DANIEL J. URSU	COUNCIL-AT-LARGE
JUANITA LEWIS	COUNCIL-AT-LARGE
TRACEY BLAIR	CLERK OF COUNCIL

APPROVALS

CITY OF RICHMOND HEIGHTS

MAYOR KIM A. THOMAS DATE

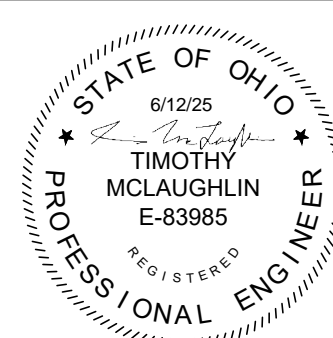
CITY ENGINEER JUSTIN HASELTON DATE

CUYAHOGA COUNTY PUBLIC WORKS

CHIEF SECTION ENGINEER - SANITARY DESIGN LAURA WEBER, P.E. DATE



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



verdantas

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

DATE	REVISION	NO

SCALE: AS NOTED	DATE: 5/5/2025	DESIGNED BY: TJM	DRAWN BY: RLM	CHECKED BY: TJM
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CITY OF RICHMOND HEIGHTS
IIJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY, OHIO
GENERAL - 00 SERIES
COVER SHEET

PROJECT NO:	231100
DRAWING NAME	00G-01
SHEET	OF
1	31

ENGINEER:

CT CONSULTANTS, INC.
8150 STERLING COURT
MENTOR, OH 44060
(440) 951-9000 PHONE
(440) 951-7487 FAX

TIMOTHY MCLAUGHLIN

Signer Name: Timothy McLaughlin
Signing Reason: I approved
this document.
Signing Time: 2025-06-13
15:56:24 (EDT)



P.E. No. E-83985

5/9/2025

DATE

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
	MINOR CONTOUR
	TOP OF BANK
	TOP OF DITCH
	BOTTOM OF DITCH
	EASEMENT LINE
	STREAM
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	RIGHT-OF-WAY OL
	SURVEY STATIONING
	PAVED ROADWAY
	GRAVEL DRIVEWAY
	CURB FACE
	CURB BACK
	CURB BACK AREA
	WETLAND AREA

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
	ELECTRIC, ABANDONED
	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, 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, 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
	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

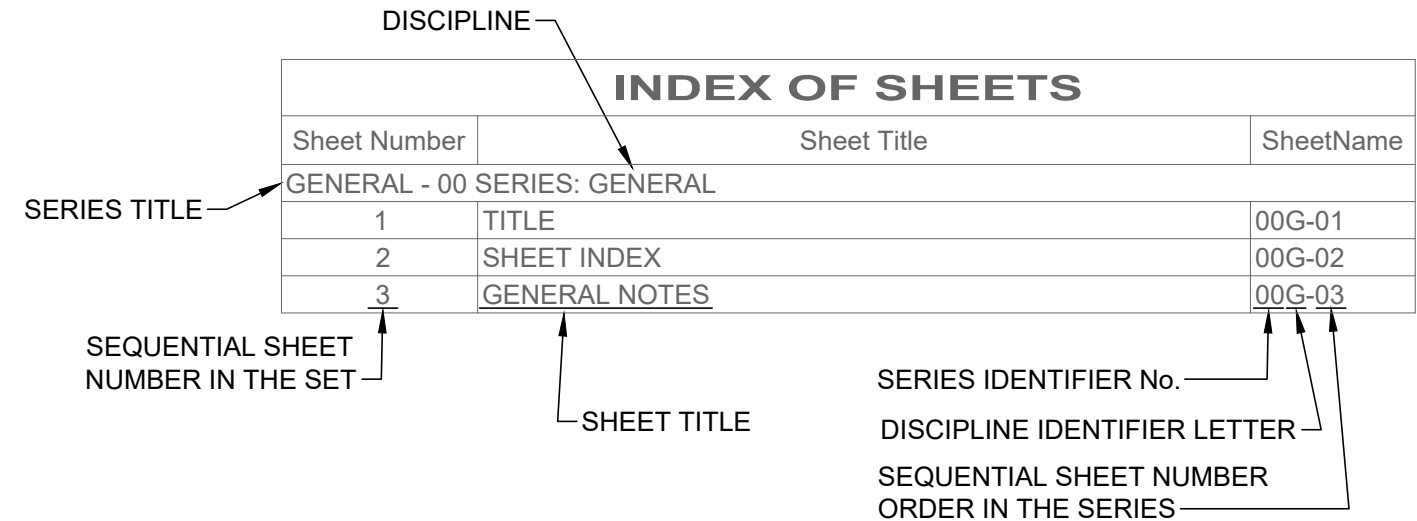
SERIES INFORMATION:

GENERAL - 00 SERIES
CIVIL - 10 SERIES
DROP SHAFT CONNECTION - 20 SERIES
EROSION CONTROL - 30 SERIES

DISCIPLINE INFORMATION:

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

INDEX EXPLANATION:



GENERAL SYMBOLOGY NOTES:

- THIS IS A STANDARD SHEET SHOWING COMMONLY USED SYMBOLOGY.
- ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
- 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.
- SYMBOLOGY OR DIAGRAMMATICAL LEGENDS MAY BE SHOWN ON INDIVIDUAL SHEETS FOR SCHEDULES, DIAGRAMS, DETAILS, SCHEMATICS OR EQUIPMENT.

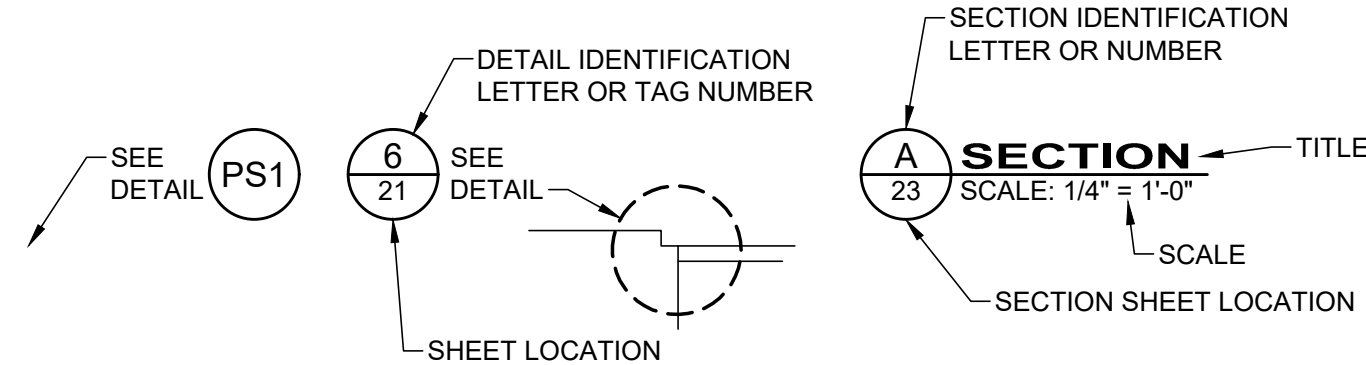
PLAN REVISIONS:

	REVISION DESCRIPTION
	REVISION DESCRIPTION

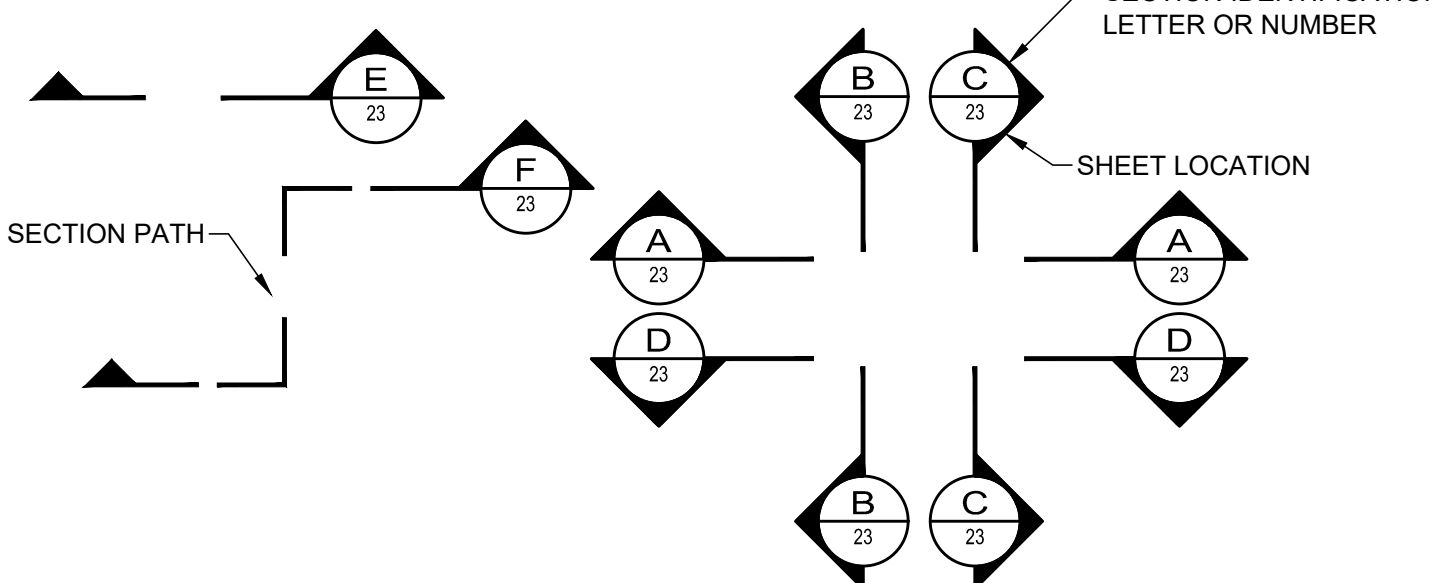
DEMOLITION CODED NOTES:

	DEMOLITION DESCRIPTION
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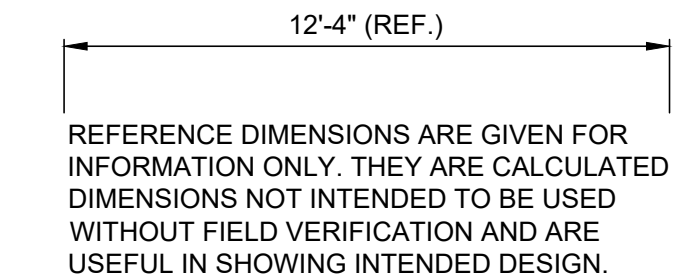
DETAIL REFERENCES:



MAJOR SECTION CUT CONVENTIONS:



REFERENCE DIMENSION:



HATCH LEGEND (PIPES):

	CURED-IN-PLACE-PIPE (CIPP) LINE
	POINT REPAIR
	ABANDON IN PLACE
	REMOVE AND REPLACE
	TO BE REMOVED

HATCH LEGEND (PAVEMENT):

	TYPE 'A' PAVEMENT REPLACEMENT
	TYPE 'C' PAVEMENT REPLACEMENT
	CONCRETE WALK REPLACEMENT

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
CLL	= 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

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE	SHEET NAME
GENERAL - 00 SERIES		
1	COVER SHEET	00G-01
2	SHEET INDEX, ABBREVIATIONS AND LEGENDS	00G-02
3	OHIO EPA GENERAL NOTES	00G-03
4	CUYAHOGA COUNTY PUBLIC WORKS GENERAL NOTES	00G-04
5	SURVEY CONTROL	00G-05
6	MAINTENANCE OF TRAFFIC	00G-06
CIVIL - 10 SERIES		
7	RICHMOND RD. DROP SHAFT CONNECTION	10C-01
8	MARRUS LN. TO EDGEWOOD RD. PLAN & PROFILE	10C-02
9	RADFORD DR. & MEADOWLANE DR PLAN & PROFILE	10C-03
10	EDGEWOOD & RADFORD ALTERNATIVE A PLAN & PROFILE	10C-04
11	EDGEWOOD & RADFORD ALTERNATIVE B PLAN & PROFILE	10C-05
12	CONSTRUCTION DETAILS - SANITARY	10C-06
13	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-07
14	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-08
15	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-09
16	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-10
17	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-11
18	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-12
19	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-13
20	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-14
21	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-15
22	CONSTRUCTION DETAILS - PAVEMENT	10C-16
DROP SHAFT CONNECTION - 20 SERIES: STRUCTURAL		
23	DROP SHAFT PLAN AND SECTIONS	20S-01
24	PIPE SUPPORTS	20S-02
25	STRUCTURAL DETAILS	20S-03
26	STRUCTURAL DETAILS	20S-04
27	STRUCTURAL DETAILS	20S-05
28	STRUCTURAL DETAILS	20S-06
29	STRUCTURAL NOTES	20S-07
30	STRUCTURAL NOTES	20S-08
EROSION CONTROL - 30 SERIES		
31	EROSION CONTROL DETAILS	30EC-01



DATE	REVISION	NO

SCALE:	N/A
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO GENERAL - 00 SERIES	SHEET INDEX, ABBREVIATIONS AND LEGENDS
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PROJECT NO: 231100	
DRAWING NAME 00G-02	
SHEET 2	OF 31

GENERAL PROJECT CONDITIONS

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RICHMOND HEIGHTS CODIFIED ORDINANCES & CONSTRUCTION STANDARDS, AND REGULATIONS OF CUYAHOGA COUNTY PUBLIC WORKS (CCPW) AND THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS. WHEN IN CONFLICT THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

2. THE PROJECT SHALL CONFORM TO THE REQUIREMENTS OF: COUNTY OF CUYAHOGA SANITARY ENGINEERING DIVISION RULES AND REGULATIONS (LATEST EDITION), UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS (LATEST EDITION), UNIFORM STANDARD SEWER DETAILS (LATEST EDITION), GENERAL COUNTY SEWER NOTES (LATEST EDITION). THE REFERENCES LISTED ABOVE CAN BE FOUND HERE:
<https://www.cuyahogacounty.us/publicworks/services/design-and-construction/sanitary-design>

3. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS SHALL BE NEW AND BOTH WORKMANSHIP AND MATERIALS SHALL BE OF PREMIUM QUALITY, PROPER AND SUFFICIENT FOR THE PURPOSE CONTEMPLATED. THE CONTRACTOR SHALL FURNISH, IF SO REQUIRED, SATISFACTORY EVIDENCE AS TO TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP.

4. ALL ITEMS OF EQUIPMENT AND/OR MATERIAL PROPOSED BY THE CONTRACTOR FOR SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER IN WRITING AND SHALL BE EQUAL OR SUPERIOR TO THE ITEMS SPECIFIED IN THE CONTRACT DOCUMENTS. IF SAID SUBSTITUTION PROPOSED BY THE CONTRACTOR FOR A SPECIFIED ITEM REQUIRES ENGINEERING REVISIONS, THE TOTAL EXPENSE OF SAID REVISIONS SHALL BE PAID BY THE CONTRACTOR.

5. THE SEWER CONTRACTOR SHALL BE LICENSED WITH THE CCPDW. A CCPDW PERMIT AND CCPDW INSPECTION IS REQUIRED AND SHALL BE OBTAINED BY THE SEWER CONTRACTOR PRIOR TO STARTING SEWER WORK. IF THERE ARE MULTIPLE BUILDINGS ON A SITE, EACH BUILDING SHALL REQUIRE ITS OWN SEWER CONNECTION PERMIT FROM THE CCPDW.

6. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL CHARGES AND FEES AS MAY BE NECESSARY AND REQUIRED BY THE CITY OR STATE.

7. OBSERVATION OF THE WORK BY THE CCPDW IN ACCORDANCE WITH THE REQUIREMENTS OF THE CCPDW RULES AND REGULATIONS IS REQUIRED.

8. ALL SEWERS AND MANHOLES ARE TO BE TESTED IN ACCORDANCE WITH THE CCPDW REQUIREMENTS PER THE CCPDW GENERAL NOTES. ALL SANITARY SEWER VIDEOS AND REPORTS SHALL BE SUBMITTED TO THE CCPDW FOR REVIEW. WHERE DEFLECTION TESTING OF FLEXIBLE PIPE IS REQUIRED: IF MANDELS CANNOT BE USED, LASER PROFILING, PER THE UNIFORM STANDARDS, SHALL BE REQUIRED.

9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THEIR WORK IN SUCH A MANNER AS NOT TO DAMAGE OR DESTROY ANY EXISTING FEATURE, (I.E. EXISTING INLETS, CONDUITS, ETC.) WHICH IS NOT MARKED FOR REPLACEMENT OR REMOVAL. IF ANY SUCH DAMAGE DOES OCCUR DUE TO THE OPERATIONS OF THE CONTRACTOR, THEY SHALL REPLACE THE DAMAGED PORTION AT THEIR EXPENSE.

10. THE CONTRACTOR SHALL EXERCISE DUE CARE DURING CONSTRUCTION SO AS NOT TO DESTROY ANY TREES, PLANTS, SHRUBS OR STRUCTURES OUTSIDE OF THE INDICATED WORK LIMITS AND THOSE NOT SPECIFICALLY MARKED FOR REMOVAL OR RELOCATION WITHIN THE WORK LIMITS.

11. IN SOME INSTANCES, THE CONTRACTOR WILL BE REQUIRED TO EXCAVATE UNDER AND AROUND THE EXISTING UTILITIES. EXTREME CARE SHOULD BE USED NOT TO DAMAGE THE UTILITY DURING THIS OPERATION.

12. DIMENSIONS ARE TO THE EDGE OF PAVEMENT OR SIDEWALK UNLESS OTHERWISE INDICATED.

13. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE CITY OF RICHMOND HEIGHTS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS AND THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO CONFIRM THE PRESENCE AND LOCATION OF ANY AND ALL EXISTING UTILITIES.

AT&T
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greillo@everstream.net

NORTHEAST OHIO REGIONAL SEWER
ROB STOERKEL
3900 EUCLID AVE
CLEVELAND OHIO 44115
216-881-8247

CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS
CUYAHOGA COUNTY ADMINISTRATIVE HEADQUARTERS
2079 E. 9TH STREET, 5TH FLOOR
CLEVELAND OHIO 44115
ATTN: LAURA WEBER (216-443-8205)
laweber@cuyahogacounty.us

CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS
CUYAHOGA COUNTY PERMITS AND INSPECTION DEPARTMENT
2501 HARVARD AVENUE
NEWBURGH HEIGHTS OHIO 44105
ATTN: JUSTIN PATRONITE (216-443-8209)
jpatronite@cuyahogacounty.us

14. WHERE EXISTING POWER OR TELEPHONE POLES ARE IN CLOSE PROXIMITY TO WORK, THE CONTRACTOR SHALL COORDINATE THEIR WORK EFFORTS WITH THOSE OF THE UTILITY COMPANIES SUCH THAT THEIR EXISTING FACILITIES CAN BE MAINTAINED AND PROTECTED DURING THE TIME WORK IS GOING ON ADJACENT TO THE POLE. THE COST FOR ANY REQUIRED PROTECTION OR RELOCATION OF EXISTING POWER OR TELEPHONE POLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NOT BE THE RESPONSIBILITY OF THE OF THE CITY OF RICHMOND HEIGHTS.

15. 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 WITH THE UTILITY COMPANY'S SCHEDULE.
16. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL THE EXISTING GAS, WATER, ELECTRIC, CABLE, TELEPHONE, 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.

17. 48 HOURS PRIOR TO ANY EXCAVATION NOTIFY OHIO ONE CALL @ 811.

18. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): IT SHALL BE THE FULL AND COMPLETE RESPONSIBILITY OF THE CONTRACTOR TO MEET AND COMPLY WITH SAFETY REQUIREMENTS AND REGULATIONS AS ESTABLISHED BY OSHA OR ANY OTHER REGULATORY BODY.

19. ALL MATERIALS TO BE REMOVED FROM THE SITE SHALL BE DISPOSED AT A LICENSED FACILITY PER ALL APPLICABLE STATE, FEDERAL AND LOCAL REGULATIONS.

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

21. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY, SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE, AS DIRECTED BY THE ENGINEER, TO MAINTAIN ALL ROADWAYS BEING USED ALONG THE CONSTRUCTION SITE. PAYMENT FOR ALL SOIL EROSION, SEDIMENT AND DUST CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER VARIOUS ITEMS.

22. PROPERTY PINS AND MONUMENTS NEAR 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 AS DIRECTED BY THE ENGINEERS.

23. THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM THEIR OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER. ANY DITCHES DISTURBED DURING CONSTRUCTION SHALL BE REGRADED BY THE END OF THE SAME WORK DAY. THE COST FOR THIS WORK SHALL BE COVERED UNDER THE COST PER LINEAL FOOT OF SEWER. ALL EXISTING STORM AND SANITARY SEWER FACILITIES, INCLUDING TILE, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR RECONNECTED TO THE EXISTING OR PROPOSED SYSTEM AS DIRECTED BY THE ENGINEER.

24. RESTORATION SHALL INCLUDE SEEDING AND MULCHING OF DISTURBED AREAS, RESTORATION OF EXISTING DRIVES AND FINAL CLEAN UP.

25. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL BENCH MARKS, PROPERTY LINE REFERENCES (E.G., PINS, PIPES, MONUMENTS), REFERENCE POINTS, STAKES AND ANY OTHER SURVEY REFERENCE. IN CASE OF DISTURBANCE, THE CONTRACTOR SHALL ENGAGE A REGISTERED SURVEYOR TO REPLACE THEM AT THE CONTRACTOR'S EXPENSE AND SHALL BE RESPONSIBLE FOR ANY ERRORS THAT MAY BE CAUSED BY THEIR LOSS OR DISTURBANCE. ALL NOTES AND CALCULATIONS USED IN RESETTling OR REPLACEMENT OF PROPERTY PINS, MONUMENTS, REFERENCE POINTS, AND ANY OTHER SURVEY REFERENCE SHALL BE STAMPED, SIGNED AND DATED BY THE REGISTERED SURVEYOR AND COPIES PROVIDED TO THE OWNER.

26. SURVEY AND STREET ALIGNMENTS SHOWN ON THESE PLANS WERE OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR OTHER PURPOSES.

27. A 72-HOUR NOTICE SHALL BE PROVIDED TO THE ASSISTANT MANAGER OF SEWER SYSTEMS MAINTENANCE AND OPERATIONS AT 216-641-8600 FOR ACCESS TO THE NEORS D ACCESS SHAFT, AND TO ENGINEERING & CONSTRUCTION; CALL JEFF LAZAR AT 216-402-4080 (LAZARJ@NEORS D.ORG) TO SCHEDULE AN NEORS D INSPECTOR FOR THE DURATION OF THE CONNECTION.
- PROHIBITED CONSTRUCTION ACTIVITIES
1. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

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

3. LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS;

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

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

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

7. PERMANENT OR UNSPECIFIED ALTERATION OF THE FLOW LINE OF ANY STREAM;

8. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA;

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

10. OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT;

11. 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;

12. 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;

13. RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE PROPERTY OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER;
14. OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OR 8:00 AM AND 5:00 P.M. OR OUTSIDE THE HOURS ALLOWED FOR CONSTRUCTION BY LOCAL ORDINANCES OR REGULATIONS; AND

15. 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:

- BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES;

- BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE; OR

- BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.
- EROSION/SEDIMENT CONTROL:
1. 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.

2. 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.

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

4. 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.

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

6. 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.

7. 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.

8. 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.

9. 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 SEEDDED AND/OR MULCHED IN STAGES TO PREVENT EROSION.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. INSTALL THE ABOVE EROSION AND SEDIMENT CONTROL MEASURES, AS APPROPRIATE, REFERRING TO OHIO EPA, STORM WATER TECHNICAL ASSISTANCE, RAINWATER AND LAND DEVELOPMENT MANUAL STANDARDS AND SPECIFICATIONS (FORMERLY ODNR) OR EQUIVALENT FOR PARTICULAR TECHNIQUES. THESE MEASURES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

LINK:
<http://epa.ohio.gov/portals/35/storm/technicalassistance/rld11-6-14all.pdf>
- TRAFFIC CONTROL:
1. AT LEAST ONE LANE OF TRAFFIC MUST BE MAINTAINED ALONG THE TRAVEL ROUTE TO THE CONSTRUCTION SITE.

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

3. 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.

4. ANY CONSTRUCTION EQUIPMENT OR EXCAVATIONS NEAR ROADS MUST BE MARKED WITH LIGHTS, REFLECTORS, OIL LANTERNS, OR SMUDGE POTS.

5. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ALL NECESSARY BARRICADES, WARNING SIGNS, DANGER SIGNALS, FLAG PERSON(S), WATCHERS, AND ALL OTHER APPROPRIATE PRECAUTIONS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR SAFETY.

6. 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.
- AIR POLLUTION / NOISE CONTROL:
7. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYTIME HOURS.

8. CONSTRUCTION EQUIPMENT WILL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS, AS REQUIRED BY SAFETY STANDARDS.

9. ALL CONSTRUCTION VEHICLES SHOULD BE EQUIPPED WITH PROPER EMISSIONS CONTROL EQUIPMENT.

10. PERIODICALLY CHECK EQUIPMENT AND MACHINERY FOR PROPER TUNING TO MINIMIZE EXHAUST EMISSIONS AND NOISE.

11. UNPAVED AREAS WILL BE WET DOWN (AS NECESSARY) DURING CONSTRUCTION TO MINIMIZE DUST GENERATION.
- 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 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. 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 COUNTY & THE ENGINEER BEFORE REMOVAL & WILL BE SAVED WHERE POSSIBLE.

6. SOIL AND OTHER MATERIAL WILL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.

7. 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.

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

9. 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.

10. 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.

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

2. 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.

1. ALL DEWATERING FLOWS ARE TO BE SETTLED INSTALLATION BASINS OR DIRECTED THROUGH FILTERING DEVICES BEFORE DISCHARGE TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWERS; NOT ONTO EXPOSED SOILS, STREAM BANKS, OR ANY OTHER SITE WHERE THE FLOW COULD CAUSE EROSION.

2. SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER THE STORM SEWER SYSTEM. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS AND HAY BALES SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS.

3. CONVEY WATER FROM THE CONSTRUCTION SITE IN A CLOSED CONDUIT. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DRAINAGE DITCHES.
- DEWATERING:
-
- Signer Name: Timothy McLaughlin
Signing Reason: I approved this document.
Signing Time: 1825-06-11 13:36:34(EDT)
- verdantas
- 8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000
- | NO | REVISION | DATE | AS NOTED | | | |
|----|----------|------|----------|----------|--------------|-------------|
| | | | SCALE: | DATE: | DESIGNED BY: | CHECKED BY: |
| | | | | 5/5/2025 | TJM | TJM |
| | | | | | RLM | |
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|---|------|---------------------|------------------------|--|--|--|--|
| CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY | OHIO | GENERAL - 00 SERIES | OHIO EPA GENERAL NOTES | | | | |
| | | | PROJECT NO: | | | | |
| | | | 231100 | | | | |
| | | | DRAWING NAME | | | | |
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- H:\2023\31100DOWNSHEETS\SI_231100 - OHIO EPA GENERAL NOTES.DWG - 3 OHIO EPA GENERAL NOTES - 5/6/2025 2:03:42 PM - MAYA BITTAR

MARRUS LANE
PROPERTIES

- 1 PPN 662-19-076
5219 MARRUS LANE
RUSSELL D. MILLER SR. &
IESHA L. SMITH-MILLER
- 2 PPN 662-19-077
5223 MARRUS LANE
DEBRA L. JONES
- 3 PPN 662-19-078
5227 MARRUS LANE
DEIRDRE R. JONES &
DABNEY K. CONWELL
- 4 PPN 662-19-079
5231 MARRUS LANE
MICHAEL D. JACKSON
& BRANDIS JACKSON
- 5 PPN 662-19-080
5232 MARRUS LANE
KRISTIE F. GROVES
- 6 PPN 662-19-080
5232 MARRUS LANE
KRISTIE F. GROVES

MEADOWLANE DRIVE
PROPERTIES

- 13 PPN 662-19-003
682 MEADOWLANE DR.
STANLEY T. TELBAN
- 14 PPN 662-19-004
678 MEADOWLANE DR.
PURNIMA CHERUVU AND
VINAY K. CHERUVU
- 15 PPN 662-19-005
674 MEADOWLANE DR.
ROY L. THOMPSON
- 16 PPN 662-19-006
670 MEADOWLANE DR.
FREDERICK DWAYNE YOUNG
- 17 PPN 662-19-007
666 MEADOWLANE DR.
DARRELL A. CARTER
- 18 PPN 662-19-024
667 MEADOWLANE DR.
REBECCA TUNER
- 19 PPN 662-19-025
671 MEADOWLANE
DR.JUSTIN NASTASI
- 20 PPN 662-19-026
675 MEADOWLANE DR.
BETH BARON

RADFORD DRIVE PROPERTIES

- 25 PPN 662-19-001
684 RADFORD DRIVE
PRISCILLA ARNOLD
- 26 PPN 822-09-061
682 RADFORD DRIVE
SHERRY B. GRINDLE
- 27 PPN 662-28-036
700 RADFORD DRIVE
700 RADFORD DRIVE, LLC
- 22 PPN 662-28-035
696 RADFORD DRIVE
JOSIP & MARIA BUCAR
- 23 PPN 662-28-034
690 RADFORD DRIVE
CLIFFORD R. SPROCIC AND
STEPHANIE T. TAMBURRO
- 24 PPN 662-28-033
688 RADFORD DRIVE
AMNL ASSET COMPANY 3 LLC
- 28 PPN 822-09-060
680 RADFORD DRIVE
AYLEEN ZARANEC
- 28 PPN 822-09-059
678 RADFORD DRIVE
KENNETH J. GODNAVEC
- 29 PPN 822-28-058
676 RADFORD DRIVE
MARILYN & KIETH JACOBS
- 30 PPN 662-28-058
699 RADFORD DRIVE
JOSEPH RIBAUDO
- 31 PPN 662-28-004
693 RADFORD DRIVE
DANIEL & MEGHAN L.
MARINELLI
- 32 PPN 662-28-047
687 RADFORD DRIVE
HERBERT & AMANDA WRIGHT

- 33 PPN 662-28-048
683 RADFORD DRIVE
ILYA VINER
- 34 PPN 822-09-022
681 RADFORD DRIVE
STEPHEN & LEQUIRA OKOLO
- 35 PPN 822-09-023
679 RADFORD DRIVE
RUSSELL E. & JENNIFER
A. COLELLO
- 36 PPN 822-09-024
677 RADFORD DRIVE
RICARDO R. & TERESA
L. GAGLIARDO
- 37 PPN 822-09-025
675 RADFORD DRIVE
EDWARD F. DUDEK,
TRUSTEE

EDGEWOOD ROAD
PROPERTIES

- 7 PPN 662-28-032
678 EDGEWOOD ROAD
NIKOLAY & LIDIA KUTSENKO
- 8 PPN 662-28-031
682 EDGEWOOD ROAD
JOHN D. KEYES
- 9 PPN 662-28-030
686 EDGEWOOD ROAD
N.E. OHIO HOMES LLC
- 10 PPN 662-28-005
679 EDGEWOOD ROAD
ROBERT WILLIAM
BUCHELI AND GERALDINE
MENTALL-BUCHELI
- 11 PPN 662-28-006
683 EDGEWOOD ROAD
SOFRONIO B. DELAVEGA
- 12 PPN 662-28-007
687 EDGEWOOD ROAD
FRANK B. JR. &
WENDY E. SHAW

PPN 662-27-005
577 RICHMOND ROAD
FAITH UNITED
CHURCH OF CHRIST

CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	508168.1900	233287.3450	972.07	IRON PIN SET
101	508469.5720	233284.1170	962.07	IRON PIN SET
110	508393.2340	235083.7900	986.32	IRON PIN SET
111	508591.6020	235055.2270	979.79	IRON PIN SET
115	508447.8290	235700.7810	960.51	IRON PIN SET
116	508637.5150	236026.4690	952.64	IRON PIN SET
117	508828.8530	235545.3530	954.46	IRON PIN SET
200	508571.4850	235629.6930	957.40	5/8" IRON PIN MON.
201	508740.6300	235561.7190	955.11	5/8" IRON PIN MON.
202	508457.1920	235737.0870	959.34	5/8" IRON PIN MON.
203	507946.2700	235515.9870	980.99	5/8" IRON PIN MON.
204	508647.9530	236220.3010	950.96	5/8" IRON PIN MON.
205	509253.9980	235556.7410	947.39	1/2" IRON PIN MON.
206	511193.5030	233267.1400	901.25	5/8" IRON PIN MON.
207	506165.2100	233261.7930	989.91	1" IRON PIN MON.
208	506191.6260	235087.8630	1014.74	1" IRON PIN MON.
209	NOT USED			MON. LID EMPTY
210	508634.0370	233824.3080	958.16	5/8" IRON PIN MON.



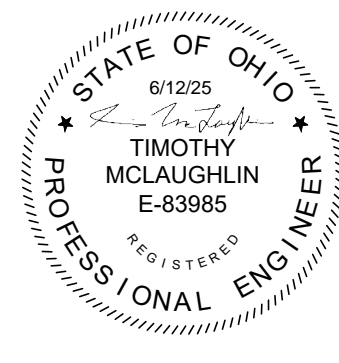
SCALE IN FEET
100 0 100 200
SCALE: 1" = 100'

SURVEYOR'S NOTES

- HORIZONTAL DATUM IS NAD 1983 (2011 ADJ.). OHIO NORTH ZONE, ESTABLISHED BY UTILIZING THE OHIO COUNTY COORDINATE SYSTEM.
- VERTICAL DATUM = NORTH AMERICAN VERTICAL GEOID 18 AS ESTABLISHED BY UTILIZING THE OHIO DEPARTMENT OF TRANSPORTATION'S VIRTUAL REFERENCE SYSTEM.
- FIELD WORK WAS PERFORMED DURING THE MONTH OF FEBRUARY, 2024

LEGEND:

- EXIST. IRON PIN MONUMENT BOX
- CENTERLINE PUBLIC R/W
- Ex U - LIMITS OF UTILITY EASEMENT
- Ex R/W - LIMITS OF PUBLIC R/W
- PROPERTY LINES



verdantas

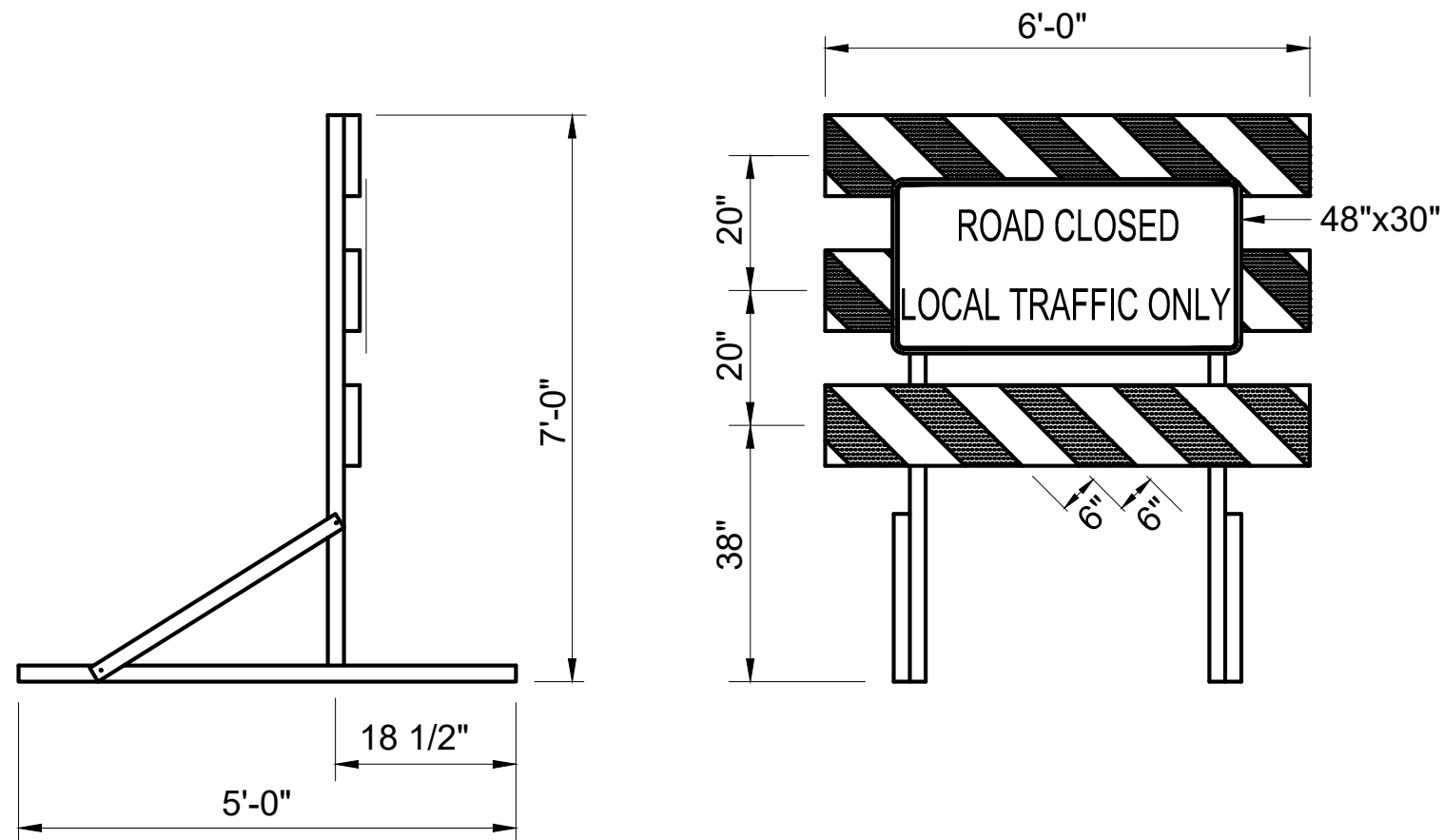
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

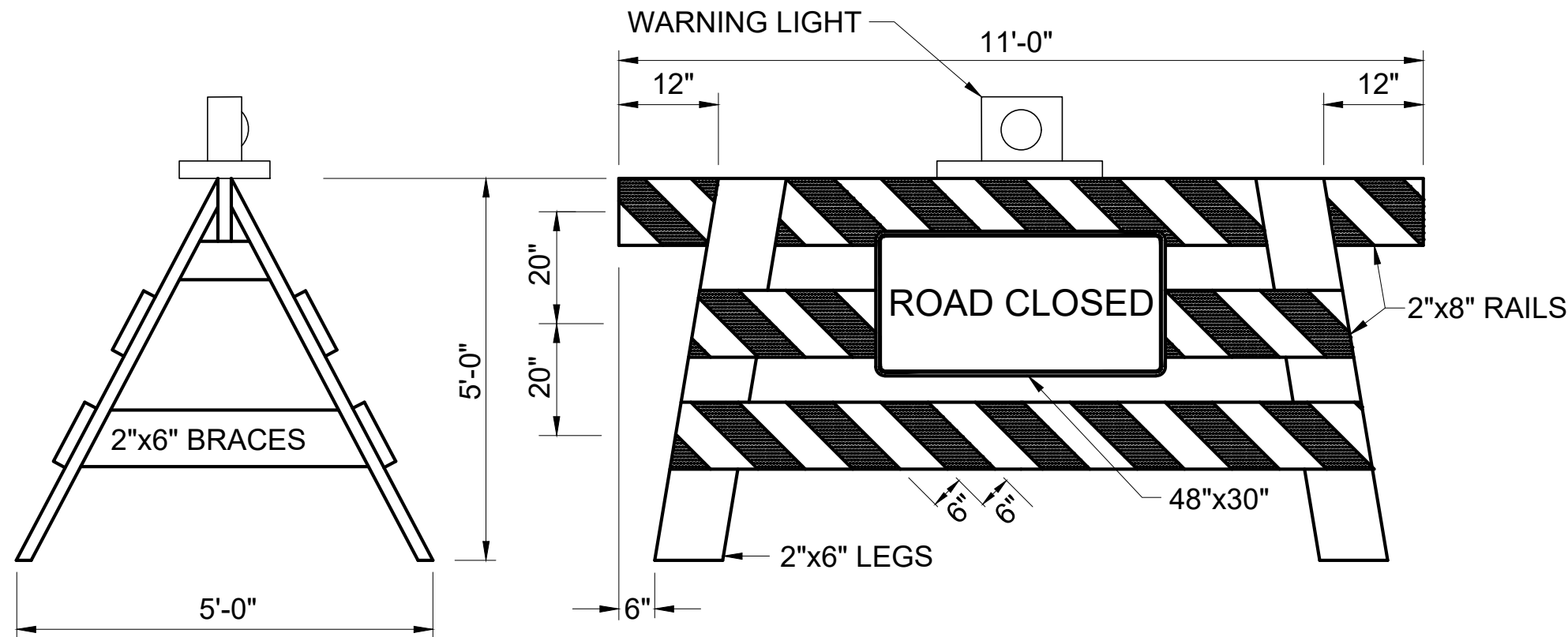
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DATE:	5/5/2025
DESIGNED BY:	JMZ
DRAWN BY:	JMZ
CHECKED BY:	JMZ

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO
GENERAL - 00 SERIES
SURVEY CONTROL

PROJECT NO:	
231100	
DRAWING NAME	
00G-05	
SHEET	OF
5	31

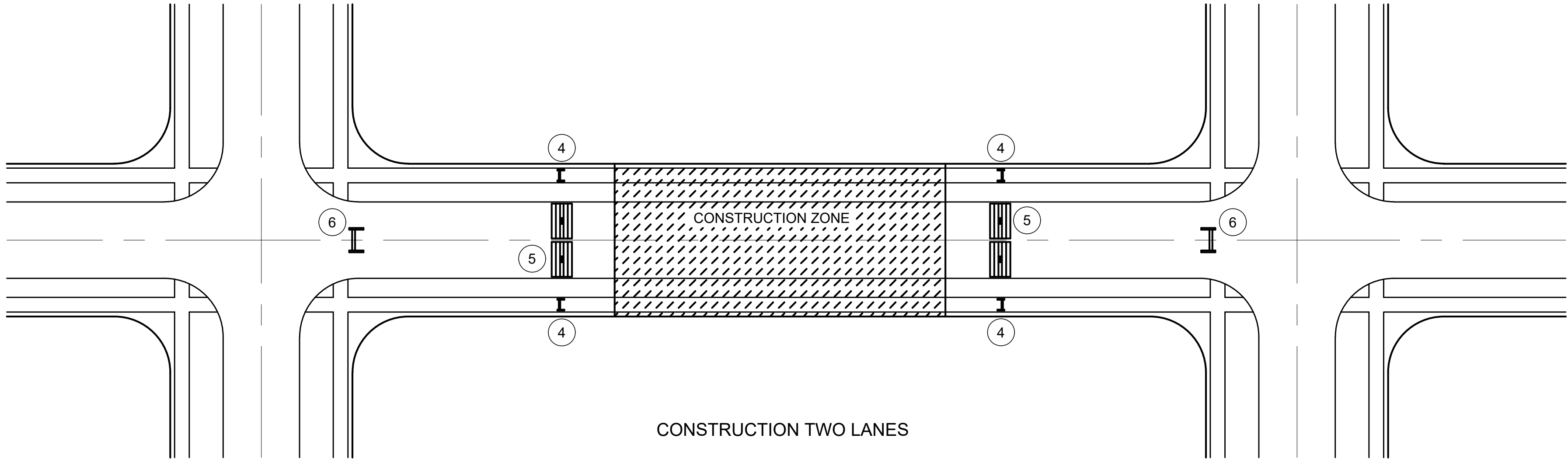


TYPE III PORTABLE CONSTRUCTION BARRICADE

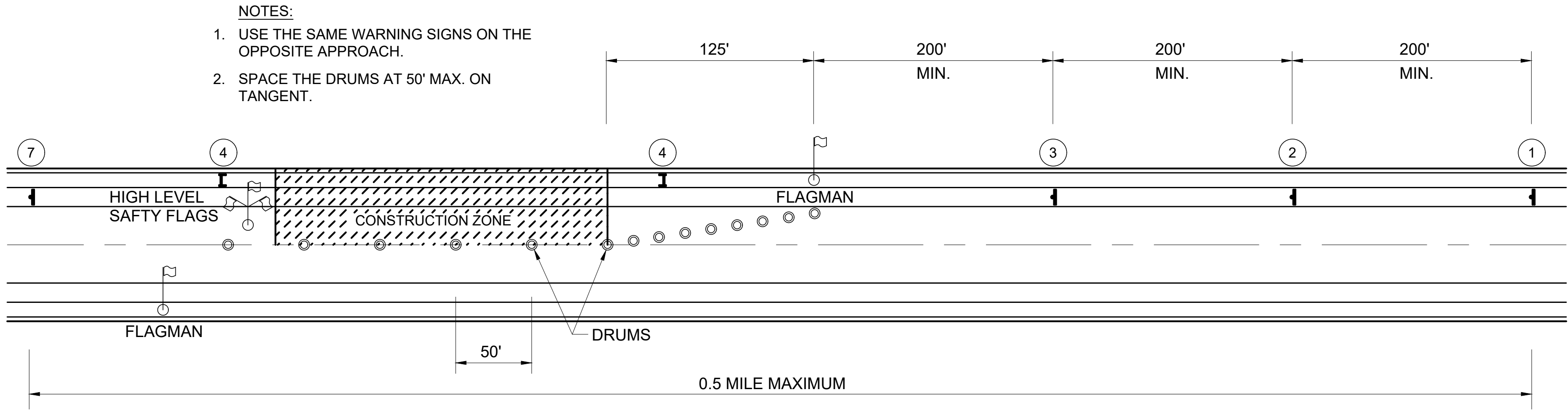


TYPE III DEMOUNTABLE CONSTRUCTION BARRICADE

- A. BARRICADES: BARRICADES SHALL BE CONSTRUCTED ACCORDING TO DETAILS SHOWN. WHEN THE ROAD IS CLOSED TO TRAFFIC, BARRICADES SHALL BE USED TO EFFECTIVELY CLOSE THE ENTIRE ROADWAY. THE ENDS OF THE BARRICADE SHALL BE LOCATED BY THE ENGINEER TO EFFECT THE DESIRED CLOSING OF THE ROADWAY.
- B. PAINTING AND REFLECTORIZATION: ALL RAILS OF THE BARRICADES AND GATES SHALL BE REFLECTORIZED WITH ORANGE AND WHITE REFLECTORIZED TYPE "G" SHEETING IN 6" WIDE ALTERNATE STRIPES WHICH SLOPE DOWNWARD TOWARD THE CENTERLINE OF THE ROAD AT AN ANGLE OF 45°. ALL THREE RAILS OF THE ROAD CLOSED BARRICADE SHALL BE STRIPED ON THE SIDE FACING TRAFFIC. ALL GATE RAILS SHALL BE STRIPED ON BOTH SIDES. ALL POSTS, BRACES, GATE-LEGS, AND UNSTRIPED RAILS SHALL BE PAINTED WHITE.
- C. TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS: EACH GATE SHALL BE EQUIPPED WITH A TYPE "C" STEADY BURNING BARRICADE WARNING LIGHT, CONSPICUOUSLY VISIBLE AT ALL DISTANCES UP TO 1000' UNDER NORMAL CONDITIONS BETWEEN SUNSET AND SUNRISE DURING THE PERIOD THE ROAD IS CLOSED.
- D. SIGNS: WHERE THE ROAD IS CLOSED TO TRAFFIC BY THE ERECTION OF BARRICADES, "ROAD CLOSED" SIGNS (R-75) SHALL BE MOUNTED ON THE BARRICADES AS SHOWN. WHEN TRAFFIC IS MAINTAINED, A "ROAD CONSTRUCTION AHEAD" SIGN (OW-128) SHALL BE USED ON THE RIGHT SHOULDER ON THE APPROACHES AT THE INTERSECTING STREET IN ADVANCE OF THE PROJECT. WHERE THE SIDEWALK IS CLOSED TO PEDESTRIAN TRAFFIC "SIDEWALK CLOSED" SIGNS SHALL BE ERECTED ACROSS THE WALK AT THE LOCATION SHOWN.



CONSTRUCTION TWO LANES



CONSTRUCTION ONE LANE



OW-128

1



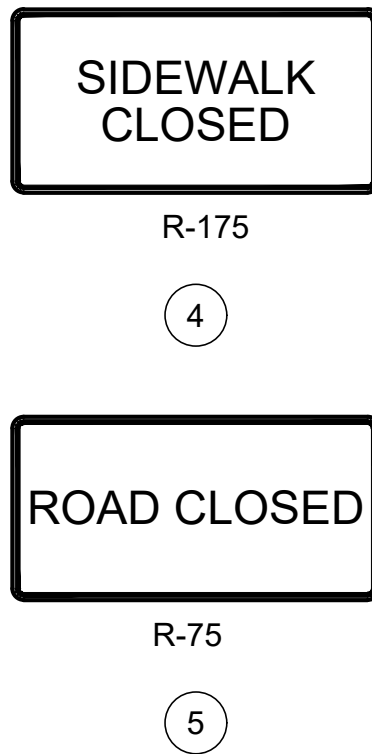
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2



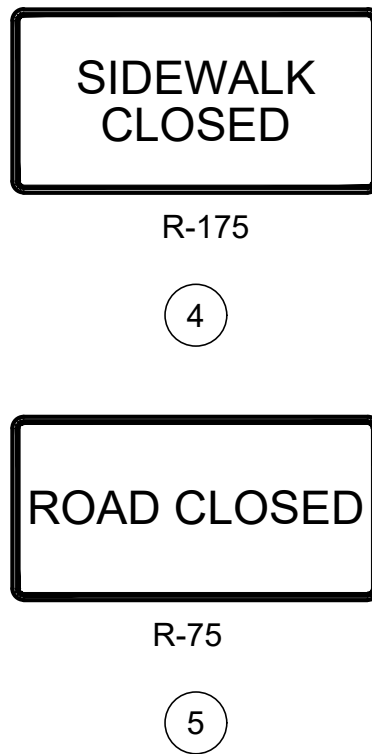
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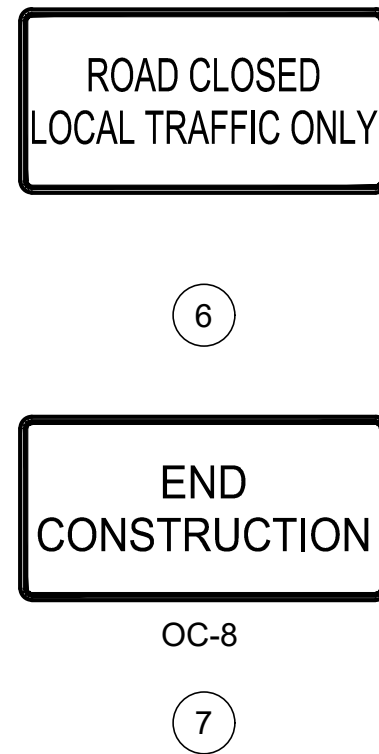
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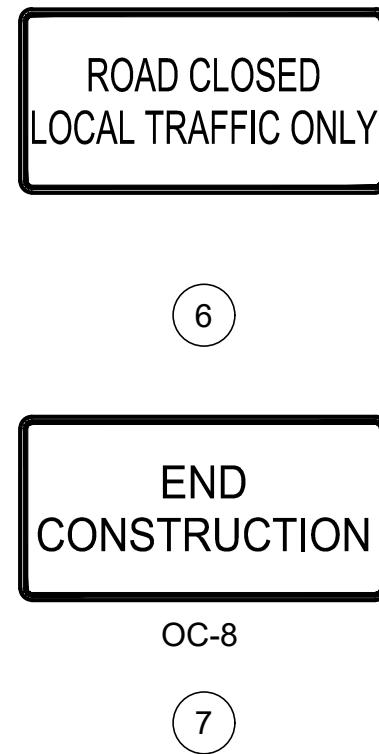
R-175

4



OC-8

7

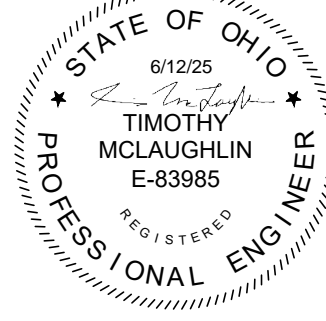


OC-8

6

Signature: Timothy McLaughlin

Signer Name: Timothy McLaughlin
Signing Reason: I approved this document.
Signing Time: 2025-06-15 15:56:34 EDT

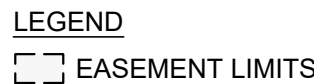


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8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

DATE	REVISION	NO	SCALE	AS NOTED	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
					5/5/2025	TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO
GENERAL - 00 SERIES
MAINTENANCE OF TRAFFIC

PROJECT NO:	231100
DRAWING NAME	00G-06
SHEET	6
OF	31



1. EX. SURFACE GRADES IN PROFILE VIEW ARE SHOWN BASED ON THE ALIGNMENT OF THE PROPOSED SEWER.
2. EX. WATERLINE AND GAS LINE DEPTHS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY OWNERS. GAS LINES ARE ASSUMED TO BE INSTALLED WITH 3' OF COVER TO TOP OF PIPE AND WATER UTILITIES ARE ASSUMED TO BE INSTALLED WITH 16' OF COVER OVER TOP OF PIPE. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY ALIGNMENTS, WHETHER SHOWN OR NOT SHOWN IN THESE PLANS, PRIOR TO CONSTRUCTION.
3. DISTANCE BETWEEN PROPOSED 15" SANITARY SEWER AND EX. 16" WATER MAIN IS 10' AS SHOWN IN PLANS. CONTRACTOR SHALL MAINTAIN AT A MINIMUM 10' FEET OF HORIZONTAL DISTANCE BETWEEN ANY EXISTING WATER MAIN AND NEW SEWER.
4. CONNECTION OF EX. SEWER AT THE PROPOSED SEWER SHALL BE MADE BY INSTALLING A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
5. CONTRACTOR SHALL SETUP BYPASS PUMPING FROM MANHOLE SA46LADL0 INTO PROPOSED ACCESS SHAFT HIE01000. CONSTRUCTION SEQUENCE, INCLUDING BYPASS PUMPING, SHALL BE IN GENERAL ACCORDANCE OF SPEC SECTION 013216.
6. EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.

CODED NOTES:

- 1 CONTRACTOR MUST WORK WITHIN THE DESIGNATED EXISTING EASEMENT. ANY WORK PERFORMED OUTSIDE THESE BOUNDARIES WILL BE THE CONTRACTOR'S RESPONSIBILITY. EASEMENT DOCUMENTS SHALL BE PROVIDED AFTER CONTRACT IS AWARDED. CONTRACTOR IS RESPONSIBLE TO STAKE EASEMENT LIMITS FOR ANY WORK PERFORMED.
- 2 RECONNECT EXISTING 10" SEWER TO MANHOLE SA46LADK0 AND PROVIDE A PERMANENT BUT REMOVABLE WATERTIGHT PLUG.



SCALE:	AS NOTED	NO	REVISION	DATE
DATE:	5/5/2025			
DESIGNED BY:	TJM			
DRAWN BY:	RLM			
CHECKED BY:	TJM			

CITY OF RICHMOND HEIGHTS
I/IJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

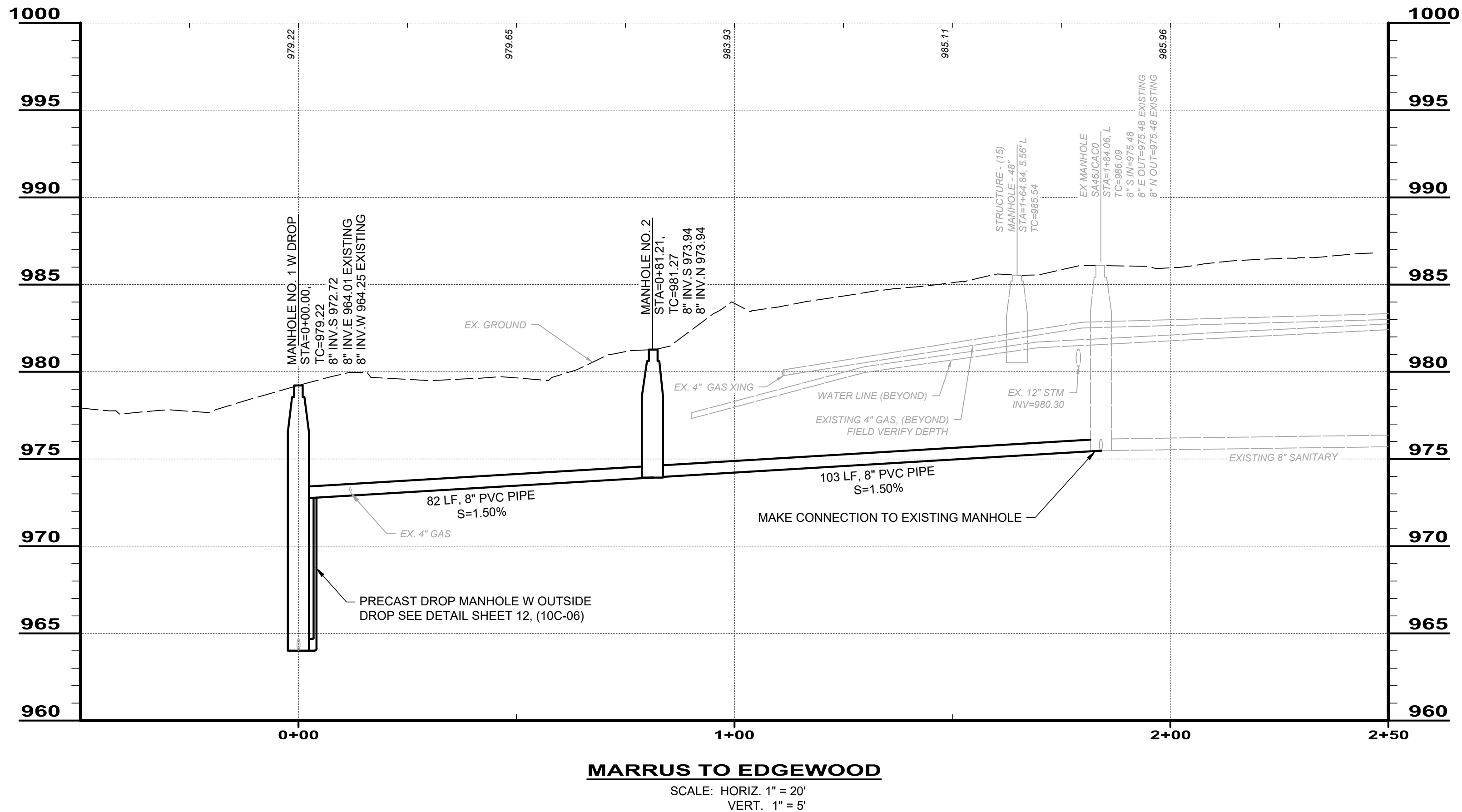
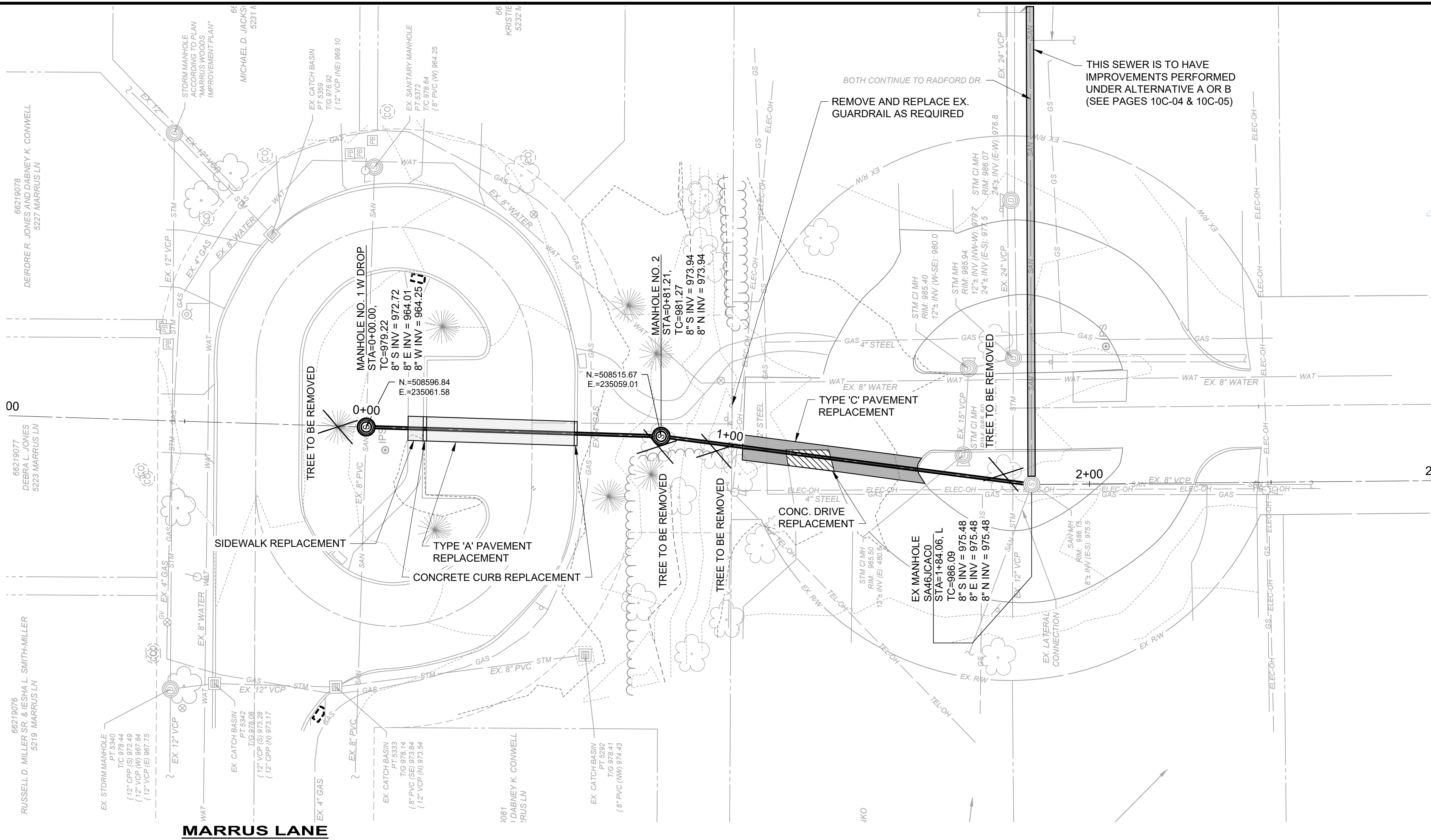
CIVIL - 10 SERIES

RICHMOND RD. DROP SHAFT CONNECTION

PROJECT NO:	
231100	
DRAWING NAME	
10C-01	
SHEET	OF
7	31

GENERAL NOTES:

- EX. SURFACE GRADES IN PROFILE VIEW ARE SHOWN BASED ON THE ALIGNMENT OF THE PROPOSED SEWER.
- EX. WATERLINE AND GAS LINE DEPTHS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY OWNERS. GAS LINES ARE ASSUMED TO BE INSTALLED WITH 3' OF COVER TO TOP OF PIPE AND WATER UTILITIES ARE ASSUMED TO BE INSTALLED WITH 6' OF COVER OVER TOP OF PIPE. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY ALIGNMENTS, WHETHER SHOWN OR NOT SHOWN IN THESE PLANS, PRIOR TO CONSTRUCTION.
- DISTANCE BETWEEN PROPOSED 8" SANITARY SEWER AND EX. 8" WATER MAIN IS 10' AS SHOWN IN PLANS. CONTRACTOR SHALL MAINTAIN AT A MINIMUM 10' FEET OF HORIZONTAL DISTANCE BETWEEN ANY EXISTING WATER MAIN AND NEW SEWER.
- CONNECTION OF EX. SEWER AT NEW MH SHALL BE MADE BY INSTALLING 5 LF OF NEW SEWER LINES AND A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
- EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.
- SERVICE LATERALS SHALL NOT HAVE ANY BENDS OTHER THAN 45° OR 22.5° BENDS. 90° BENDS ARE NOT ACCEPTABLE. TEST TEES ARE TO BE INSTALLED BEHIND (I.E., UPSTREAM OF) ALL BENDS GREATER THAN 22.5°, AND BETWEEN TWO CLOSELY SPACED 45° BENDS. ON LONG RUNS OF SEWER LATERALS, TEST TEES SHALL BE PROVIDED EVERY 100 LINEAR FEET.



STATE OF OHIO
6/12/25
TIMOTHY MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER

verdantas

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

DATE

REVISION

NO

AS NOTED

5/5/2025

DESIGNED BY:

TJM

DRAWN BY:

RLM

CHECKED BY:

TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

CIVIL - 10 SERIES

MARRUS LN. TO EDGEWOOD RD. PLAN & PROFILE

PROJECT NO:

231100

DRAWING NAME

10C-02

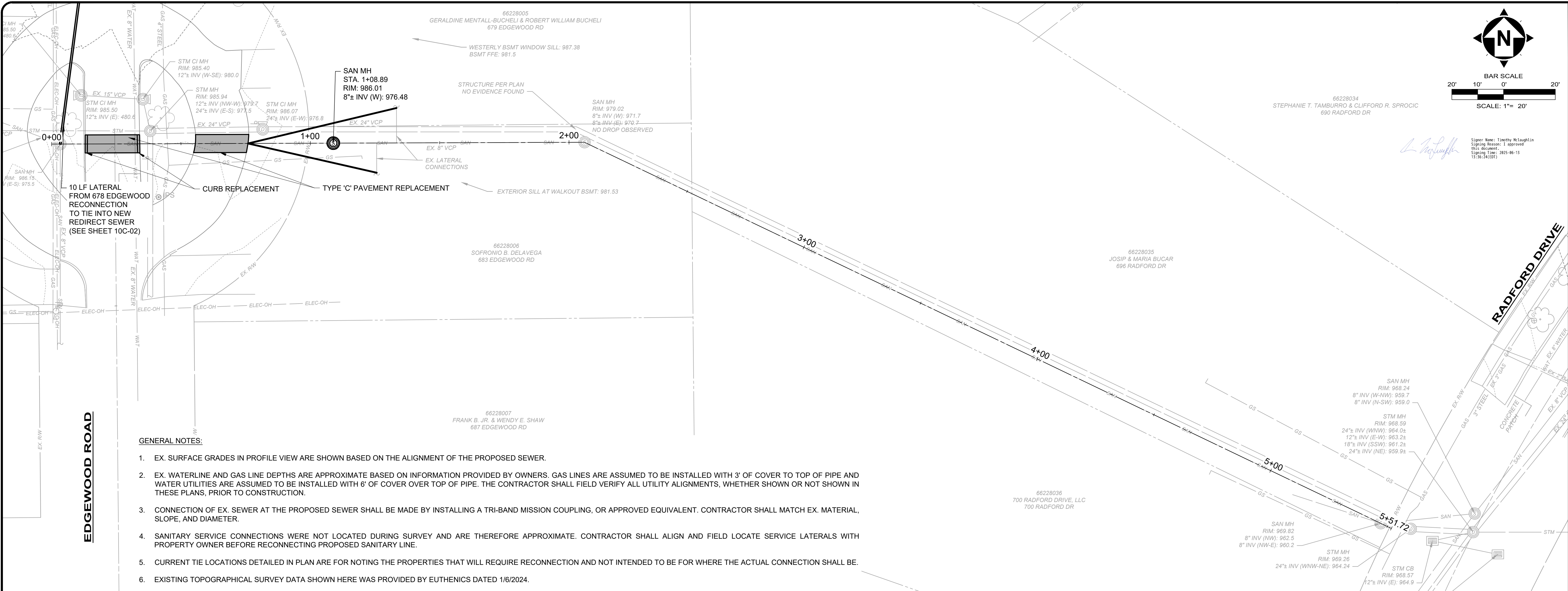
SHEET

8

OF

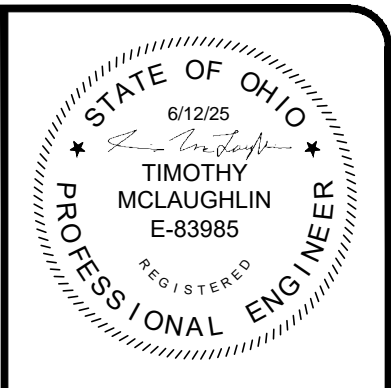
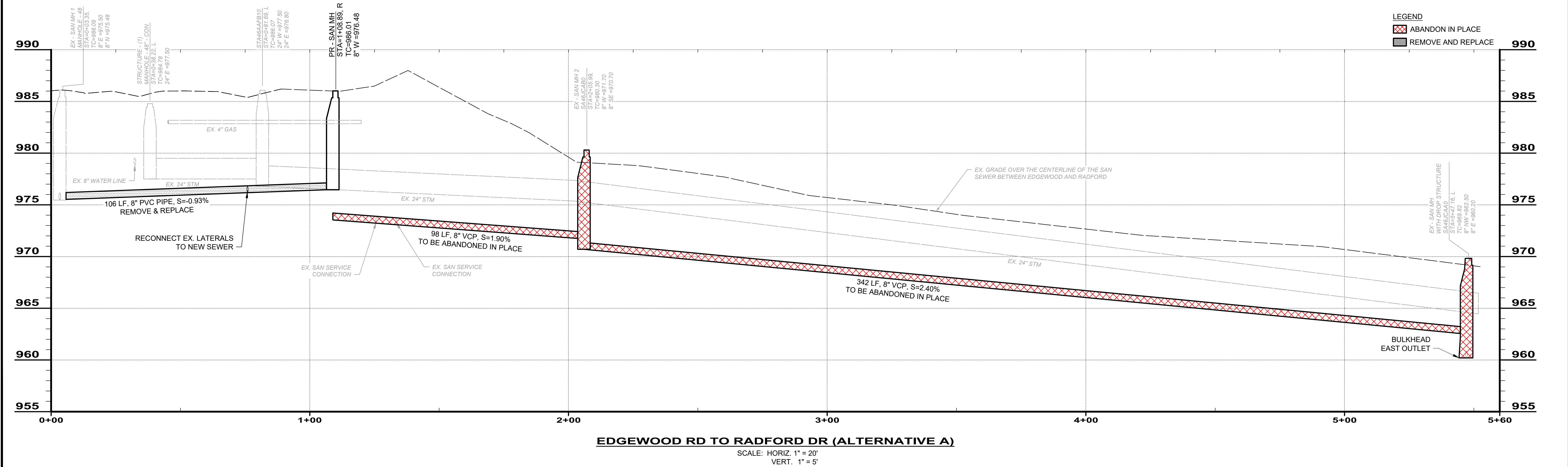
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H:\2023\231100\DWGS\231100 - MARRUS EXISTING SITE.DWG - 8 MARRUS LN. TO EDGEWOOD RD. PLAN & PROFILE - 5/9/2025 4:37:42 PM - MAYA BITTAR



GENERAL NOTES:

- EX. SURFACE GRADES IN PROFILE VIEW ARE SHOWN BASED ON THE ALIGNMENT OF THE PROPOSED SEWER.
- EX. WATERLINE AND GAS LINE DEPTHS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY OWNERS. GAS LINES ARE ASSUMED TO BE INSTALLED WITH 3' OF COVER TO TOP OF PIPE. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY ALIGNMENTS, WHETHER SHOWN OR NOT SHOWN IN THESE PLANS, PRIOR TO CONSTRUCTION.
- CONNECTION OF EX. SEWER AT THE PROPOSED SEWER SHALL BE MADE BY INSTALLING A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
- SANITARY SERVICE CONNECTIONS WERE NOT LOCATED DURING SURVEY AND ARE THEREFORE APPROXIMATE. CONTRACTOR SHALL ALIGN AND FIELD LOCATE SERVICE LATERALS WITH PROPERTY OWNER BEFORE RECONNECTING PROPOSED SANITARY LINE.
- CURRENT TIE LOCATIONS DETAILED IN PLAN ARE FOR NOTING THE PROPERTIES THAT WILL REQUIRE RECONNECTION AND NOT INTENDED TO BE FOR WHERE THE ACTUAL CONNECTION SHALL BE.
- EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.



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

NO	REVISION	DATE

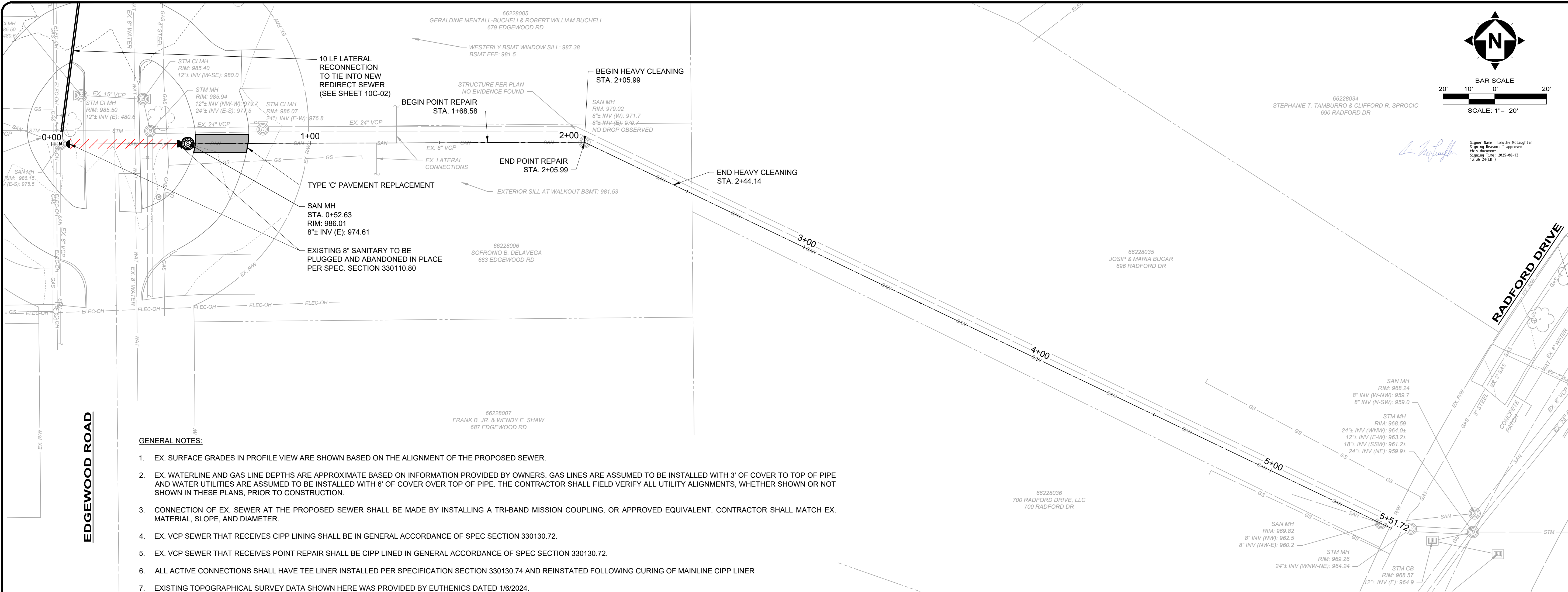
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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

CIVIL - 10 SERIES

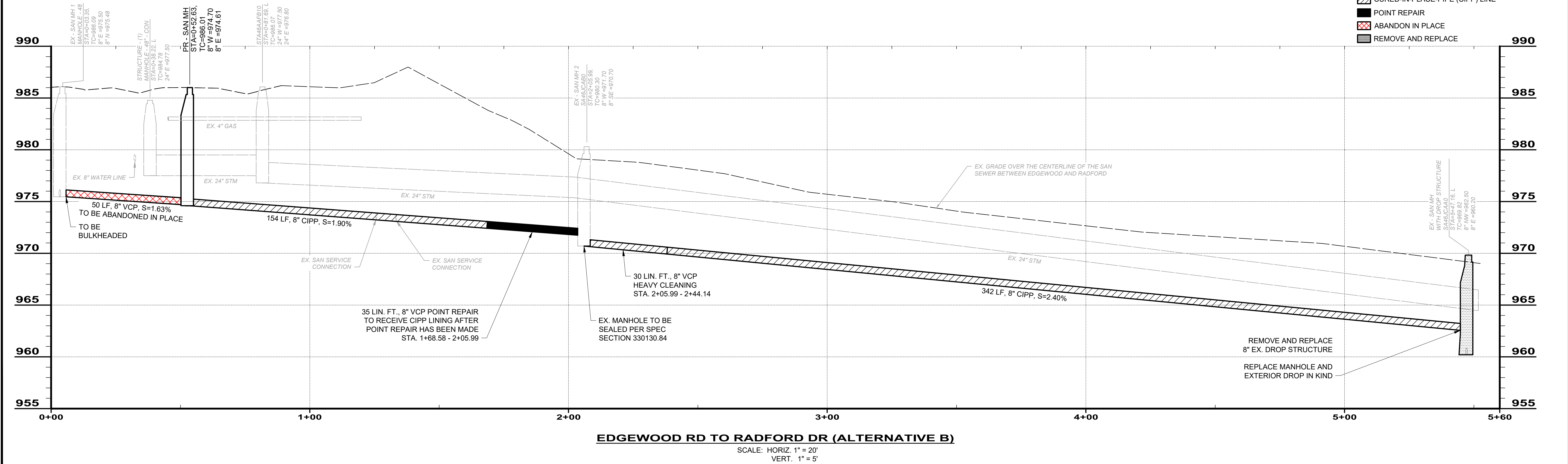
EDGEWOOD & RADFORD ALTERNATIVE A PLAN & PROFILE

PROJECT NO:	231100
DRAWING NAME	10C-04
SHEET	OF
10	31



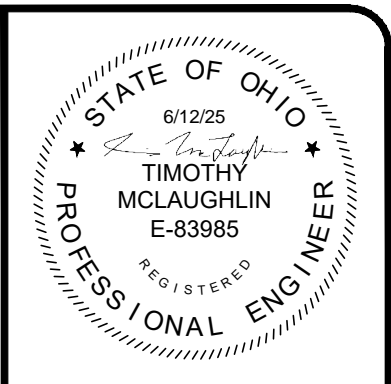
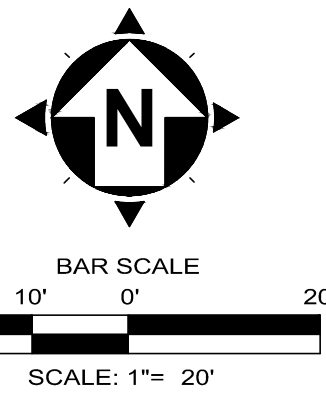
GENERAL NOTES:

- EX. SURFACE GRADES IN PROFILE VIEW ARE SHOWN BASED ON THE ALIGNMENT OF THE PROPOSED SEWER.
- EX. WATERLINE AND GAS LINE DEPTHS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY OWNERS. GAS LINES ARE ASSUMED TO BE INSTALLED WITH 3' OF COVER TO TOP OF PIPE. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY ALIGNMENTS, WHETHER SHOWN OR NOT SHOWN IN THESE PLANS, PRIOR TO CONSTRUCTION.
- CONNECTION OF EX. SEWER AT THE PROPOSED SEWER SHALL BE MADE BY INSTALLING A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
- EX. VCP SEWER THAT RECEIVES CIPP LINING SHALL BE IN GENERAL ACCORDANCE OF SPEC SECTION 330130.72.
- EX. VCP SEWER THAT RECEIVES POINT REPAIR SHALL BE CIPP LINED IN GENERAL ACCORDANCE OF SPEC SECTION 330130.72.
- ALL ACTIVE CONNECTIONS SHALL HAVE TEE LINER INSTALLED PER SPECIFICATION SECTION 330130.74 AND REINSTATED FOLLOWING CURING OF MAINLINE CIPP LINER
- EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.



EDGEWOOD RD TO RADFORD DR (ALTERNATIVE B)

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



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

NO	REVISION	DATE

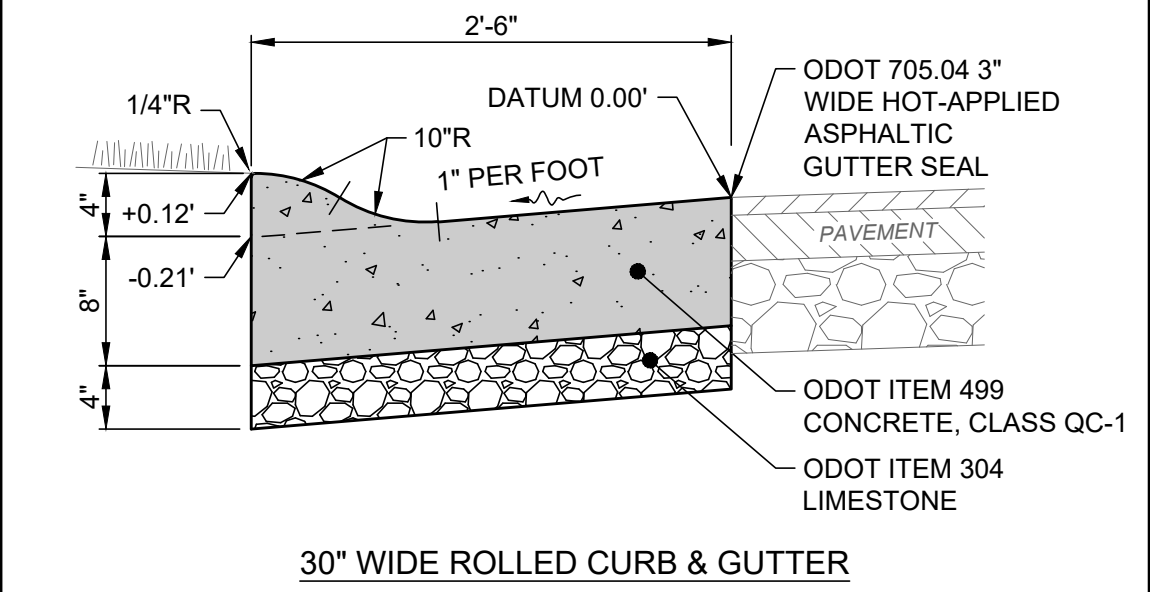
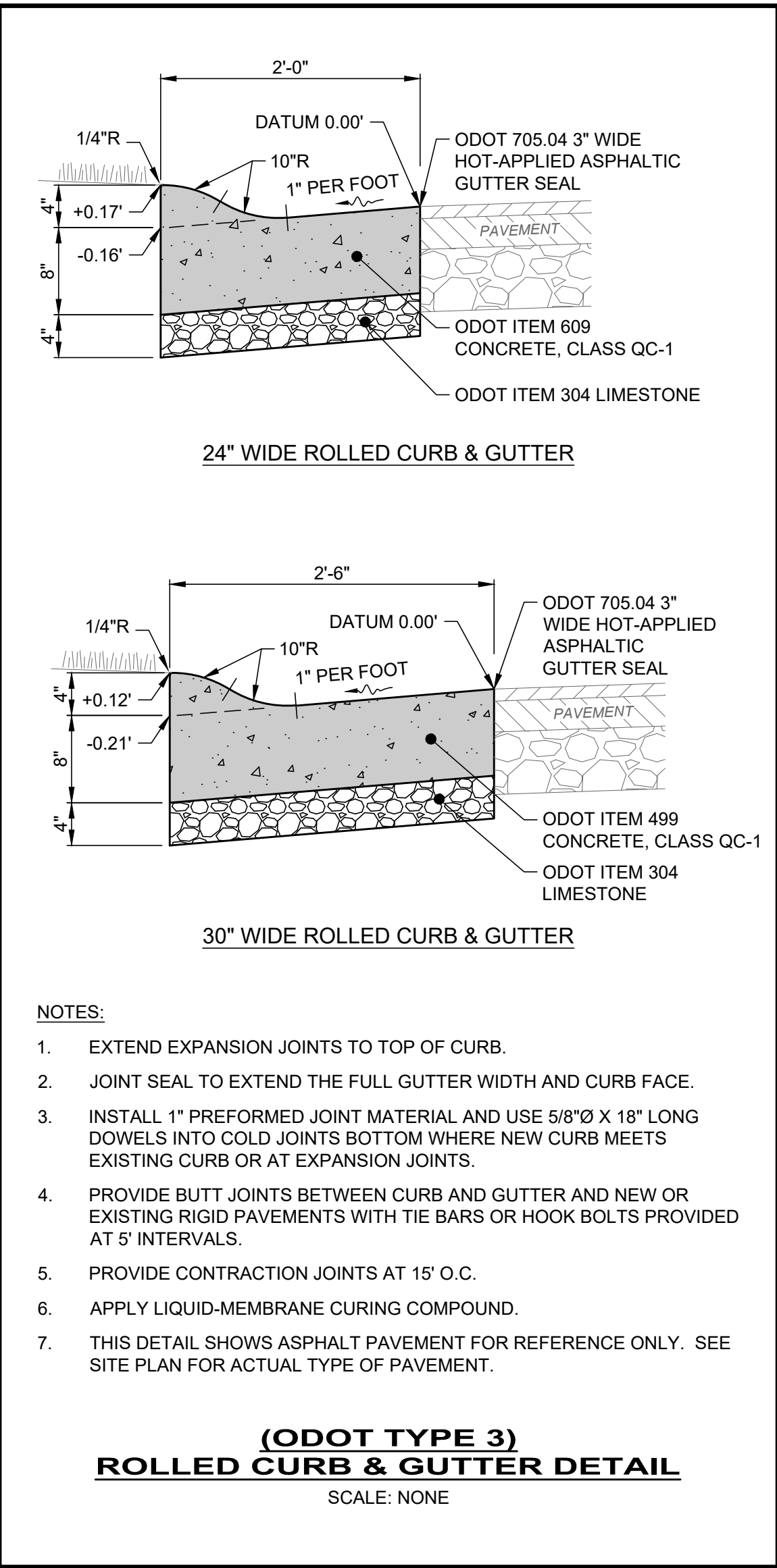
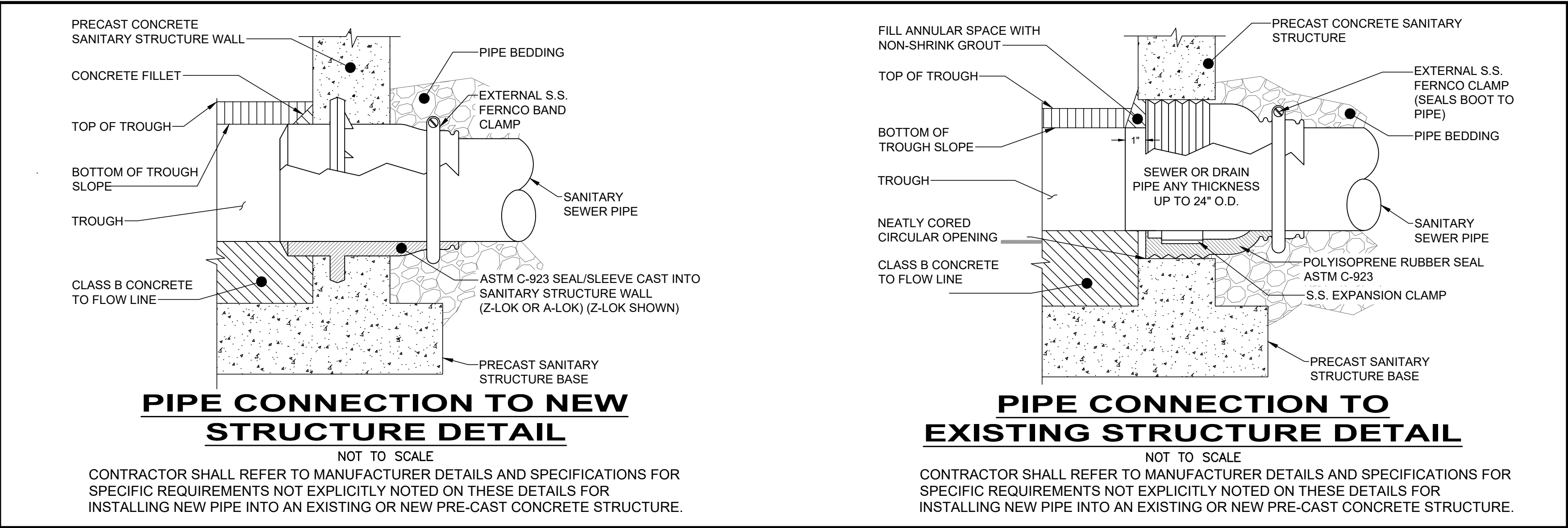
SCALE: AS NOTED	DATE: 5/5/2025	DESIGNED BY: TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
OHIO
CUYAHOGA COUNTY


CIVIL - 10 SERIES

EDGEWOOD & RADFORD ALTERNATIVE B PLAN & PROFILE

PROJECT NO:	231100
DRAWING NAME	10C-05
SHEET	OF
11	31



- NOTES:
- EXTEND EXPANSION JOINTS TO TOP OF CURB.
 - JOINT SEAL TO EXTEND THE FULL GUTTER WIDTH AND CURB FACE.
 - INSTALL 1" PREFORMED JOINT MATERIAL AND USE 5/8"Ø X 18" LONG DOWELS INTO COLD JOINTS BOTTOM WHERE NEW CURB MEETS EXISTING CURB OR AT EXPANSION JOINTS.
 - PROVIDE BUTT JOINTS BETWEEN CURB AND GUTTER AND NEW OR EXISTING RIGID PAVEMENTS WITH TIE BARS OR HOOK BOLTS PROVIDED AT 5' INTERVALS.
 - PROVIDE CONTRACTION JOINTS AT 15' O.C.
 - APPLY LIQUID-MEMBRANE CURING COMPOUND.
 - THIS DETAIL SHOWS ASPHALT PAVEMENT FOR REFERENCE ONLY. SEE SITE PLAN FOR ACTUAL TYPE OF PAVEMENT.
- (ODOT TYPE 3)
ROLLED CURB & GUTTER DETAIL**
- SCALE: NONE


Signer Name: Timothy McLaughlin
Signing Reason: I approved this document.
Signing Time: 2025-06-13 13:06:14(CST)

<div><div>STATE OF OHIO</div><div>6/12/25</div><div>TIMOTHY MCLAUGHLIN</div><div>E-83985</div><div>REGISTERED PROFESSIONAL ENGINEER</div></div>		<div><div>verdantas</div><div>8150 STERLING COURT MENTOR, OHIO 44060 (440) 951-9000</div></div>	





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 MENTOR, OHIO 44060
 (440) 951-9000

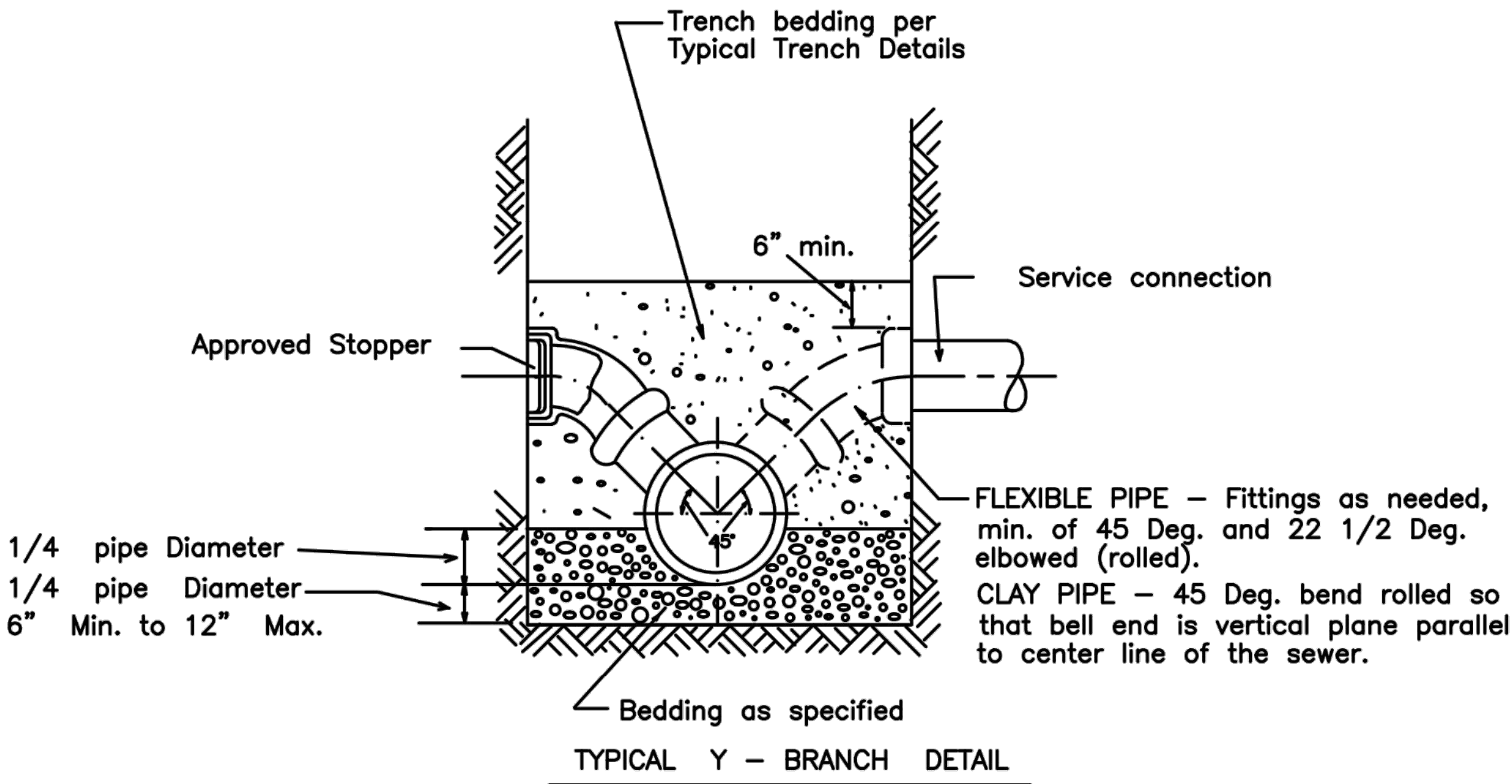
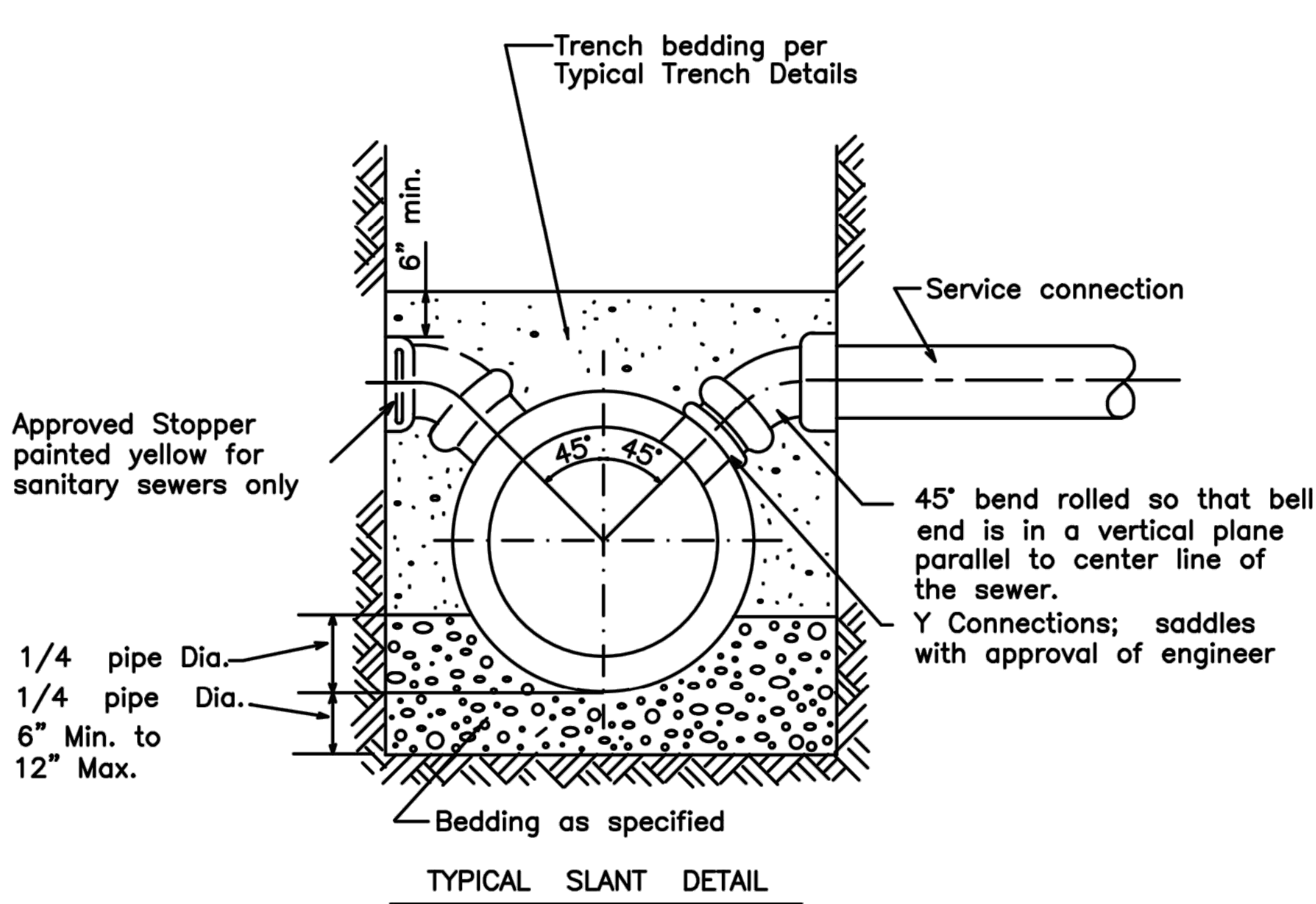
NO	REVISION	DATE

SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
 ILJA - RICHMOND HEIGHTS
 SANITARY SEWER IMPROVEMENTS
 CUYAHOGA COUNTY

OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-07	
SHEET	OF
13	31



Notes

Connections of service laterals and/or sewers to existing and/or proposed sewer pipe mains shall be as follows:

- a. To PVC Sewer Mains - cut out a section of the existing sewer main, install a manufactured PVC wye (with six (6) inch or appropriate size branch) with water tight PVC no-hub couplings, or approved equal, pipe adaptors for connections on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections for other than six (6) inch lateral connections exceed 2/5 the diameter of the main sewer. PVC to PVC piping connections should be completed using a manufactured PVC No-Hub coupling or unless approved by the Engineer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.
- b. To Concrete Sewer Mains - cut out a section of the existing sewer main, install a manufactured RCP wye (with six (6) inch or appropriate size branch) with water- tight Strongback Fernco type, or approved equal, pipe adaptors. Where sewer mains are larger then 10-inch, core pipe and install a manufactured flexible watertight six (6) inch rubber boot with stainless steel band(s), Model NPC Kor-N-Tee (as manufactured by NPC) or approved equal. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements. RCP to PVC piping connections should be completed using a Strongback Fernco connection or equal.
- c. To Vitrified Clay Pipe Sewer Mains - remove one (1) section of existing pipe (joint-to-joint), install a manufactured watertight PVC wye (with six (6) inch or appropriate size branch) with water-tight Strongback Fernco type, or approved equal, pipe adaptors on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections (for other than six (6) inch lateral) connections exceed 2/5 the diameter of the main sewer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.
- d. Encasement in concrete is required if ground cover is less than 3 feet for all pipes.
- e. Core bore seal shall meet ASTM C-923 and ASTM C-167.
- f. New construction of Clay Wyes, encasement of wye with 3000# concrete and extend concrete 24" on each site of the wye, min. 6" above pipe.

SLANT AND Y – BRANCH
DETAILS

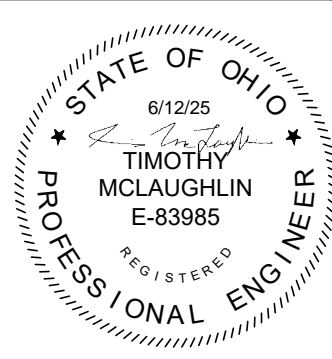
REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 11





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

NO	REVISION	DATE

NO	REVISION	DATE

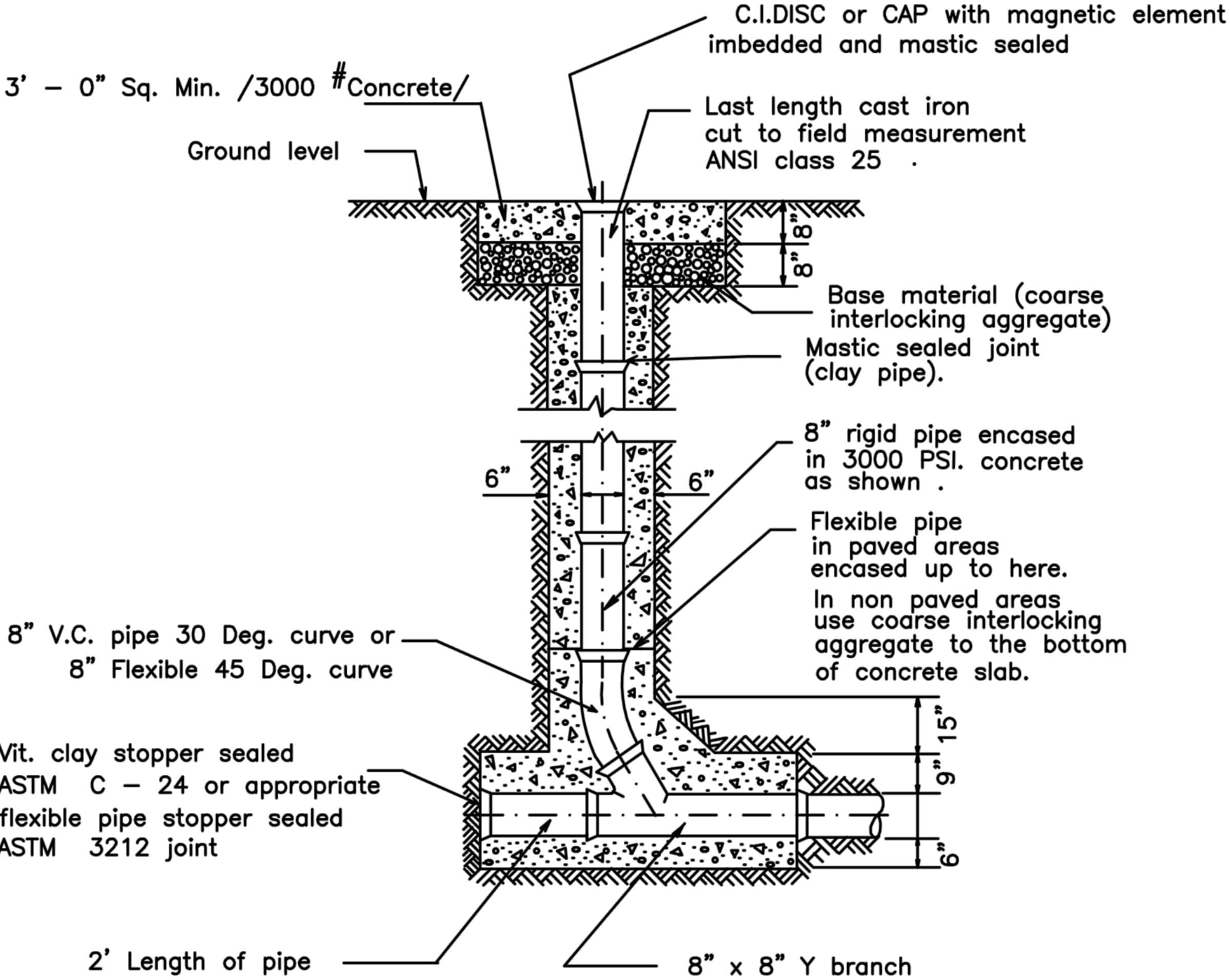
SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
 ILJA - RICHMOND HEIGHTS
 SANITARY SEWER IMPROVEMENTS
 CUYAHOGA COUNTY

OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-08	
SHEET	OF
14	31

NOTE:
 8" Clean out shall be used for
 8" sewer and larger
 Smaller size sewers and lamp
 holes shall have same size pipe.



CLEANOUT

REVISIONS:

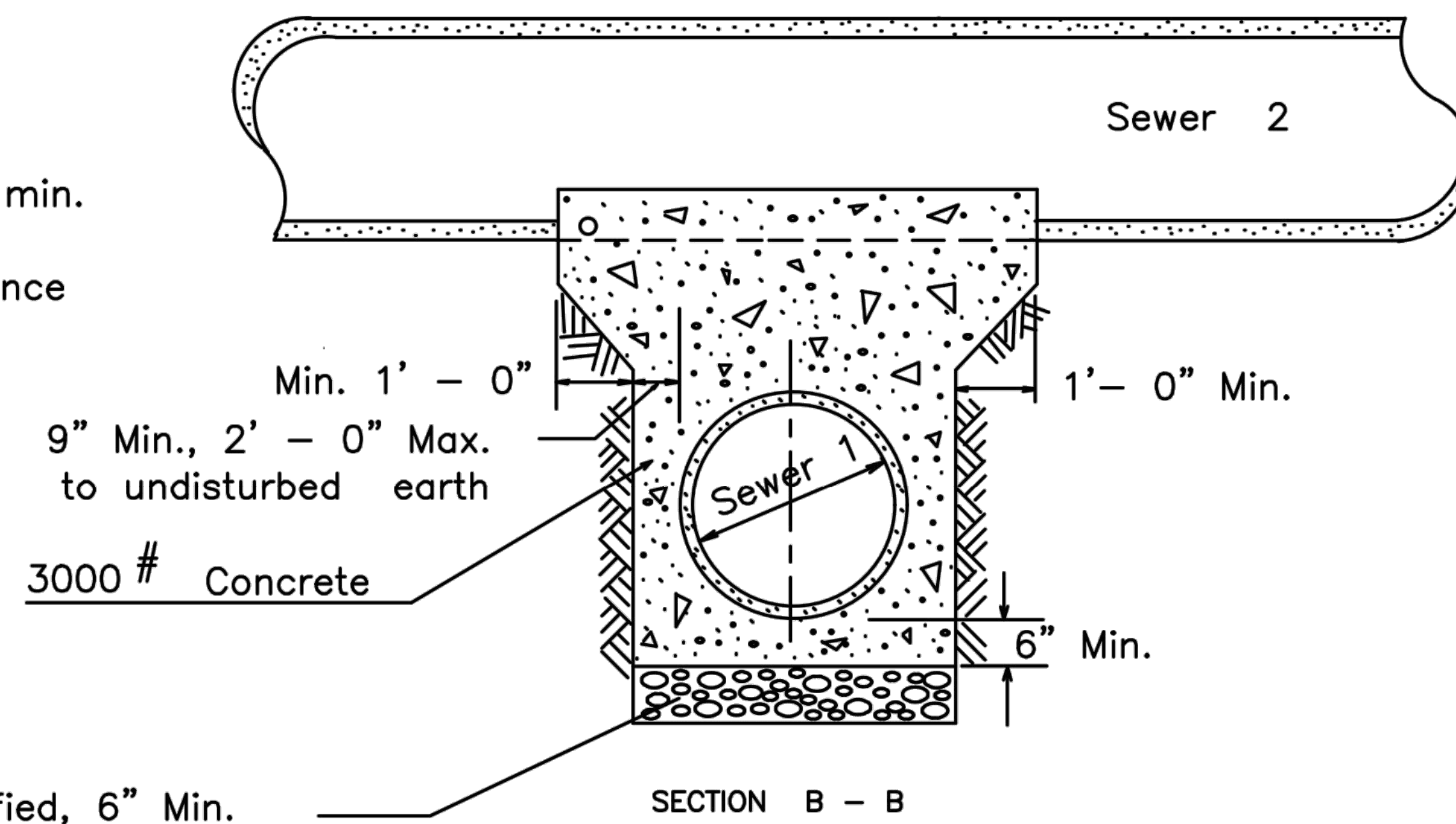
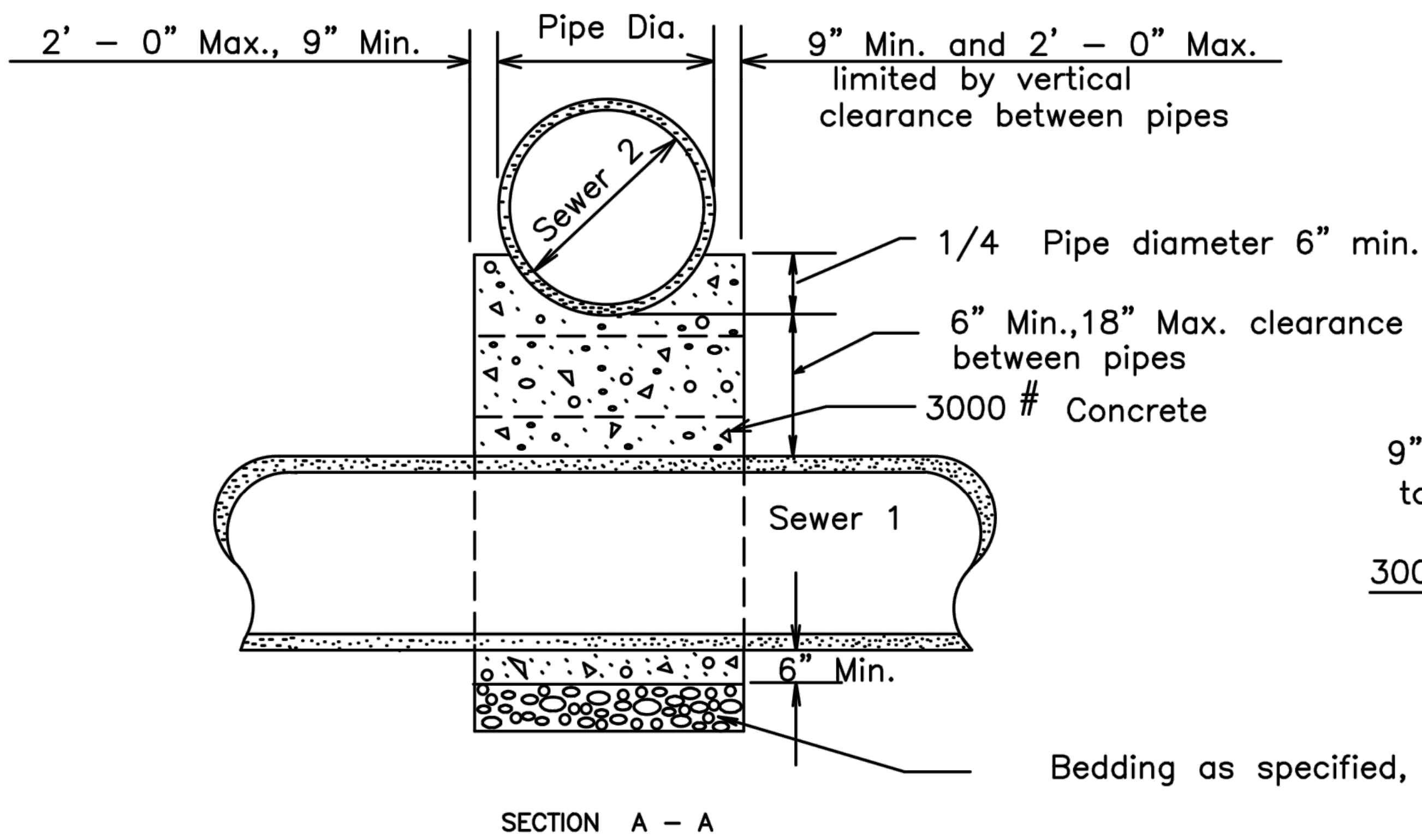
SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO.19

Encasement required when pipe
clearance is less than 18"



CONCRETE ENCASEMENT
MONOLITHIC CRADLING OF UPPER PIPE

DATE: OCTOBER 2021

SHEET NO.14

STATE OF OHIO
6/12/25
Timothy McLaughlin
TIMOTHY
MCLAUGHLIN
E-83985
REGISTERED
PROFESSIONAL ENGINEER



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

	NO	REVISION	DATE
SCALE:	AS NOTED		
DATE:	5/5/2025		
DESIGNED BY:	TJM		
DRAWN BY:	RLM		
CHECKED BY:	TJM		

CITY OF RICHMOND HEIGHTS
I-IJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-09	
SHEET	OF
15	31

[Signature]

Signer Name: Timothy McLaughlin
Signing Reason: I approved
this document.
Signing Time: 2025-09-15
15:56:34(EDT)



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

NO	REVISION	DATE	SCALE	AS NOTED	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
					5/5/2025	TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

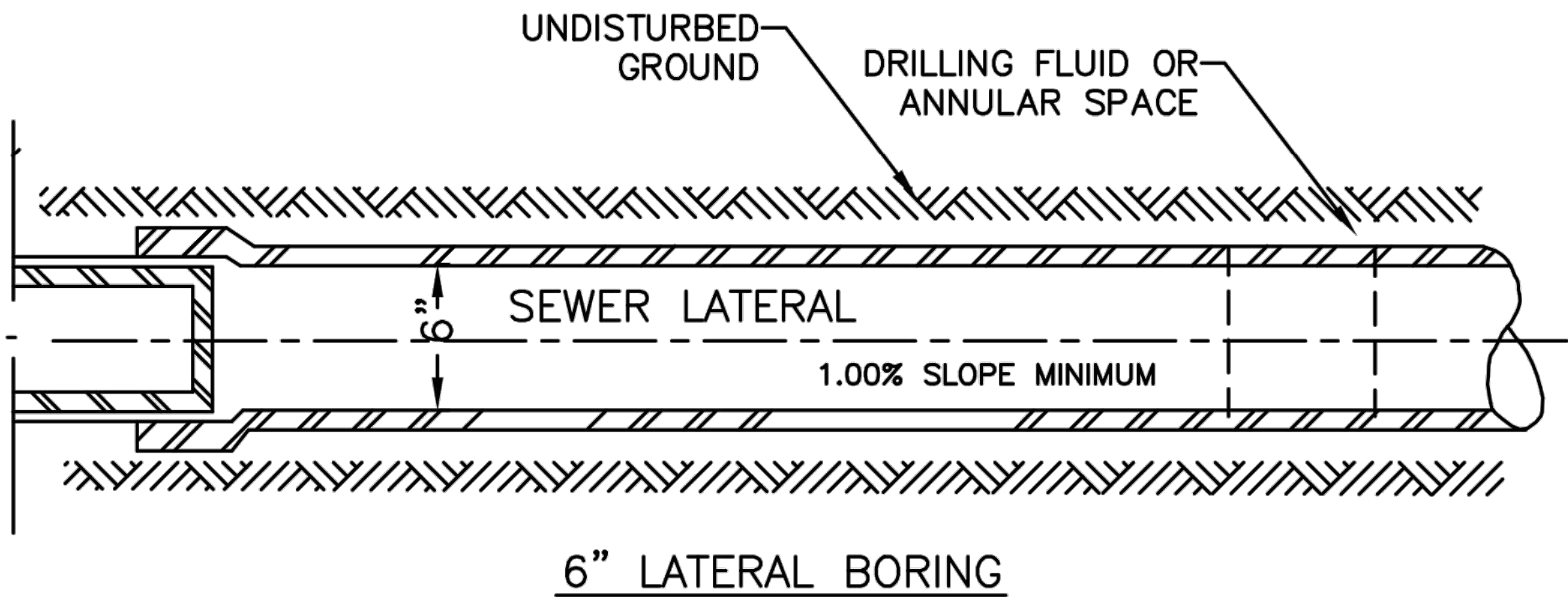
PROJECT NO:	
231100	
DRAWING NAME	
10C-10	
SHEET	OF
16	31

NOTE:

DRILLING FLUID TO REMAIN OR ANNULAR SPACE TO BE GROUTED.

TYPES OF ACCEPTABLE PIPE:

1. FUSIBLE PVC CONFORMING TO AWWA C900 OR C905; MINIMUM SDR 21 PRESSURE CLASS 200 PSI.
2. RESTRAINED JOINT PVC WITH PIPE AND COUPLING CONFORMING TO SDR 21 PRESSURE CLASS 200 PSI.
3. FUSIBLE HDPE CONFORMING TO ASTM F-714 AND AWWA C906; MINIMUM DR17.
4. ALL PIPE SHALL BE IRON PIPE SIZE (IPS).



LATERAL BORING
DETAIL

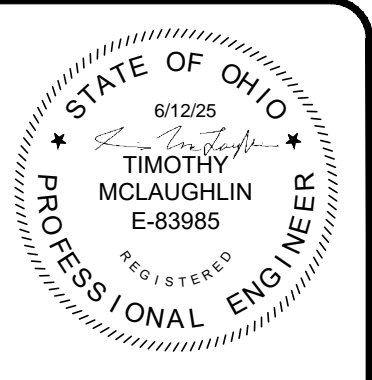
REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 29



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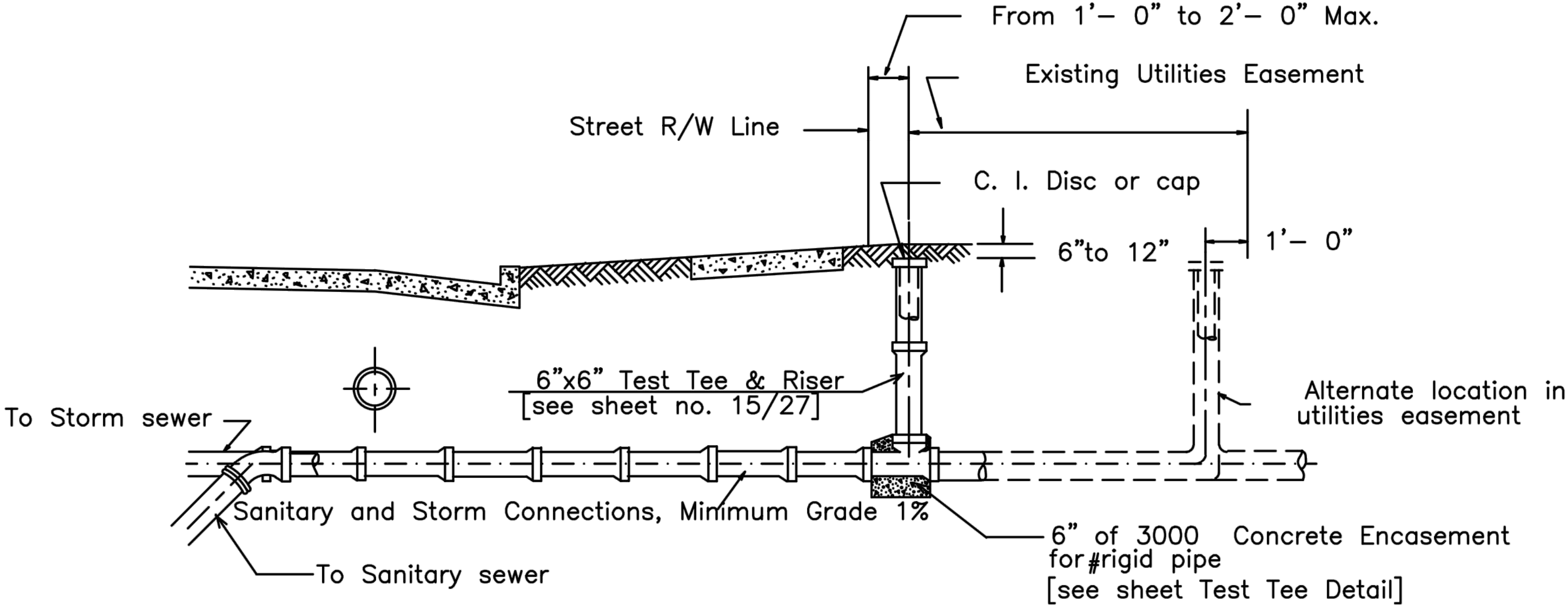
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DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO

CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-11	
SHEET	OF
17	31



NOTE:

House connections shall be connected into the top half of the sewer pipe.

six inch, class 200, cast iron pipe is required for all bored sewer service connections including slip on rubber joints with an ANSI thickness classification No.25, also

6 inch, ductile iron cement lined pipe may be used including slip on rubber joints with an ANSI thickness classification No. 53.

LATERAL
CONNECTIONS

REVISIONS:

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NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 15

Timothy McLaughlin

Signer Name: Timothy McLaughlin
Signing Reason: I approved
this document.
Signature Date: 2025-06-13
15:55:36 (EST)



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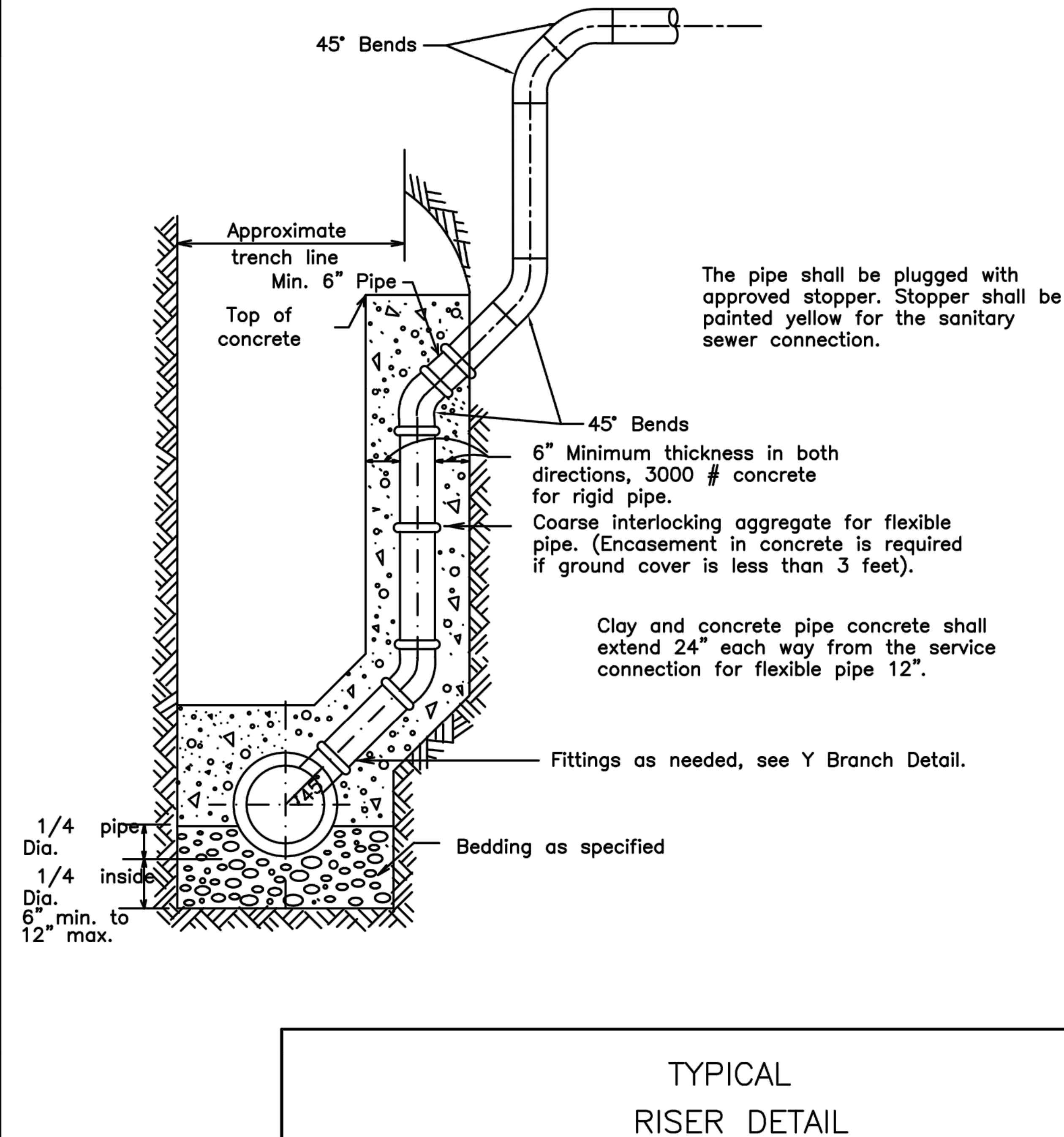
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DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
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SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO

CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-12	
SHEET	OF
18	31

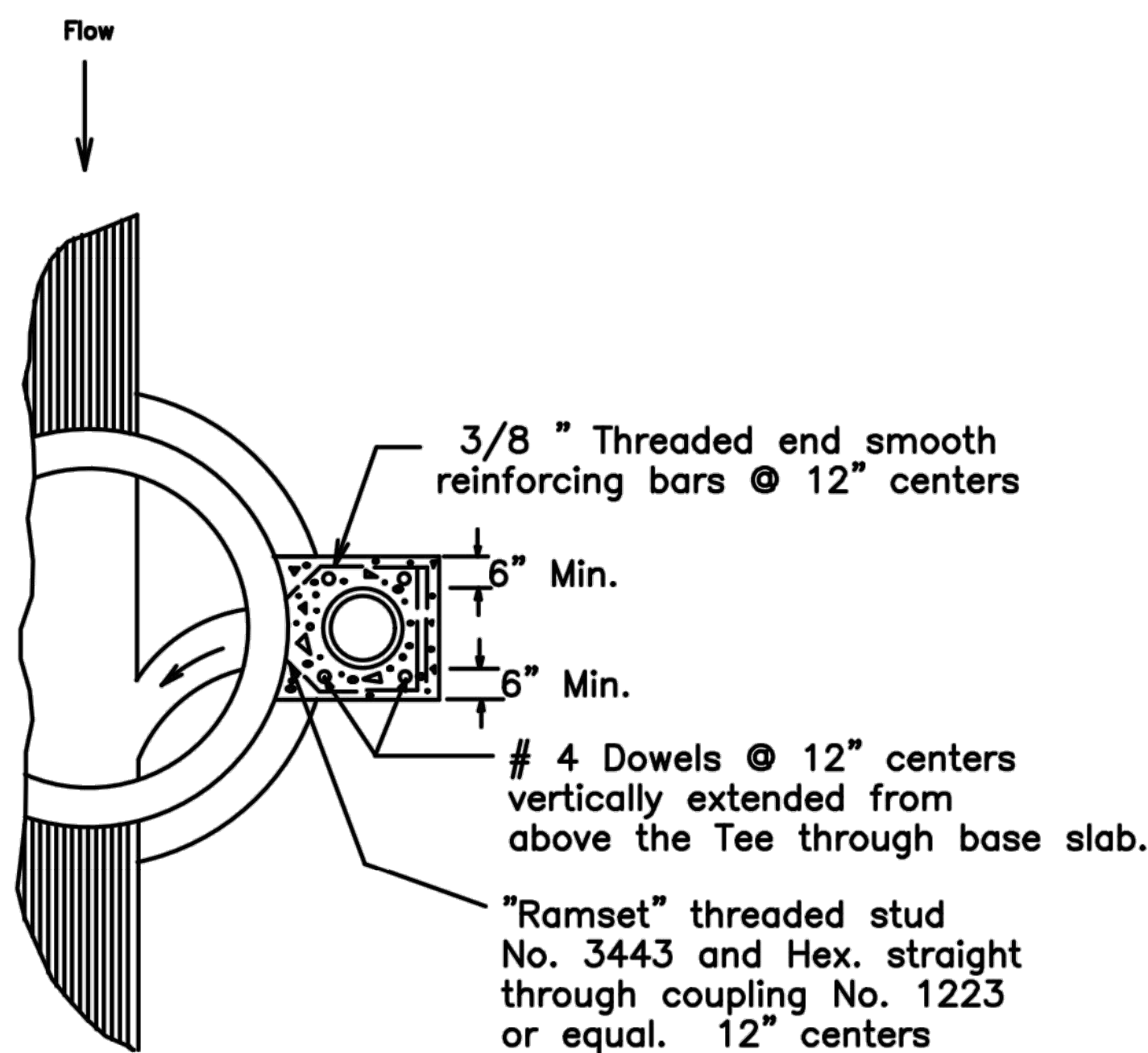
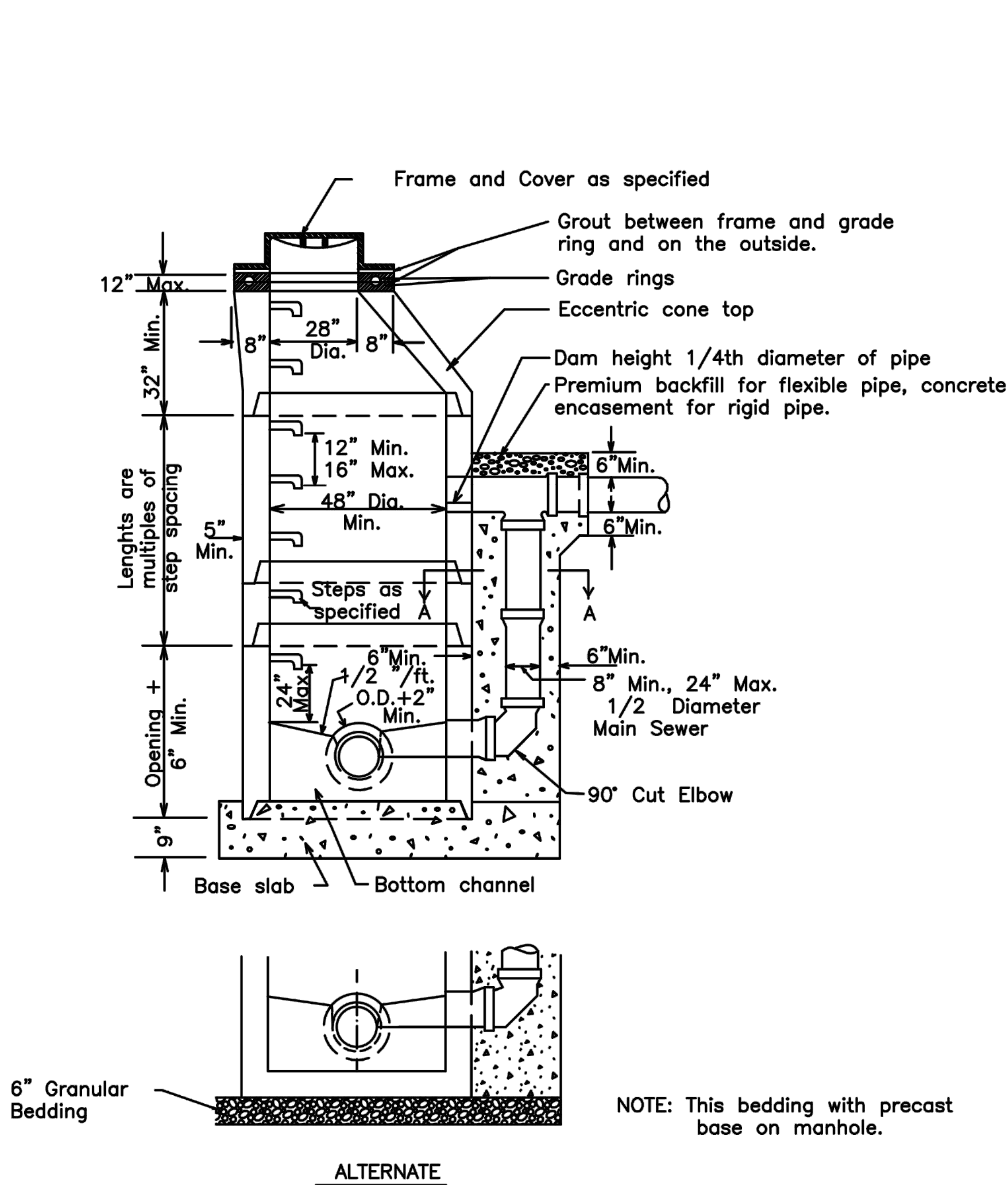


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SHEET NO.10		



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SECTION A - A.

NOTES: A drop manhole shall be constructed in sanitary sewers wherever the distance between the inverts is 2.0 ft. or greater.
 A drop manhole shall be constructed in storm sewers whenever the distance between the inverts is 10.0 ft. or greater, a 2 ft sump shall be installed.
 The following notes on the Precast Concrete manholes shall pertain to the Drop Manhole: Top or Transition openings in riser sections. Joint Seal, Materials and Landing Platforms.
 Poured in place concrete shall be 3000# Concrete.
 Core bore seals shall meet ASTM C-923 and C-167.
 GENERAL MANHOLE DETAILS refer to Precast Manhole Detail on sheet 5.

PRECAST CONCRETE
 DROP MANHOLE

REVISIONS:

SCALE
 NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 7

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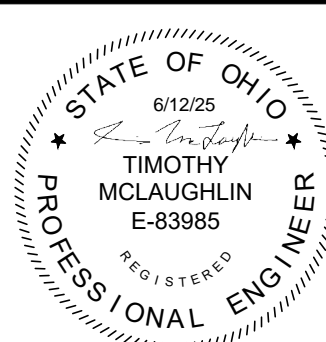
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CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO	CONSTRUCTION DETAILS - SANITARY CCDPW
	CIVIL - 10 SERIES	

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SHEET	OF
19	31

Timothy McLaughlin

Signer Name: Timothy McLaughlin
Signing Reason: I approved
this document.
Signing Time: 2025-06-13
15:56:14 (EST)



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CHECKED BY	TJM

CITY OF RICHMOND HEIGHTS
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SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	231100
DRAWING NAME	10C-14
SHEET	20
OF	31

NOTES

Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION /or reducer/ Sections may be either eccentric cone, concentric cone or flat slab.

BASES for Manholes are shown with monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete precast in the base or by field construction. Floors may also be poured in place.

OPENINGS IN RISER SECTIONS for ALL pipes (Sanitary, Combined & Storm) shall be prefabricated. Flexible connections shall be provided for sanitary, storm and combined sewers. Premium seals shall meet A.S.T.M C-923.

JOINT SEALS between precast manhole sections and sewers shall be resilient and flexible gasket joints shall meet A.S.T.M C-443, FEDERAL SPECIFICATIONS SS-S-00210 (210 A) and AASHTO M-198

MANHOLE JOINTS and GRADE RINGS shall be sealed externally and between the grade rings with a layer of mastic compound such as Faberlite, Kent Seal or equal.

MATERIALS for bases and other precast sections including reinforcement not specified hereon, shall comply with the specifications.

PRECAST MANHOLES shall conform to the requirements of A.S.T.M C-478.

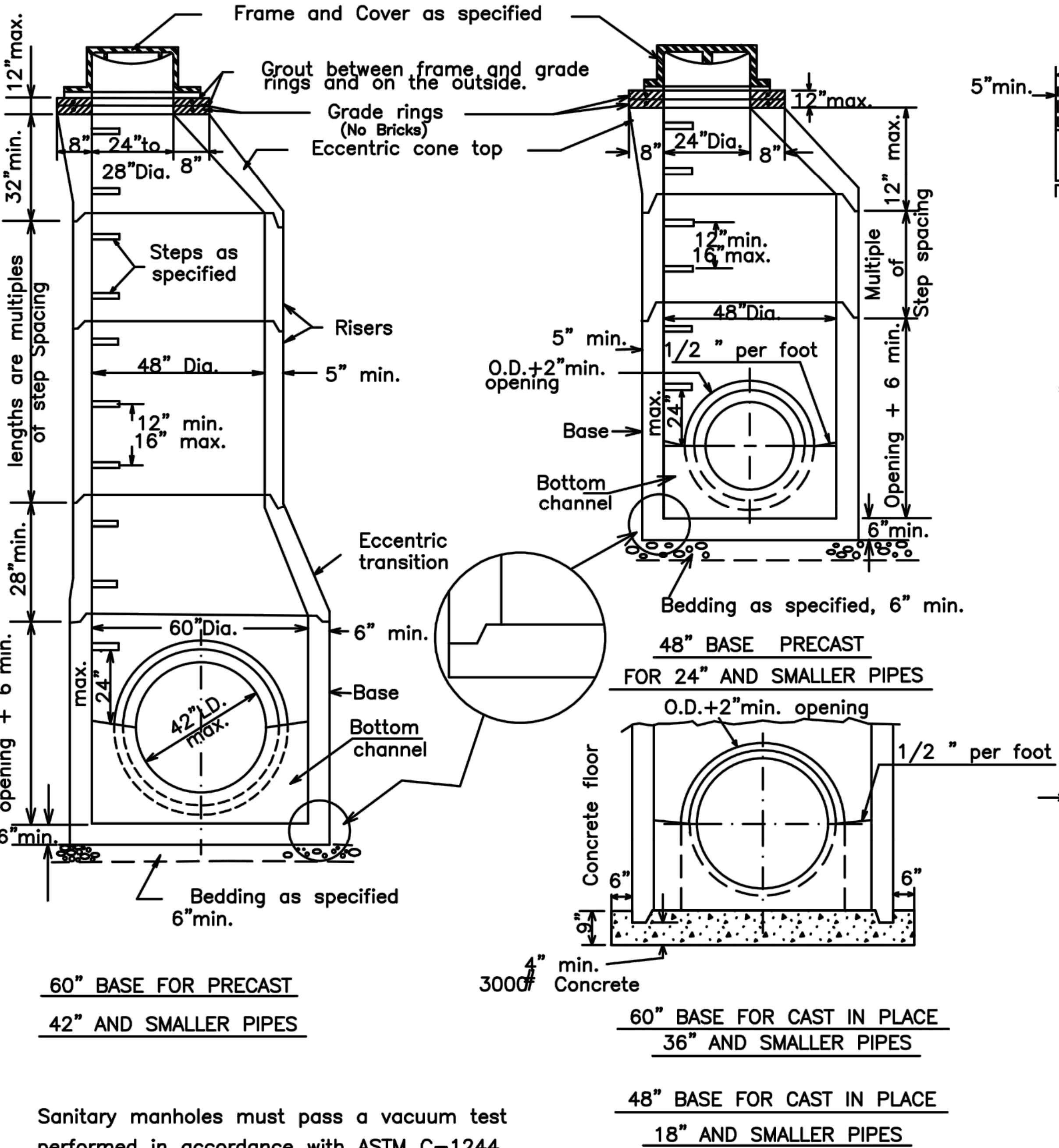
SEAL all lift holes with approved concrete plugs.

LANDING PLATFORMS as shown on the LANDING DETAILS shall be installed in manholes that are over 28 feet deep to the invert with a maximum vertical spacing of 20 feet.

MANHOLE FRAMES – chimney seals will be required on all new sanitary manholes.

SANITARY MANHOLES shall have a minimum 3" vertical drop from casting elevations.

PRECAST CONCRETE MANHOLE 42" PIPE OR SMALLER



Sanitary manholes must pass a vacuum test performed in accordance with ASTM C-1244.

REVISIONS:

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DATE: OCTOBER 2021

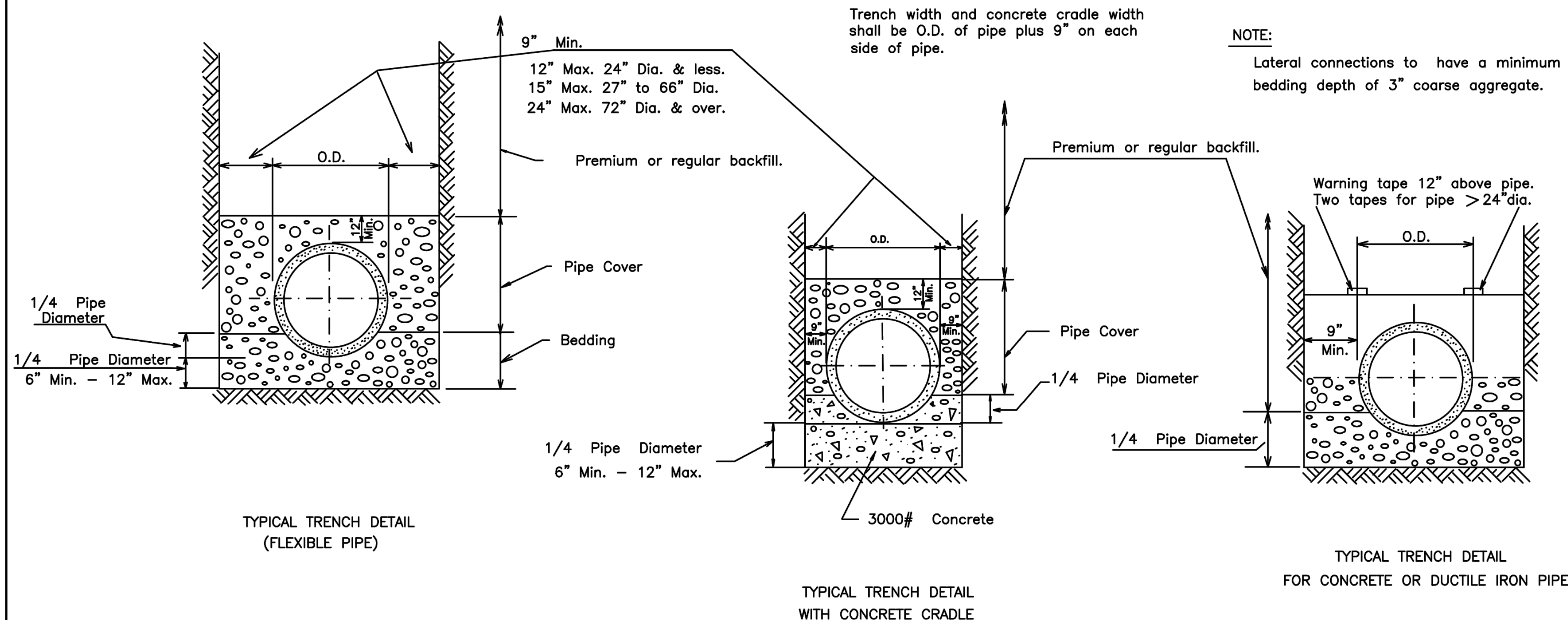
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SHEET NO. 5

SCALE: AS NOTED		NO	REVISION	DATE
DATE: 5/5/2025				
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DRAWN BY: RLM				

CITY OF RICHMOND HEIGHTS
I/IJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

PROJECT NO:	
231100	
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Premium Backfill shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,8,304, also limestone screenings.

In paved areas coarse interlocking aggregate to the top of the trench on all types of pipe.

TYPICAL TRENCH DETAILS

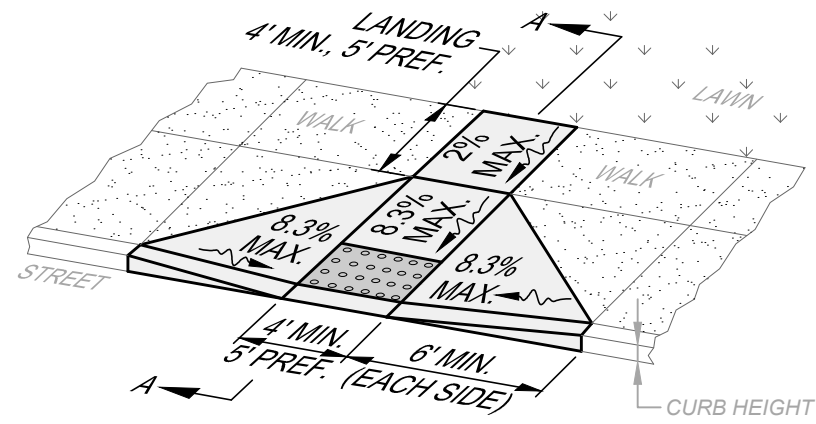
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SCALE
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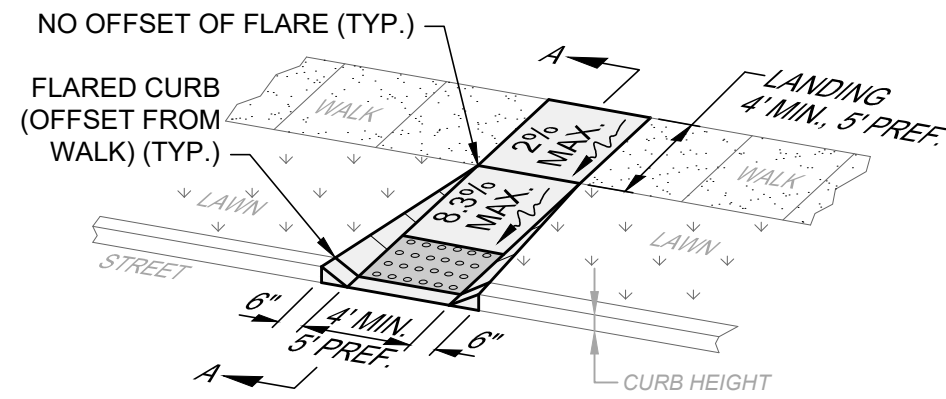
DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

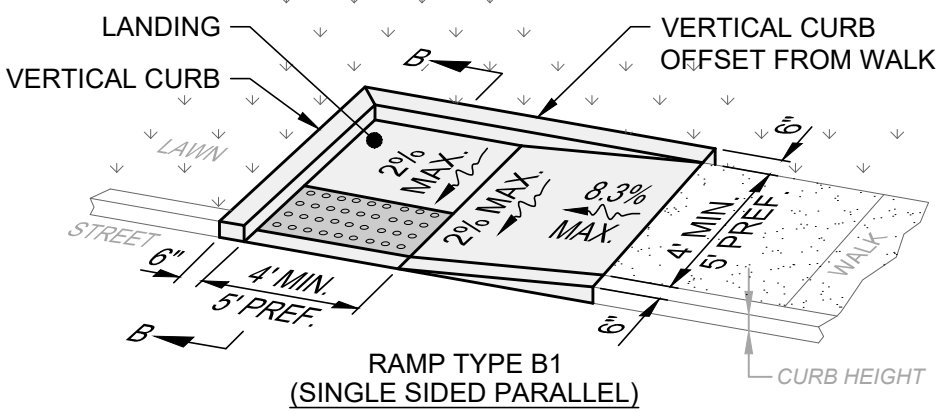
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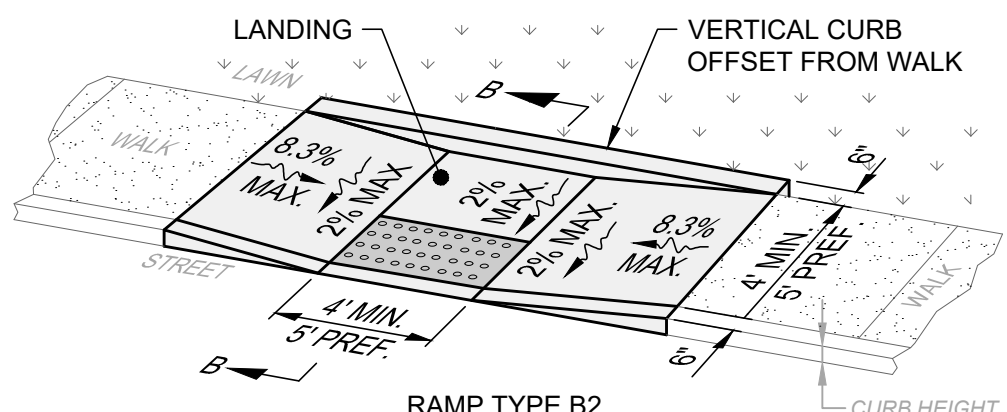
RAMP TYPE A1
(PERPENDICULAR W/ FLARED SIDES)



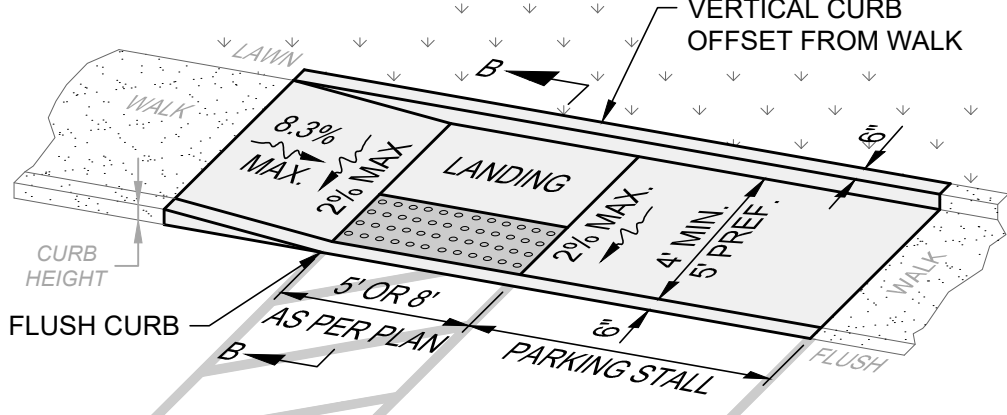
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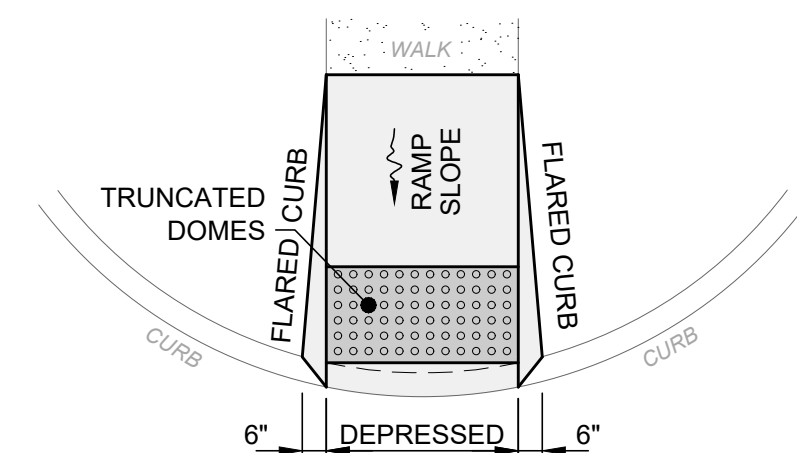
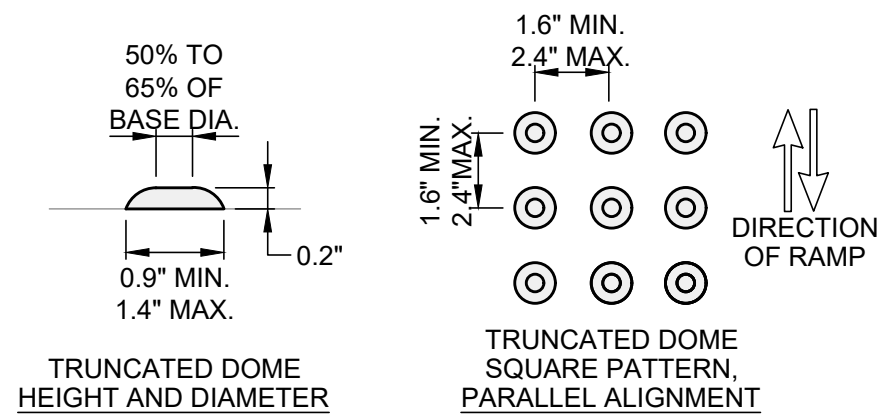
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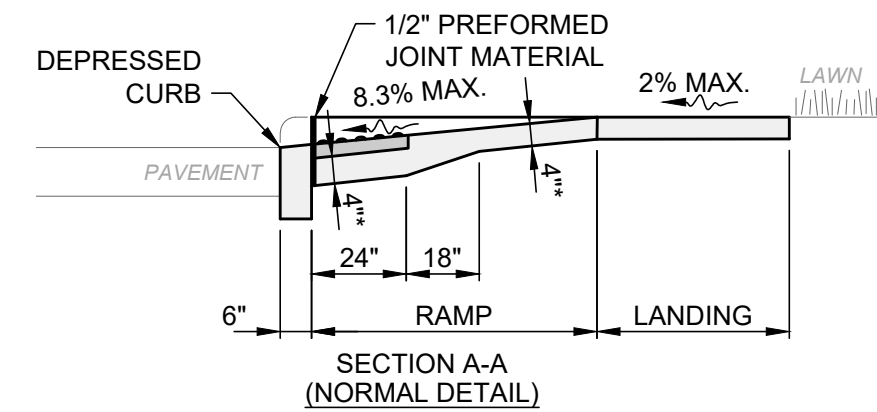
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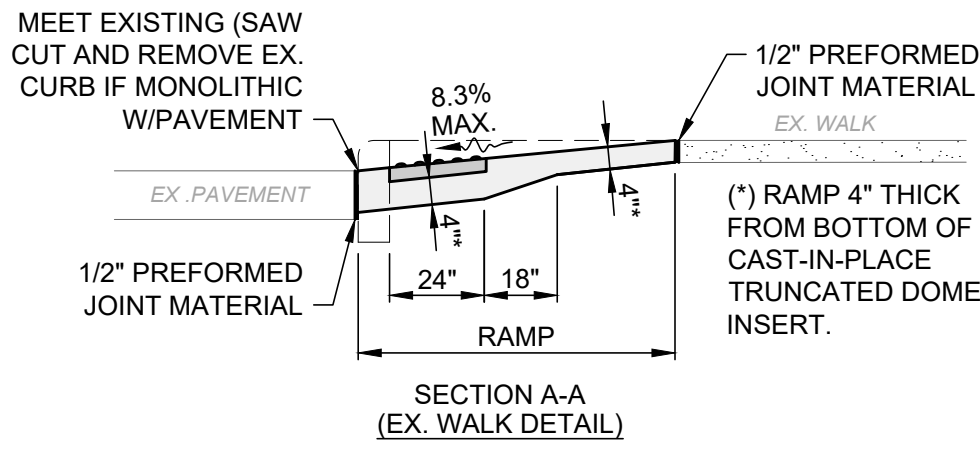
RAMP TYPE B3
(FLUSH PARALLEL)



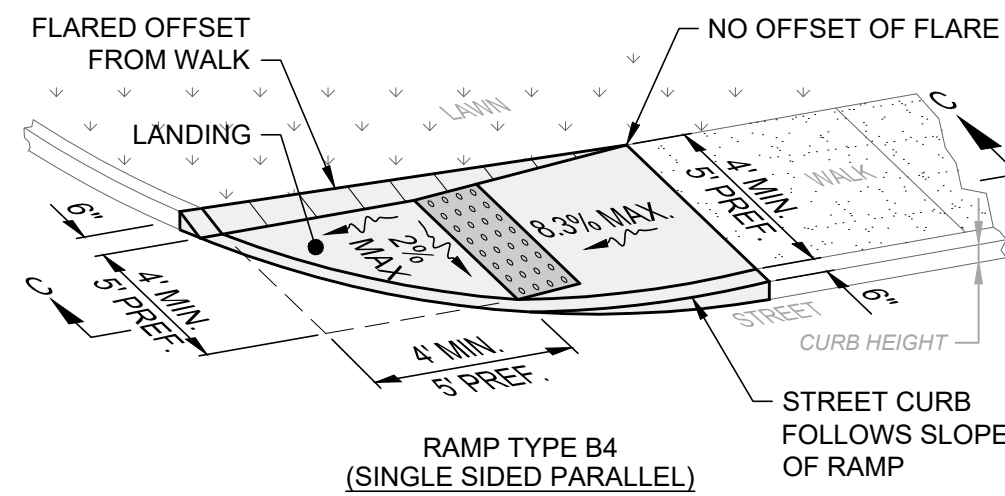
TRUNCATED DOME ALIGNMENT ON RADIUSED CURB



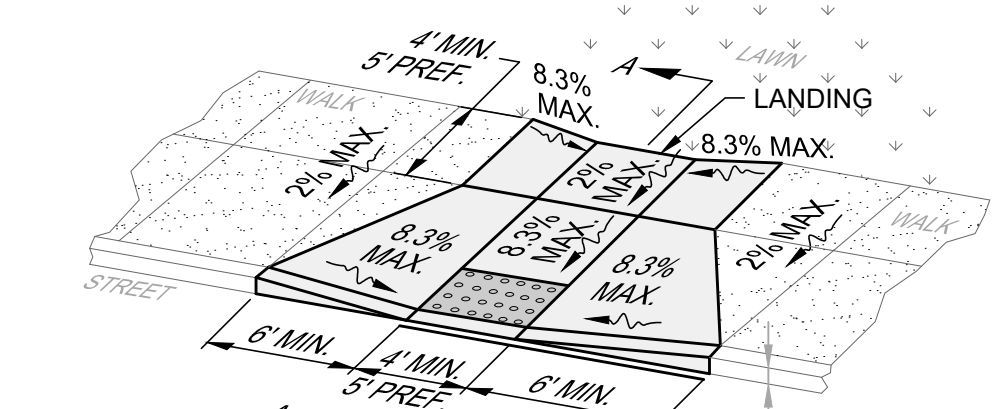
SECTION A-A
(NORMAL DETAIL)



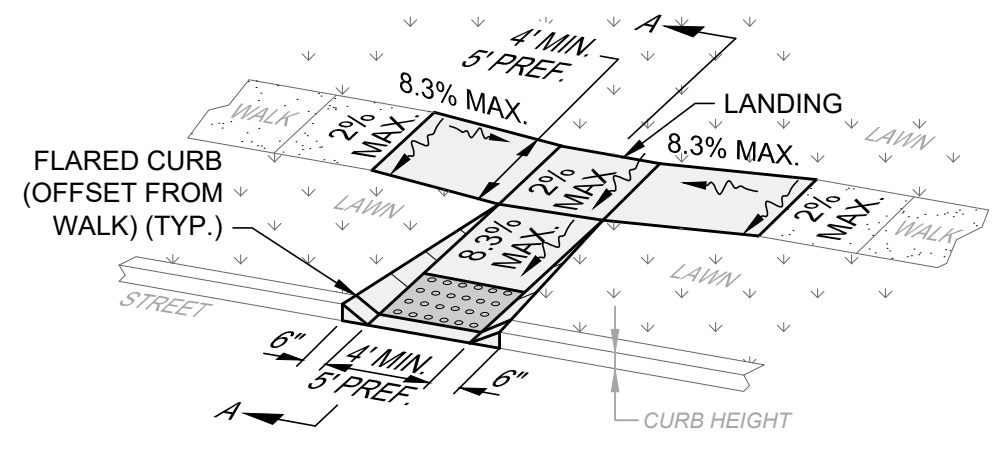
SECTION A-A
(EX. WALK DETAIL)



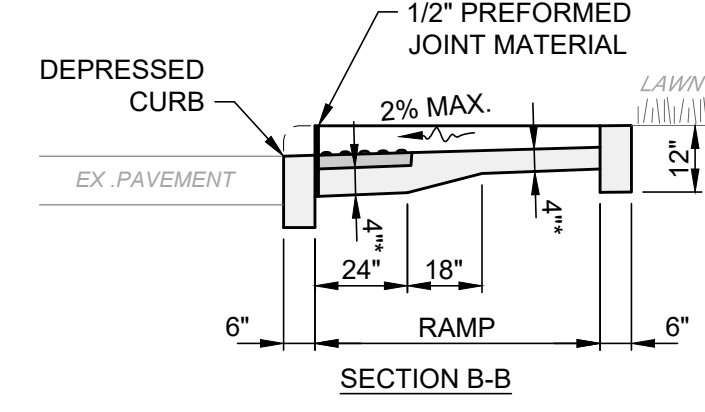
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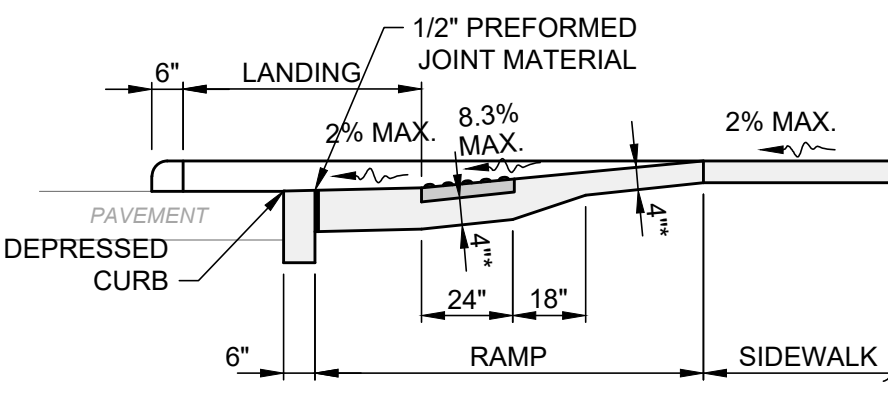
RAMP TYPE C1
(COMBINED W/ FLARED SIDES)



RAMP TYPE C2
(COMBINED W/ RETURNED CURB)



SECTION B-B



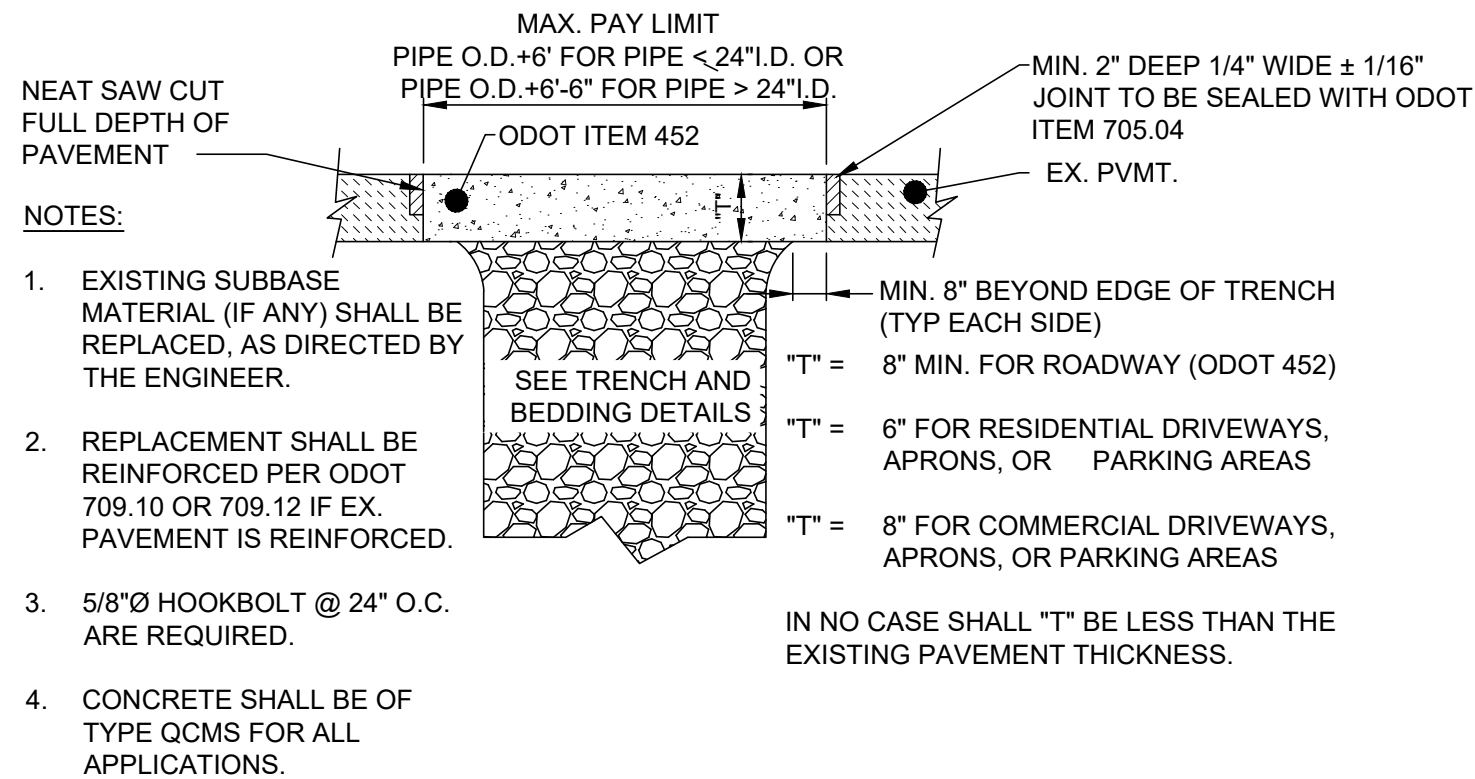
SECTION C-C

NOTES:

1. THIS DETAIL IS FOR REFERENCE ONLY; NOT ALL ITEMS MAY APPLY OR DIFFERENT CONFIGURATIONS MAY BE REQUIRED. SEE LAYOUT PLAN FOR RAMP TYPE, CONFIGURATION, DIMENSIONS AND DEPRESSED CURB LOCATION; GRADING PLAN FOR ELEVATIONS AND SLOPES; AND DETAIL SHEETS FOR APPLICABLE WALK AND CURB DETAILS.
2. LINES SHOWN IN THIS DETAIL INDICATE RAMP EDGES AND CHANGES IN SLOPE, AND NOT NECESSARILY JOINT LINES.
3. TEXTURE CONCRETE SURFACE BY COARSE BROOMING TRANSVERSE TO RAMP SLOPE.
4. ALL RAMPS SHALL BE POURED INTEGRAL WITH NEW CURBS WITH CURB EDGE FLUSH TO PAVEMENT.
5. TRUNCATED DOMES SHALL BE ALONG THE FULL RAMP WIDTH AND ALIGNED WITH THE PRIMARY RAMP DIRECTION.
6. TRUNCATED DOMES SHALL BE INSTALLED FLUSH WITH BACK OF CURB. IN SKEWED CONDITION, ONE CORNER OF THE STRIP MUST BE ADJACENT TO BACK OF CURB. TRUNCATED DOME MATERIALS SHALL BE MITERED AND PLACED SEGMENTALLY FOR NON-STANDARD LAYOUTS.
7. ONLY CAST-IN-PLACE TRUNCATED DOMES ARE ALLOWED.
8. TRUNCATED DOME COLOR SHALL BE BRIGHT RED, ORANGE RED OR FEDERAL YELLOW AND CONTRAST WITH CONCRETE.

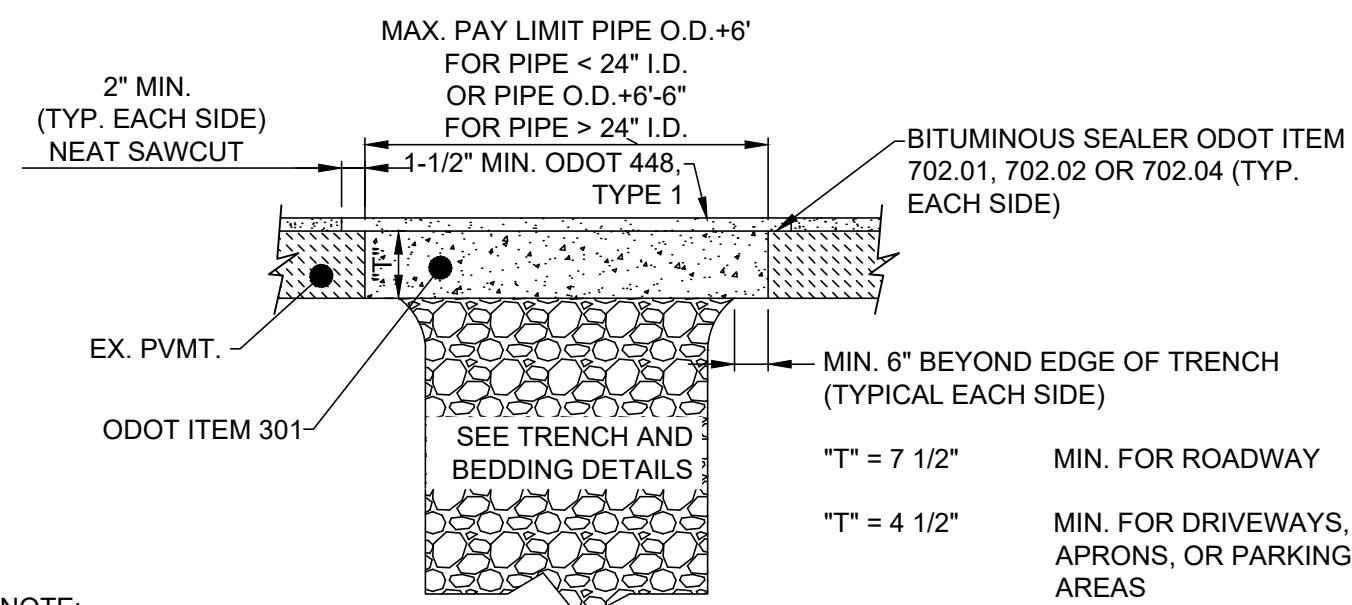
ACCESSIBLE CURB RAMPS DETAIL

SCALE: NONE



TYPE 'A' PAVEMENT (CONCRETE)
REPLACEMENT

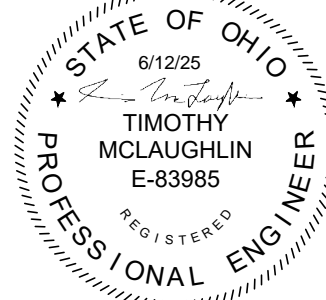
NOT TO SCALE



TYPE 'C' PAVEMENT (ASPHALT)
REPLACEMENT

NOT TO SCALE

Signature: Timothy McLaughlin
Signing Reason: I approved
this document.
Signing Time: 2025-06-13
15:58:41 EDT



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

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DATE:	5/5/2025				
DESIGNED BY:	TJM				
DRAWN BY:	RLM				
CHECKED BY:	TJM				

CITY OF RICHMOND HEIGHTS
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CUYAHOGA COUNTY
OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - PAVEMENT

PROJECT NO:	231100
DRAWING NAME	10C-16
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OF	31

SECTION B - B

LINEAR PLATES AND RIBS
NOT SHOWN

COUNTERED

D AS
HE
FT

ACCESS MANHOLE H3-1

8'-0" I.D.
CONCRETE COLLAR

C.I. FRAME & COVER
54" SQ. CLEAR
OPENING IN
REMOVABLE SLAB

DEMOLISH EXISTING
CONCRETE TOP. NEW
TOP PER PLAN SHEET
20-S-02.

24'-0" DIA.
SHAFT H3-1

TOP PLAN

OMIT 4" LEDGE x 24" WIDE x
FULL DEPTH AT MANHOLE
STEP AREA ONLY

20'-0" DIA.
SHAFT

12" W. x 4" L. x 8 1/2" D.
NOTCH IN HAUNCH FOR
REMOVABLE BEAM SUPPORT
SEE DETAIL "A" THIS SHEET

REMOVABLE
8" x 8" x 1/2"
FIBERGLASS BEAM
(2 REQUIRED)

66" DIA.
SEWER IN
TUNNEL

MH
STEPS

GRATING
NOT SHOWN

DEMOLISH EXISTING
GRATING. PROVIDE NEW
GRATING TO MATCH
EXISTING WITH FACTORY
OPENING FOR DROP PIPE.

12" ± WIDE SECTIONS
OF REMOVABLE
2" FIBERGLASS GRATING

18" ± WIDE SECTIONS
OF REMOVABLE
2" FIBERGLASS GRATING

12" SS DROP PIPE

66" DIA.
SEWER IN
TUNNEL

CONCRETE MH
8'-6" I.D.
20'-0" O.D.

PLAN AT EXISTING FIBERGLASS GRATING

GENERAL SHEET NOTES

1. FIBERGLASS GRATING SHALL CONFORM TO SECTION 06 74 13.
2. CUT RUNGS BELOW THE CONCRETE SURFACE, APPLY CORROSION INHIBITOR COATING SUCH AS SIKA ARMATEC OR EQUIVALENT, AND PATCH WITH SPECIALIZED REPAIR MORTAR SUCH AS EUCLID CHEMICALS EUCOREPAIR V100 OR EQUIVALENT.
3. NO DEBRIS SHALL BE ALLOWED TO ENTER SANITARY SEWER DURING OR RESULTING FROM WORK.
4. COORDINATE INSTALLATION OF DROP SHAFT CONNECTION WITH NEORS D SEWER SYSTEM MAINTENANCE AND OPERATION.
5. FIELD VERIFY DIMENSIONS AND CONDITIONS PRIOR TO WORK.

SHEET KEYNOTES

- (A) TYPE T STRUCTURAL ATTACHMENT
- (B) GROOVED COUPLING AS SPECIFIED ELSEWHERE
- (C) TYPE 11 OFFSET PIPE CLAMP

[illegible]

IJJA - RICHMOND HEIGHTS
 SANITARY SEWER IMPROVEMENTS
 CUYAHOGA COUNTY
 OHIO
DROP SHAFT CONNECTION - 20 SERIES
DROP SHAFT PLAN AND SECTIONS

PROJECT NO:

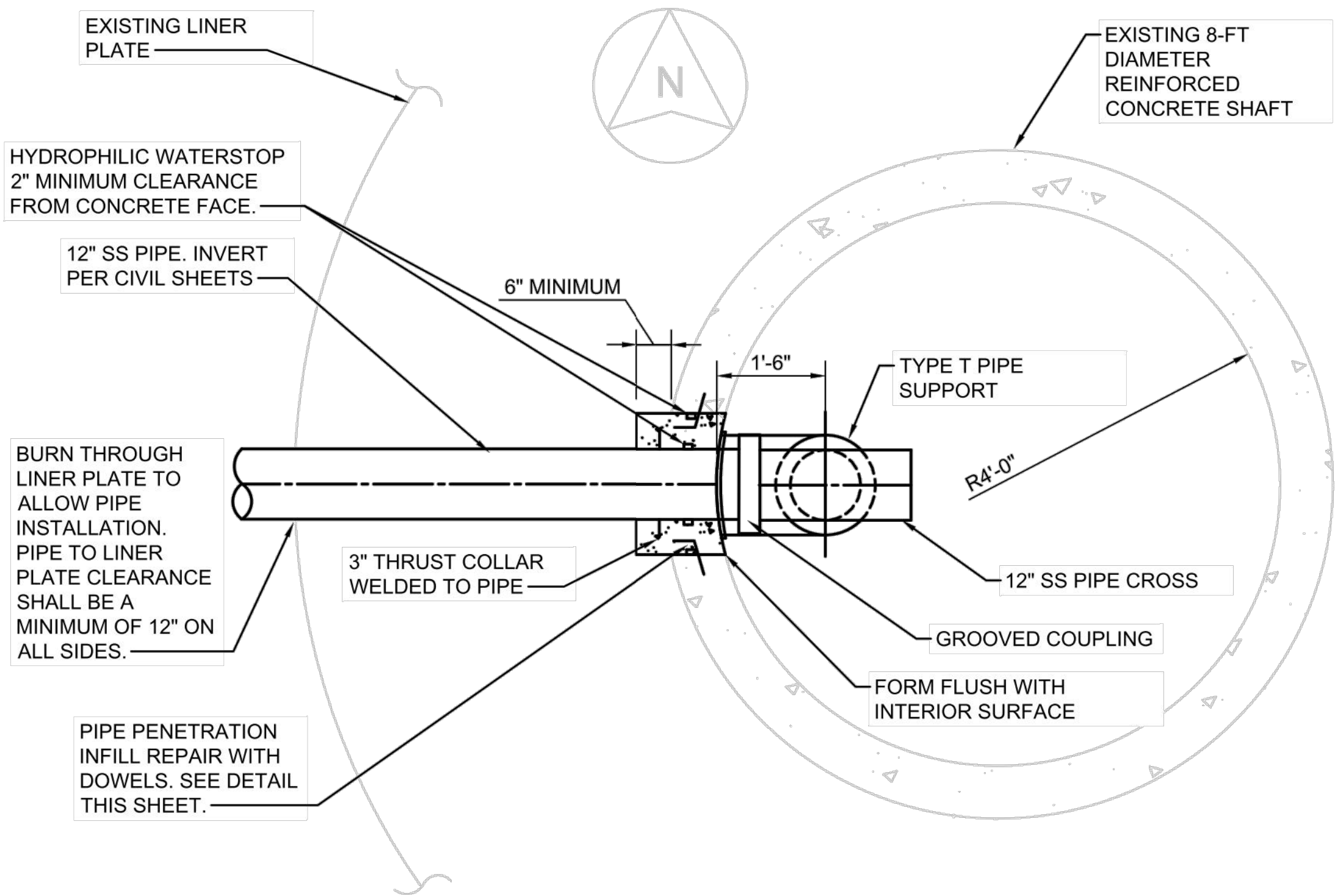
231100

DRAWING NAME

20S-01

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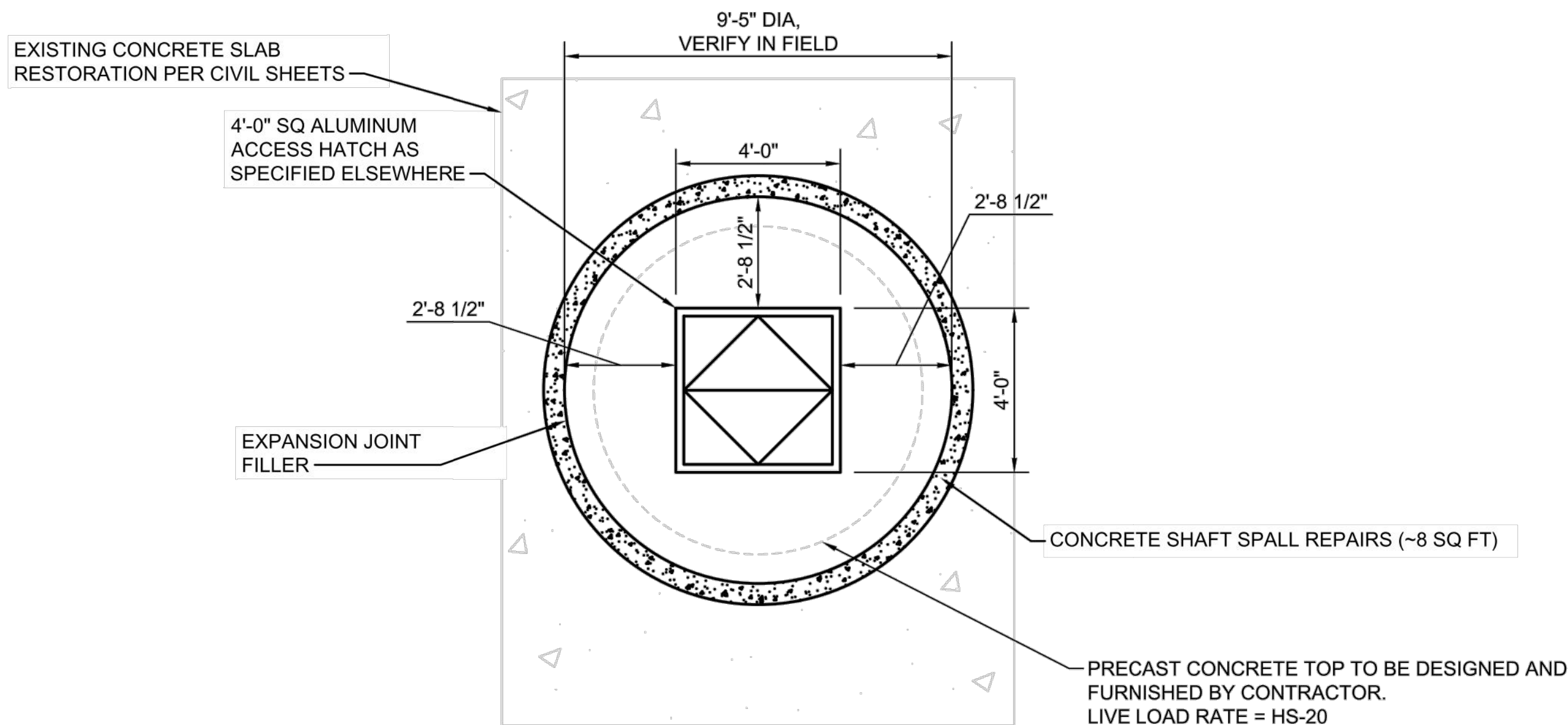
31



PIPE PENETRATION DETAIL PLAN AT EL. 957.5'
SCALE: NTS

NOTES

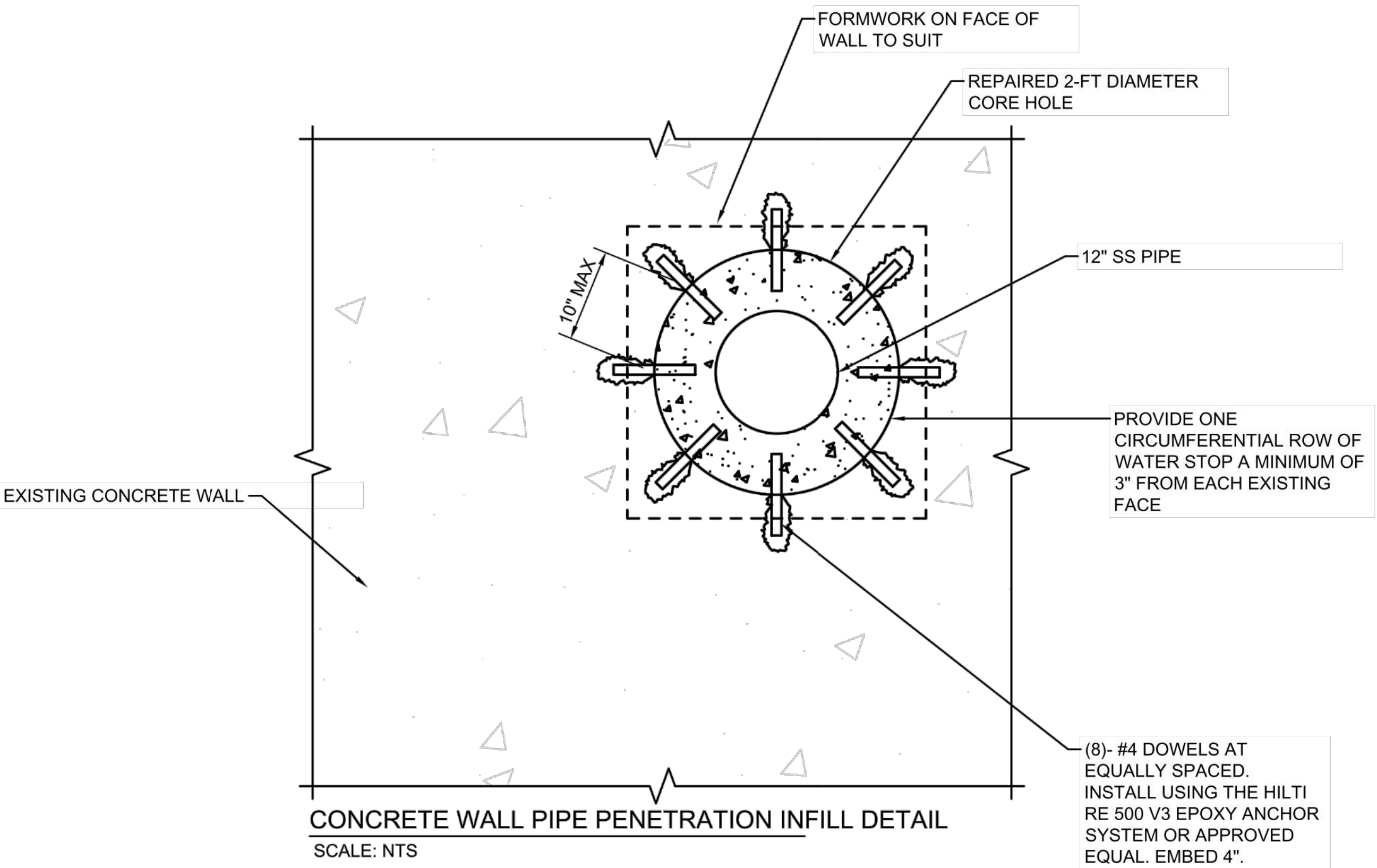
- 3-INCH MINIMUM CLEARANCE BETWEEN THRUST COLLAR AND DOWELS.
- 4-INCH MINIMUM COVER FOR THRUST COLLAR.
- THRUST COLLAR SHALL BE FIELD WELDED USING CONTINUOUS FILLET WELD EACH SIDE. THE THRUST COLLAR MATERIAL SHALL MEET OR EXCEED THE MATERIAL REQUIREMENTS OF THE PIPE. MINIMUM THRUST COLLAR THICKNESS SHALL BE 5/8". THRUST COLLAR SHALL ALSO FUNCTION AS WATER STOP ALONG PIPE.



TOP PLAN EL. 967
SCALE: NTS



CONCRETE SHAFT DEMOLITION

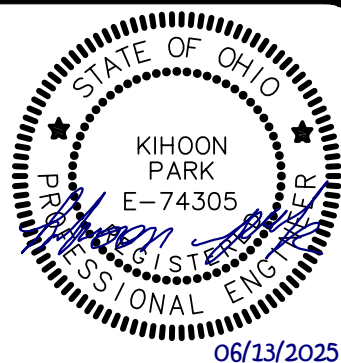


CONCRETE WALL PIPE PENETRATION INFILL DETAIL
SCALE: NTS

NOTES

- SEE STRUCTURAL GENERAL NOTES FOR CONCRETE AND REBAR REQUIREMENTS.
- THRUST COLLAR (NOT SHOWN) SHALL BE PER DETAIL PLAN THIS SHEET.

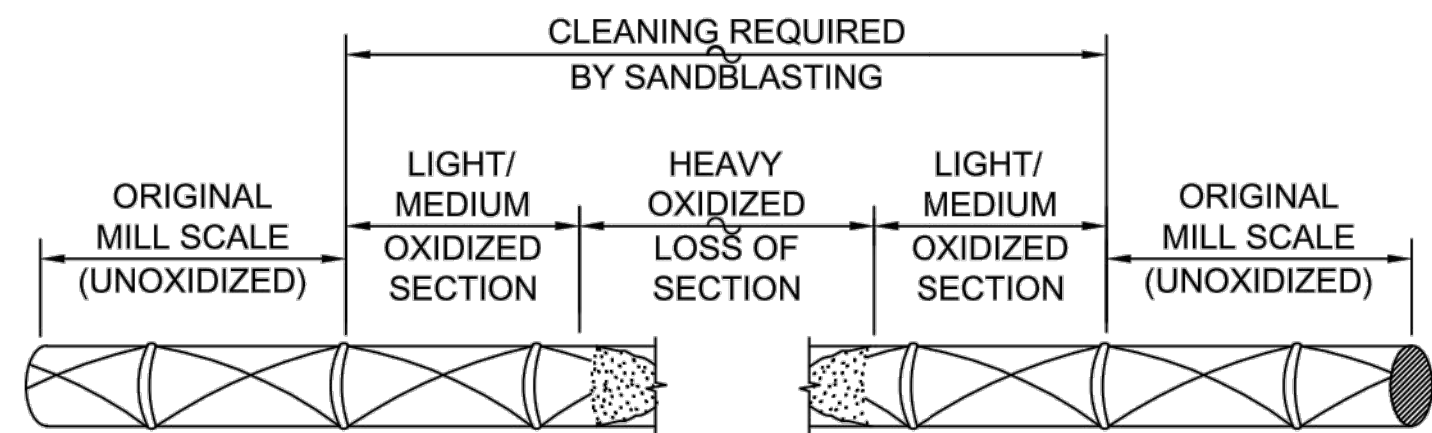
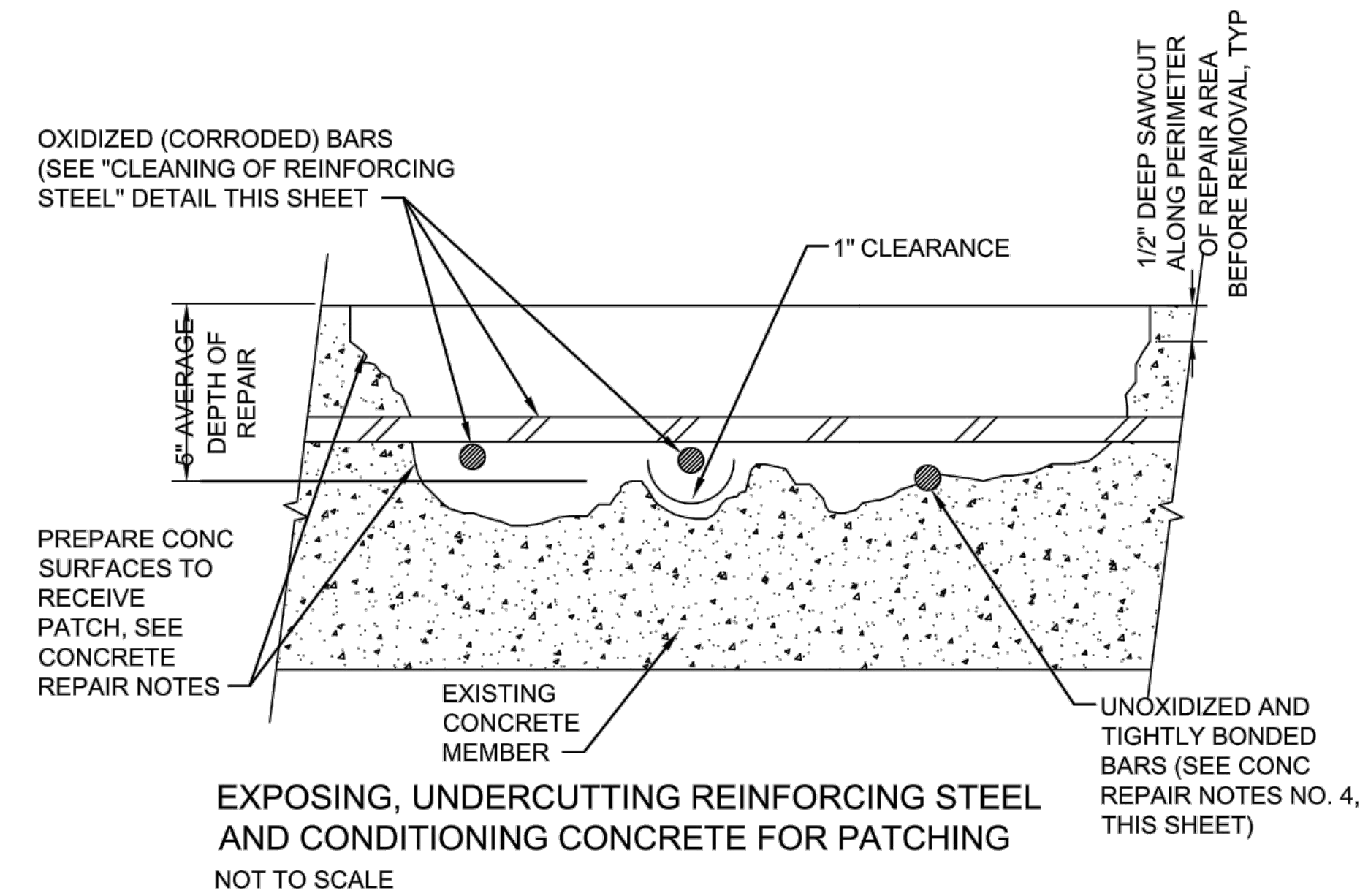
Signer Name: Kihoon Park
Signature: E-74305
Stamp: 06/13/2025
Professional Engineer



DATE	REVISION	NO	AS NOTED	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
				5/5/2025	DP	CR	KP

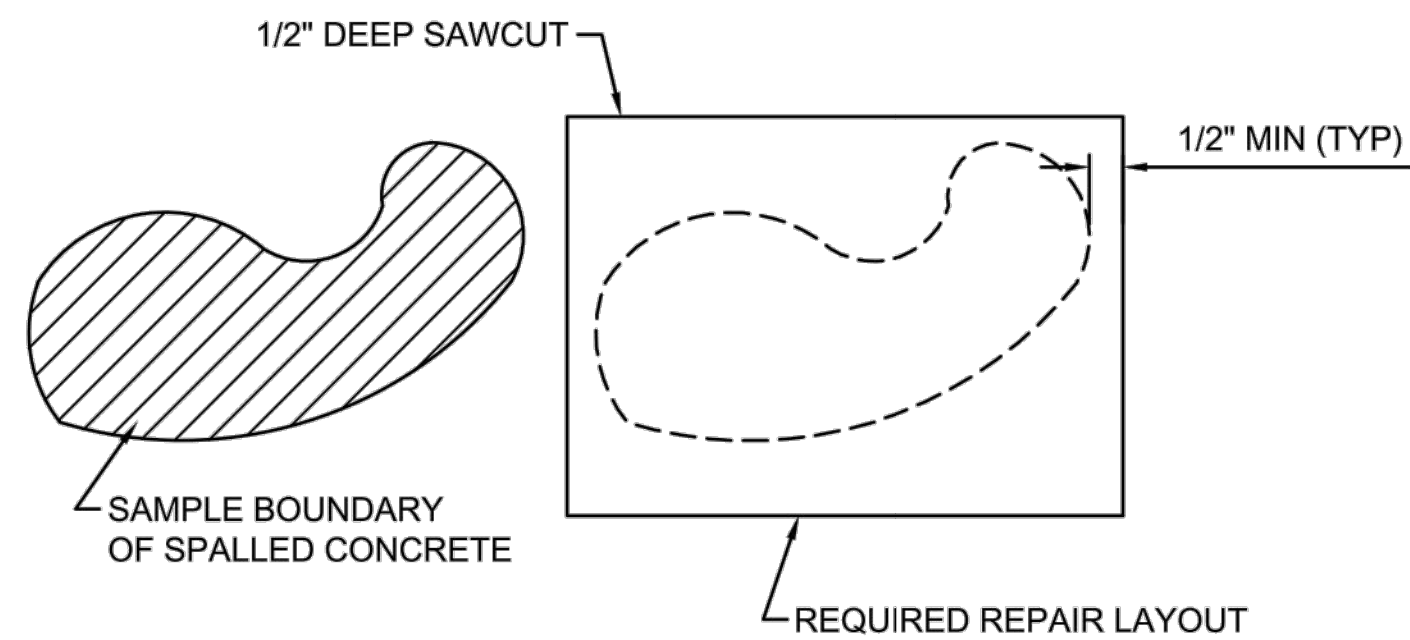
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO
DROP SHAFT CONNECTION - 20 SERIES
STRUCTURAL DETAILS

PROJECT NO:	231100
DRAWING NAME	20S-02
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CLEANING OF REINFORCING STEEL

NOT TO SCALE

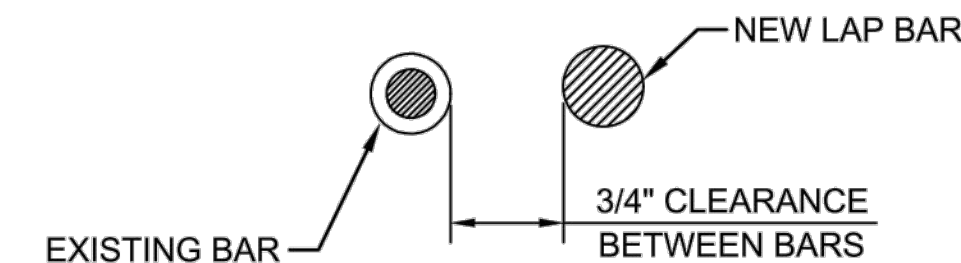
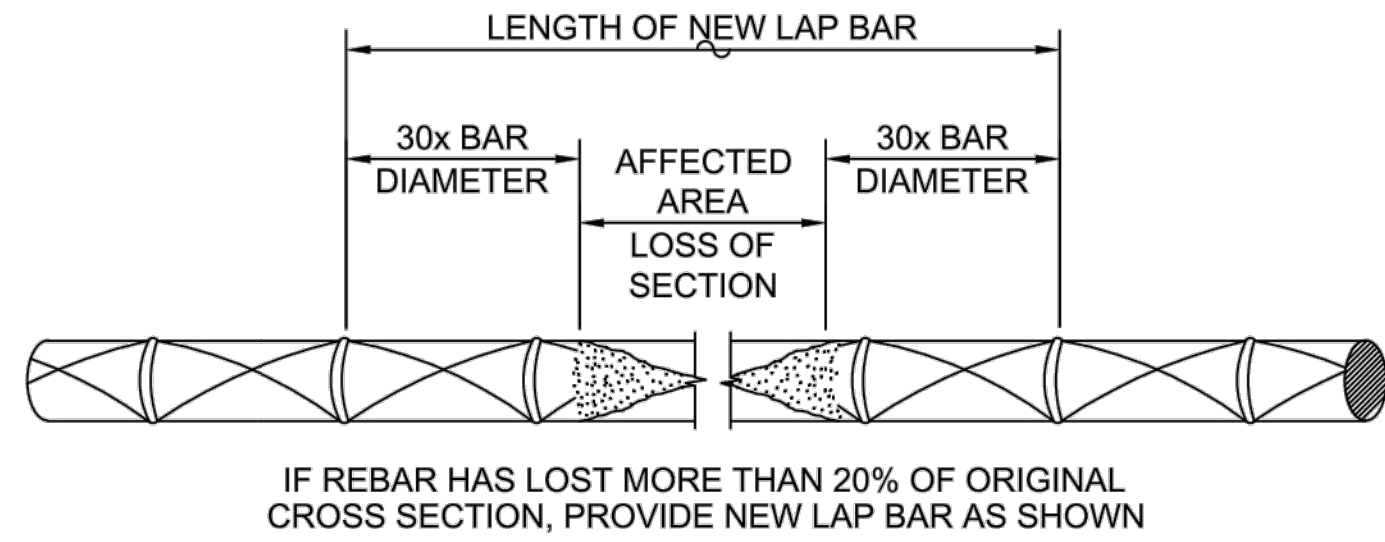


CONCRETE SPALL REPAIR PREPARATION DETAIL

NTS

CONCRETE REPAIR NOTES

- LOCATE AREAS OF CONCRETE WITH DELAMINATIONS, SPALLS, SCALING, AND UNSOUND CONCRETE. MARK ON SURFACE OF CONCRETE THE AREA TO BE REPAIRED AS SPECIFIED. PRIOR TO THE REMOVAL OF ANY CONCRETE, PROVIDE 24 HOURS NOTICE TO THE ENGINEER IN ORDER FOR THE ENGINEER AND CONTRACTOR TO VERIFY REPAIR LIMITS. SEE ALSO SECTION 03 01 00 CONCRETE REPAIR.
- SAWCUT PERIMETER OF AREA TO BE REPAIRED TO DEPTH OF 1/2" AS SHOWN. THE REPAIRED AREAS SHALL BE IN A RECTANGULAR SHAPE, WITH SAW CUTS AT RIGHT ANGLES.
- REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE OXIDIZED REINFORCING STEEL. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED OXIDIZED (CORRODED) BARS. PROVIDE A MINIMUM OF 1" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE
- IF UNOXIDIZED REINFORCING BARS ARE EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BARS BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.
- INSTALL NEW REINFORCING BARS TO SUPPLEMENT EXISTING BARS WHICH HAVE LOST MORE THAN 20% OF THEIR CROSS SECTIONAL AREA. THE NEW REINFORCING BARS SHALL BE THE SAME DIAMETER AS THE EXISTING BAR, AND SHALL EXTEND A DISTANCE OF 30 TIMES THE BAR DIAMETER BEYOND BOTH SIDES OF THE AFFECTED AREA (SEE "REPAIR OF REINFORCING STEEL" DETAIL THIS SHEET).
- REMOVE ALL RUST AND LAITANCE FROM EXPOSED REINFORCING STEEL TO EXPOSED BARE METAL BY SANDBLASTING AS SPECIFIED. (SEE "CLEANING OF REINFORCING STEEL" DETAIL FOR EXTENT OF CLEANING REQUIRED). COAT REINFORCING WITH CORROSION INHIBITOR PER DETAIL S22003.
- REMOVE ALL BOND INHIBITING MATERIALS FROM CONCRETE INCLUDING, BUT NOT LIMITED TO, DIRT, CONCRETE SLURRY, AND LOOSELY BONDED AGGREGATE, BY ABRASIVE BLASTING OR HIGH PRESSURE WATERBLASTING. CHECK THE SURFACE AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE AND THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
- PRIOR TO ANY PATCHING OF CONCRETE, PROVIDE 24 HOUR NOTICE TO THE MANUFACTURER AND ENGINEER FOR INSPECTION OF THE REPAIRED LIMITS AND TO QUANTIFY REPAIR AREAS WITH THE CONTRACTOR FOR PAYMENT.
- CONCRETE REPAIR MORTAR SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 03 01 30.
- THESE DETAILS APPLY TO THE CONCRETE REPAIRS THROUGHOUT THE FACILITY. THESE MISCELLANEOUS AREAS SHALL BE ASSUMED TO BE IN SPACES THAT MAY OFTEN REQUIRE CONFINED SPACE ENTRY.

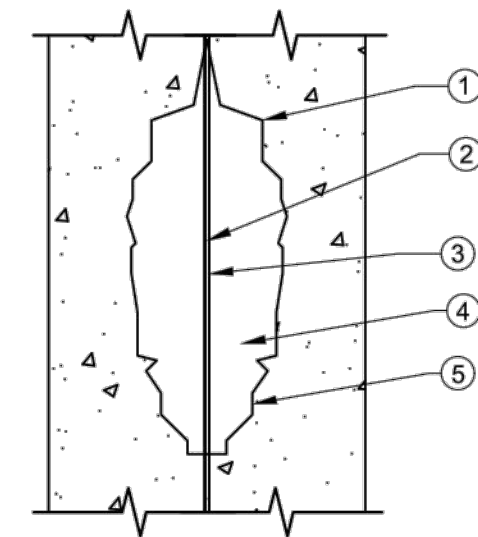


REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION

NOT TO SCALE

SUPPLEMENTAL REINFORCING STEEL DETAIL

NTS



NOTES:

- REMOVE ALL CORROSION, FOREIGN MATERIALS, AND UNSOUND CONCRETE FROM AREA BEING REPAIRED BY MEANS OF ABRASIVE BLASTING OR HYDRO BLASTING.
- APPLY CORROSION INHIBITOR USING ROLLERS, BRUSHES OR HAND PRESSURE SPRAY EQUIPMENT TO ACHIEVE COVERAGE OF 100 SQUARE FEET PER GALLON. APPLY MINIMUM OF TWO COATS, ALLOWING CORROSION INHIBITOR TO SOAK INTO SUBSTRATE BETWEEN APPLICATIONS. ALLOW 24 HOURS OF CURING OF FINAL COAT OF CORROSION INHIBITOR.
- PROVIDE A HIGH PRESSURE WASH TO SURFACE TO BE REPAIRED TO REMOVE FILMY RESIDUE FROM CORROSION INHIBITOR.
- SURFACE SHALL BE PREPARED PER ANTI-CORROSION COATING MANUFACTURER'S RECOMMENDATIONS.
- INSTALL ANTI-CORROSION COATING PER THE MANUFACTURER'S REQUIREMENTS.

ANTI-CORROSION REBAR DETAIL

NTS

SUPPLEMENTAL REINFORCING		
BAR SIZE	ORIGINAL DIA (IN)	MIN CROSS-SECTIONAL DIMENSION (IN)
#3	0.375	0.335
#4	0.500	0.447
#5	0.625	0.559
#6	0.750	0.671
#7	0.875	0.783
#8	1.000	0.894
#9	1.128	1.009
#10	1.270	1.136

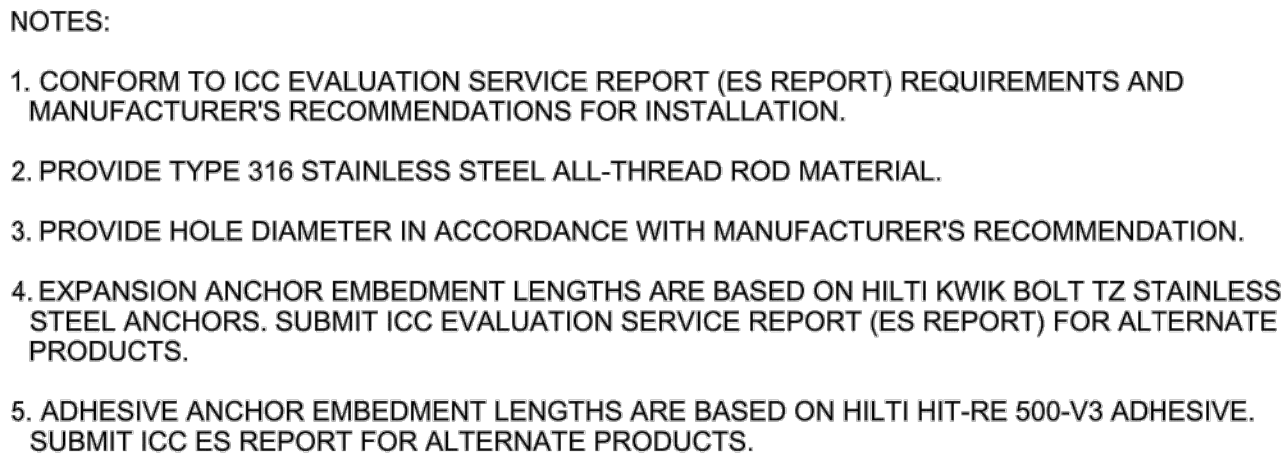
SUPPLEMENTAL REINFORCING SHALL BE PROVIDED WHEN EXISTING REINFORCING STEEL HAS CORRODED SO THAT THE SMALLEST CROSS-SECTIONAL DIMENSION IS LESS THAN THAT SHOWN IN THIS TABLE. VALUES SHOW CORRELATE TO A CROSS-SECTIONAL AREA LOSS OF 20%.



NO	REVISION	DATE	
		AS NOTED	5/5/2025
		DESIGNED BY:	DP
		DRAWN BY:	CR
		CHECKED BY:	KP

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO
DROP SHAFT CONNECTION - 20 SERIES
STRUCTURAL DETAILS

PROJECT NO:	
231100	
DRAWING NAME	
20S-04	
SHEET	OF
26	31



CONCRETE ANCHORS



Signer Name: Kihoon Park
Signing Reason: I approved
this document.
Signing Time: 2025-06-13
13:33:04(EDT)



Brown AND **Caldwell** ::

	NO	REVISION	DATE
SCALE:	AS NOTED		
DATE:	5/5/2025		
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DRAWN BY:	CR		
CHECKED BY:	KP		

CITY OF RICHMOND HEIGHTS
I-IJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
OHIO
CUYAHOGA COUNTY

CUYAHOGA COUNTY

OHIO

DROP SHAFT CONNECTION - 20 SERIES

STRUCTURAL DETAILS

PROJECT NO:

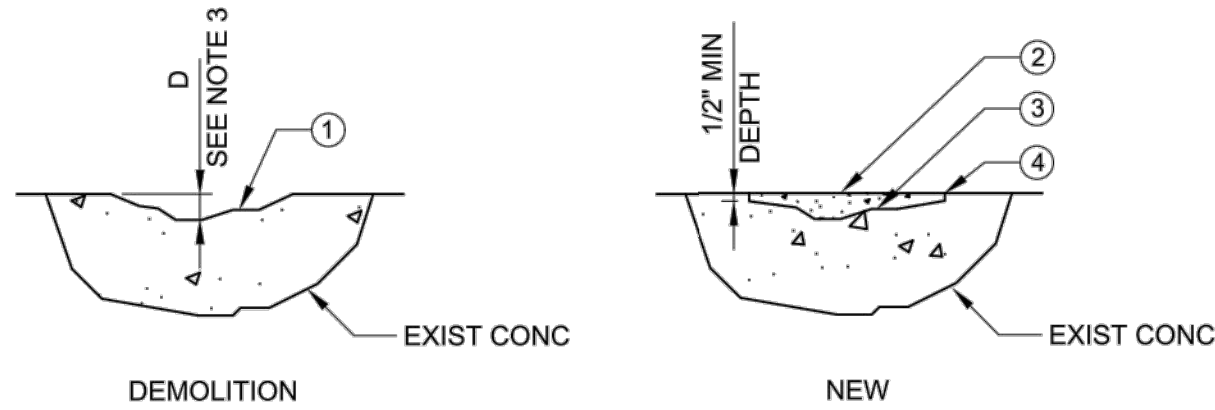
231100

DRAWING NAME

20S-05

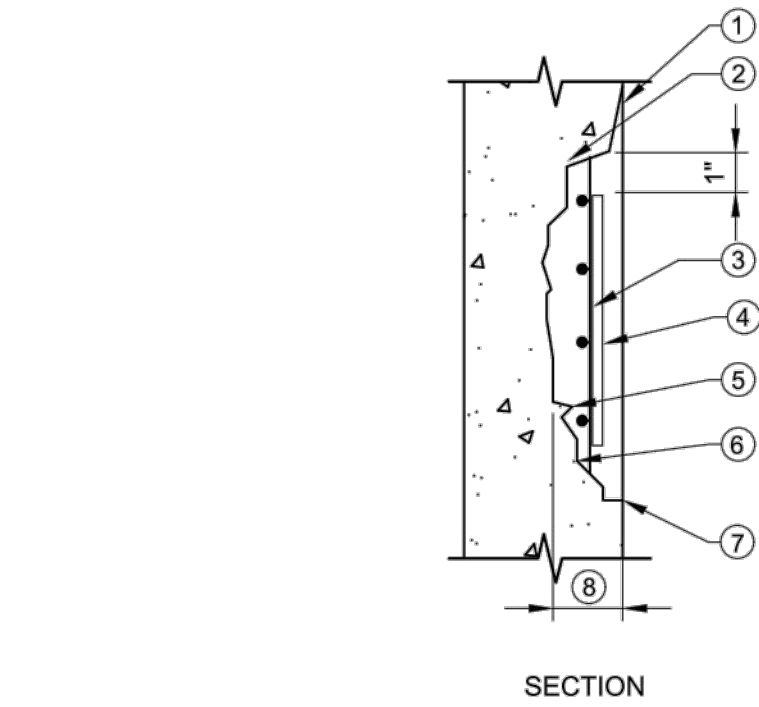
SHEET

OF



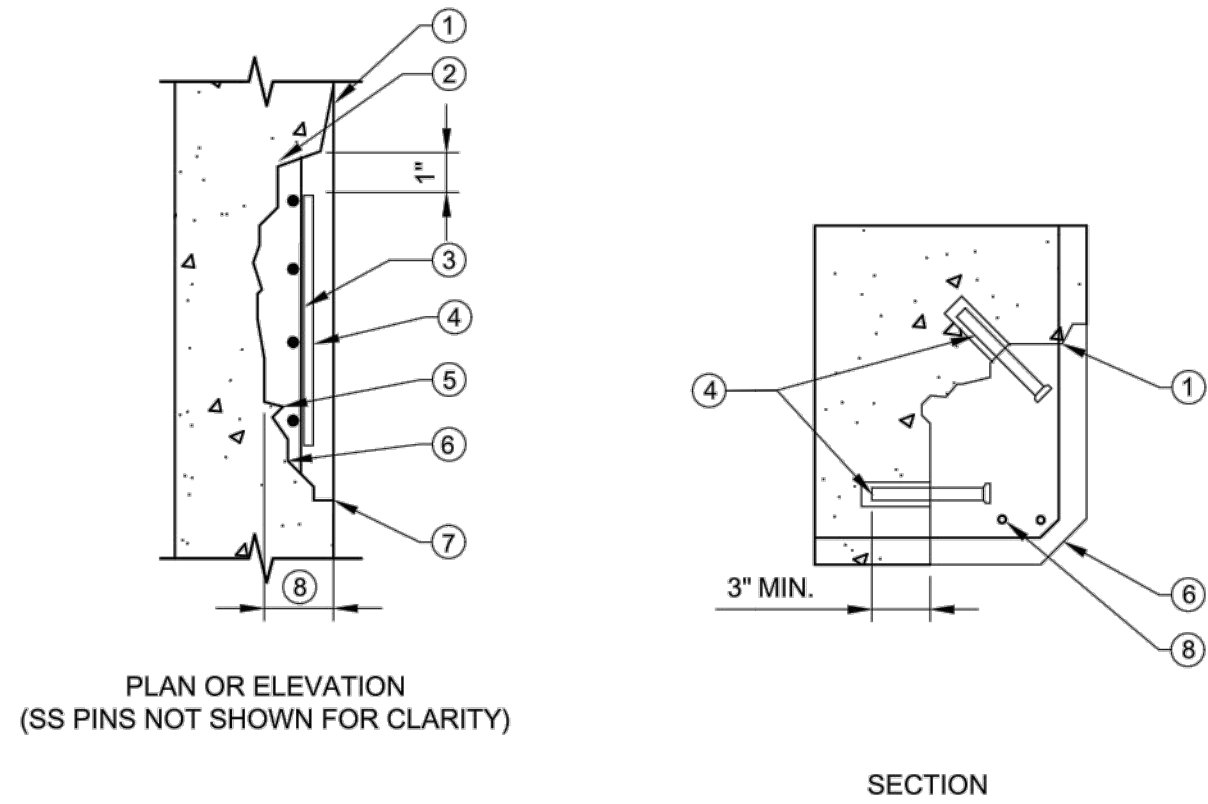
- NOTES:
1. REMOVE UNSOUND MATERIALS BY APPROVED MEANS TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE AND CLEAN SUBSTRATE. REBAR EXPOSED DURING REMOVAL OPERATIONS SHALL BE CLEANED AND PROTECTED WITH A ANTI-CORROSION COATING. SEE SPECIFICATIONS.
 2. POLYMER MODIFIED REPAIR MORTAR, SEE SPECIFICATIONS. SURFACE SHALL BE FINISHED TO MATCH ADJACENT CONCRETE SURFACE.
 3. EPOXY BONDING AGENT.
 4. SAWCUT AROUND PERIMETER TO PROVIDE 1/2" MIN MATERIAL DEPTH.

**TYPICAL CONCRETE SURFACE
(D ≤ 2") SPALL REPAIR DETAIL**
NTS



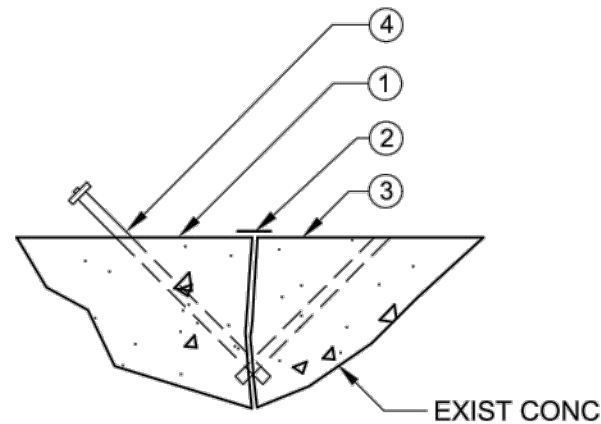
- NOTES:
1. DO NOT CUT REINFORCING UNLESS NECESSARY TO REMOVE ALL DETERIORATED CONCRETE.
 2. REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
 3. WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, CONTRACTOR SHALL PREPARE REINFORCING PER DETAILS S22002, S22003, AND S22004 ON SHEET [S-003].
 4. SUPPLEMENTAL REINFORCING AS REQUIRED. FOR BID PURPOSES, ONLY ASSUME 4 LBS OF REINFORCEMENT PER SF OF REPAIR AREA.
 5. SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
 6. INSTALL CONCRETE SPALL REPAIR MATERIAL PER THE MANUFACTURER'S REQUIREMENTS.
 7. REFER TO SHEET [S-003] FOR ADDITIONAL CONCRETE NOTES, SPECIFIED PRODUCTS AND REQUIREMENTS FOR COORDINATION OF WORK.
 8. FOR BID PURPOSES, ASSUME AVERAGE DEPTH OF REPAIR IS 6 INCHES.

**TYPICAL CONCRETE FORMED (2" < D ≤ 6")
SPALL REPAIR DETAIL**
NTS

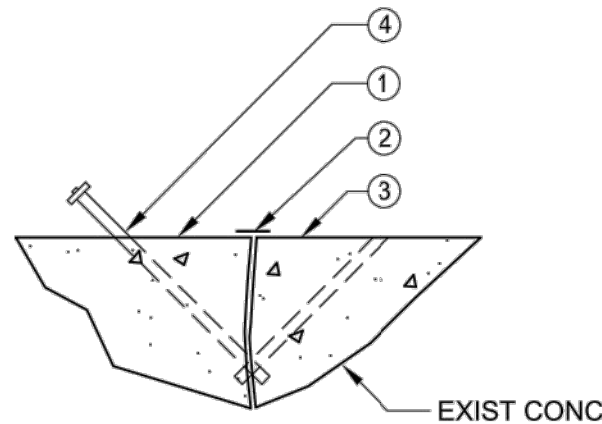


- NOTES:
1. SCORE-CUT PERIMETER OF REPAIR AREA AS GENERAL SHOWN. DO NOT CUT REINFORCING UNLESS NECESSARY TO REMOVE ALL DETERIORATED CONCRETE.
 2. REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
 3. WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, CONTRACTOR SHALL PREPARE REINFORCING PER DETAILS S22002, S22003, AND S22004 ON SHEET [S-003].
 4. 1/4" DIAMETER STAINLESS STEEL PINS AT 12" SPACING STAGGERED, WITH MINIMUM EMBEDMENT MATERIALS AS SPECIFIED FOR ADHESIVE MATERIALS.
 5. SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
 6. FORMED SURFACE WITH CHAMFER TO MATCH EXISTING CONCRETE SURFACE.
 7. INSTALL CONCRETE SPALL REPAIR MATERIAL PER THE MANUFACTURER'S REQUIREMENTS.
 8. SUPPLEMENTAL REINFORCING AS REQUIRED. FOR BID PURPOSES, ONLY ASSUME 4 LBS OF REINFORCEMENT PER SF OF REPAIR AREA.
 9. FOR BID PURPOSES, ASSUME AVERAGE DEPTH OF REPAIR IS 6 INCHES.

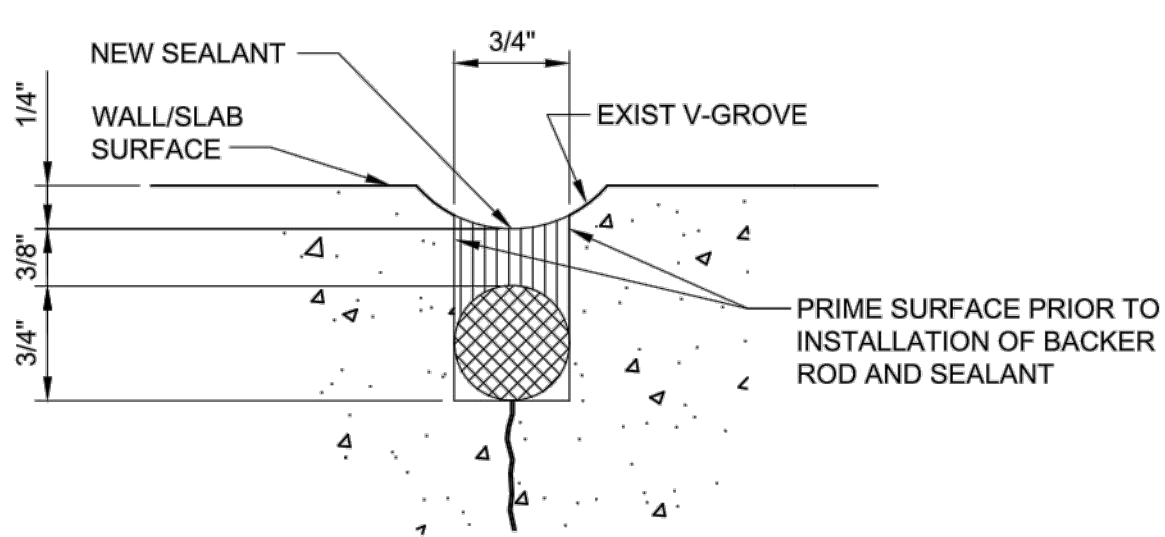
**TYPICAL CONCRETE CORNER
SPALL REPAIR DETAIL**
NTS



- NOTES:
1. DRILL AND INSTALL INJECTION POINTS PER MFR RECOMMENDATIONS, TYP.
 2. SEAL CRACK SURFACE PER MFR RECOMMENDATIONS.
 3. FACE OF EXISTING CONCRETE.
 4. REMOVE INJECTION PORT AND PATCH CONCRETE SURFACE PER MFR RECOMMENDATION, TYP.



- NOTES:
1. DRILL AND INSTALL INJECTION POINTS PER MFR RECOMMENDATIONS, TYP.
 2. SEAL CRACK SURFACE PER MFR RECOMMENDATIONS.
 3. FACE OF EXISTING CONCRETE.
 4. REMOVE INJECTION PORT AND PATCH CONCRETE SURFACE PER MFR RECOMMENDATION, TYP.



- NOTES:
1. SEAL AND CAULK ALL CONTROL/ CONSTRUCTION JOINTS IN THE WALLS.
 2. REMOVE EXISTING SEALANT FROM CONTROL/ CONSTRUCTION JOINTS WHERE CAULK HAS FAILED AS DIRECTED. CLEAN JOINT AND REPLACE CAULK AS SHOWN.

CRACK REPAIRS
NTS

Signer Name: Kihoon Park
Signing Reason: I approved
this document.
Signing Time: 2025-06-13
13:35:04(EDT)



DATE	REVISION	NO

SCALE:	AS NOTED	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
		5/5/2025	DP	CR	KP

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY OHIO	DROP SHAFT CONNECTION - 20 SERIES STRUCTURAL DETAILS
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PROJECT NO:	231100
DRAWING NAME	20S-06
SHEET	28
OF	31

- GENERAL NOTES:
1. TYPES OF DEFECTS IDENTIFIED FOR REPAIR UNDER THIS PROJECT INCLUDE:
 - A. SPALLED CONCRETE WITH AND WITHOUT EXPOSED REINFORCING AT TOP SLAB.
 - B. INTERIOR CONCRETE WAS NOT INSPECTED.
 2. REPAIR DEFECTS MUST BE REVIEWED WITH ENGINEER PRIOR TO ACTUAL REPAIR TO VERIFY QUANTITIES AND ASSIGN TO CORRECT BID ITEM.
 3. DEFECTS IDENTIFIED IN THESE DOCUMENTS ARE APPROXIMATE BASED ON PREVIOUS FIELD OBSERVATIONS. ACTUAL LOCATION, LENGTH, QUANTITIES, AND EXTENT OF REPAIR MUST BE COORDINATED WITH ENGINEER AT TIME OF CONSTRUCTION.
- SEQUENCE OF CONSTRUCTION
1. COORDINATE WITH ENGINEER TO VERIFY REPAIRS TO BE COMPLETED.
 2. PREPARE SURFACE FOR REPAIR INCLUDING CONCRETE CRACKS AND SPALL AREAS. VERIFY REPAIR QUANTITIES WITH ENGINEER PRIOR TO STARTING RECONSTRUCTION.
 3. INJECT CRACKS PRIOR TO REPAIR MORTAR.
 4. INSTALL NEW REINFORCING AND REPAIR MORTAR.
 5. CURE AS RECOMMENDED BY PRODUCT MANUFACTURERS.
 6. REMOVE EXCESS MATERIAL AND FINISH TO MATCH SURROUNDING SURFACES.
 7. RESTORE INTERIOR AND EXTERIOR OF STRUCTURE TO A BROOM CLEAN CONDITION.

GENERAL

- G 1

SCOPE

THE GENERAL NOTES AND TYPICAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
- G 2

PRECEDENCE

IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- G 3

DIMENSIONS

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.
- G 4

PROVISIONS FOR EQUIPMENT

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
- G 5

MEANS, METHODS & CONSTRUCTION LOADS

CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.
- G 6

SAFETY

CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.
- G 7

DRAINAGE SURFACES

SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.
- G 8

OPENINGS

OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

- D 1

GOVERNING BUILDING CODE

CONSTRUCTION SHALL BE IN ACCORDANCE WITH 2024 OHIO BUILDING CODE. THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.
- D 2

LIVE LOADS

1. TOP SLAB, ACCESSIBLE TO VEHICULAR TRAFFIC HS20
2. OTHER PER ASCE 7 TABLE 4-1
- D 3

MAJOR EQUIPMENT LOADS

1. SOLIDS DECANTER DL = 5,620 LB
MAX DYNAMIC VERT LOAD = 8,700 LB
(INCL EQUIP OPERATING WEIGHT)
- D 4

GROUND SNOW LOAD

.....25 PSF
- D 5

SEISMIC

MCE ACCELERATION, SHORT PERIODS_s = 0.164 g
MCE ACCELERATION, 1-SEC PERIODS_i = 0.057 g
SITE CLASS D
DESIGN ACCEL, SHORT PERIODS_{DS} = 0.175 g
DESIGN ACCEL, 1-SEC PERIODS_{D1} = 0.091 g
STRUCTURAL OCCUPANCY CATEGORY III
SEISMIC IMPORTANCE FACTOR I = 1.25 I_p = 1.00,
EXCEPT FOR FIRE PROTECTION SYSTEM AND
COMPONENTS CONTAINING HAZARDOUS MATERIALS I_p = 1.50
SEISMIC DESIGN CATEGORY B

CONCRETE

- C 1

APPLICABLE CODES

CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES:
ACI 318 - "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
ACI 350 (FOR LIQUID CONTAINING STRUCTURES) - "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"
- C 2

REINFORCING STEEL DETAILS

ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.
- C 3

DESIGN STRENGTH

1. STRUCTURAL CAST-IN-PLACE CONCRETE EXCEPT AS NOTED IN ITEM 2 BELOW f_c = 5,000 PSI
2. REINFORCED STEEL ASTM A615, GRADE 60 DEFORMED BARS UNLESS OTHERWISE NOTED
- C 4

CONCRETE COVER

CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 350 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER:
1. CONCRETE CAST AGAINST EARTH 3"
2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER 3"
- C 5

BAR DEVELOPMENT AND LAP SPLICE LENGTH

SEE TABLE AT THE END OF THESE STRUCTURAL NOTES. IN SLABS, BEAMS, GRIDERS AND HORIZONTAL REINFORCING AT WALLS, SPLICES OF ADJACENT REINFORCING STEEL BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH.
- C 6

WELDING REINFORCING BARS

NOT ALLOWED
- C 7

STANDARD HOOKS

BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF PARAGRAPH 7.1 ACI-318. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.
- C 8

CHAMFERS

EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.
- C 9

ANCHOR BOLTS

ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL (SEE SPECIFICATIONS).
- C 10

INSERTS

PROVIDE ANCHORAGE INSERTS ON CONCRETE WALLS AND CONCRETE CEILINGS IN GALLERIES, PIPE CHASES, TUNNELS AS REQUIRED BY MECHANICAL AND ELECTRICAL INSTALLATIONS. USE UNISTRUT P3200 SERIES HOT DIP GALVANIZED OR EQUAL UNLESS OTHERWISE SPECIFIED.
- C 11

COMPATIBLE FINISHES

CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.
- C12

EXPOSED ENDS OF REINFORCING BARS AT SAWCUT OPENINGS IN EXISTING CONCRETE

REMOVE REINFORCING BARS 1 1/2 INCHES BACK FROM FACE OF OPENING BY FLAME GOUGING. FILL HOLE AND REPAIR SURFACE WITH CONCRETE REPAIR MORTAR.

GROUT

- GR 1

PRECISION NON-SHRINK CEMENT GROUT FOR STRUCTURAL STEEL COLUMNS AND TRUSS BEARING BASE PLATES: SEE SECTION 03 60 00.
- GR 2

EQUIPMENT GROUTING

SEE MECHANICAL SPECIFICATIONS AND SECTION 03 60 00.
- GR 3

EPOXY ADHESIVE GROUT AT ANCHORS INTO CONCRETE:

HILTI HIT-RE 500 V3 EPOXY ADHESIVE ANCHOR SYSTEM BY HILTI INC. OR EQUAL. SEE SECTION 03 60 00.
- GR 4

MASONRY ADHESIVE ANCHORS: HILTI HIT-HY 270, OR APPROVED EQUAL, SEE SECTION 05 05 20.

DOWELS

- D 1

LOCATE HOLES IN EXISTING CONCRETE TO MISS MAIN REINFORCING BARS, STIRRUPS AND EMBEDMENTS. THIS MAY INVOLVE RELOCATING DOWELS FROM POSITIONS SHOWN. NOTIFY THE OWNER OF ANY DOWEL RELOCATIONS. PRIOR TO DRILLING HOLES, FIELD VERIFY AND MARK THE LOCATION OF NEARBY EXISTING REINFORCING BARS, STIRRUPS AND EMBEDMENTS USING A PACHOMETER. IF THEY ARE HIT DURING DRILLING, NOTIFY THE OWNER.
- D 2

CLEAN AND PREPARE HOLES IN ACCORDANCE WITH THE EPOXY MANUFACTURER'S RECOMMENDATIONS. AS A MINIMUM, BLOW COMPRESSED OIL-FREE AIR FROM THE BOTTOM OF HOLE TOWARDS THE SURFACE. DRY AND CLEAN HOLE OF CONTAMINANTS.
- D 3

FILL EACH HOLE WITH A SUFFICIENT AMOUNT OF EPOXY TO COMPLETELY SURROUND THE DOWEL. INSERT THE DOWEL AFTER THE EPOXY IS PLACED IN THE HOLE.

STEEL

- ST 1

PROVIDE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360-16) AND AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303-16).
- ST 2

MATERIALS

1. STEEL WIDE FLANGE SHAPES: ASTM A992. OTHER STEEL SHAPES AND PLATES: ASTM A36.
2. STRUCTURAL STEEL PIPE: ASTM A53 TYPES E OR S, GRADE B.
3. STRUCTURAL STEEL TUBING: ASTM A500 GRADE B (F_y = 46 KSI).
4. STAINLESS STEEL: TYPE 316 MEETING ASTM A276 FOR BARS AND SHAPES, AND ASTM A240 FOR PLATES. PASSIVATED PER ASTM A380.
- ST 3

WELDING

1. WELDING: AWS D1.1-1 AND AISC 341-16.
2. ELECTRODES FOR SHOP AND FIELD WELDS: AWS A5.1 OR A5.5, CLASS E70XX.
3. STAINLESS STEEL WELDING: AWS D1.6 WITH A5.4 OR A5.9 ELECTRODES.
- ST 4

BOLTS

STRUCTURAL BOLTS AT STEEL FRAMING: GALVANIZED AND CONFORM TO ASTM A325N (TYPE 1) FOR CONNECTION OF GALVANIZED OR PAINTED FRAMING.
HIGH STRENGTH BOLTS: FULLY TENSIONED UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED.
STAINLESS STEEL TYPE 316 BOLTS: CONNECTION OF STAINLESS STEEL AND ALUMINUM FRAMING.
- ST 5

EXPANSION ANCHORS SHALL BE STAINLESS STEEL "KWIK BOLT TZ" BY HILTI INC. OR EQUAL.
- ST 6

PAINTING

STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATION. VERIFY SHOP PRIMER COMPATIBILITY WITH FINISH COATINGS. MONORAIL CAPACITIES SHALL BE PAINTED ON THE SIDE OF MONORAIL BEAMS.

SPECIAL INSPECTIONS

- SI 1

AN INDEPENDENT TESTING COMPANY RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING (SEE EXPANDED LIST ON DRAWING 20-S-08, SPECIFICATIONS AND GOVERNING CODE):

1. REINFORCING BAR, CONCRETE PLACEMENT AND TAKING OF CONCRETE TEST SPECIMENS.
2. ANCHOR BOLTS.
3. FIELD WELDING OF STRUCTURAL STEEL AND ALUMINUM.
4. SHOP WELDING OF STRUCTURAL STEEL EXCEPT WHERE WELDING IS DONE IN AN APPROVED FABRICATOR'S SHOP IN ACCORDANCE WITH THE PROVISIONS OF THE GOVERNING BUILDING CODE.
5. EXPANSION ANCHOR INSTALLATION.
6. ANCHORS INSTALLED USING EPOXY ADHESIVE.
- SI 2

CONTRACTOR SHALL NOTIFY THE TESTING COMPANY FOR ALL INSPECTIONS.

STRUCTURAL DEFERRED SUBMITTALS

- SDS 1 THE CONTRACTOR SHALL SUBMIT DRAWINGS AND CALCULATIONS BEARING THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN OHIO TO THE ENGINEER FOR REVIEW. STRUCTURAL DEFERRED SUBMITTALS INCLUDE:
1. ANCHOR BOLTS FOR ALL EQUIPMENT ANCHORAGE.

2. ACCESS HATCHES.

3. CONSTRUCTION SHORING.

Signer Name: Kihoon Park
Signing Reason: I approved this document
Signing Time: 2025-06-15 15:55:04(EDT)



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REVISION						
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CITY OF RICHMOND HEIGHTS
IJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO

DROP SHAFT CONNECTION - 20 SERIES

STRUCTURAL NOTES

PROJECT NO:	
231100	
DRAWING NAME	
20S-07	
SHEET	OF
29	31

TABLE 1				
REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS				
SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOIL	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X	SEE TABLE 2
	SHORING SYSTEM WELDING	X		
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE	X		PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS	X		INSPECTION TO CONFORM TO IBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
STRUCTURAL STEEL AND ALUMINUM	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
	FABRICATION OF STRUCTURAL ELEMENTS			FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH IBC, CHAPTER 17 TO PERFORM WORK WITHOUT SPECIAL INSPECTION
	VERIFY MATERIAL OF ANCHOR BOLTS AND THREADED RODS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
FRP				
	VERIFY TYPE AND DEPTH OF FRP GRATING		X	
	INSPECT ATTACHMENT OF FRP GRATING TO SUPPORTS		X	

QUALITY ASSURANCE NOTES

1. THE QUALITY OF THE WORKMANSHIP AND THE QUALITY OF THE MATERIALS OF CONSTRUCTION ARE GOVERNED BY THE OHIO BUILDING CODE.
2. ALL NEW STRUCTURES AND MODIFICATIONS TO EXISTING STRUCTURES TO BE CONSTRUCTED AS A PART OF THIS PROJECT ARE CLASSIFIED AS OCCUPANT CATEGORY III, WASTE WATER TREATMENT FACILITY, IN ACCORDANCE WITH THE OBC. THE STRUCTURES ARE CLASSIFIED AS SEISMIC DESIGN CATEGORY D.
3. TO ASSURE THE QUALITY OF THE CONSTRUCTION OF THIS PROJECT, STRUCTURAL TESTS, SPECIAL INSPECTION AND STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE WITH OBC, CHAPTER 17.
4. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDING FULL-TIME OBSERVATION OF THE WORK REQUIRING SPECIAL INSPECTION.
5. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).
6. SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE BUILDING OFFICIALS. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL. COORDINATE WITH BUILDING DEPARTMENT TO DETERMINE REQUIRED INSPECTIONS.
7. CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL PROVIDE NOTIFICATION IN ADVANCE OF REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS.

TABLE 2			
REQUIRED TESTING FOR SPECIAL INSPECTIONS			
SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL			
PREPARED SUBGRADE DENSITY	ASTM D6939	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31,ASTM C39,ASTM C172	SEE SPECIFICATION 03300	Signer Name: Kihoon Park Signing Reason: I approved this document. Signing Time: 2025-06-13 15:53:04 (EDT)
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CAST	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMETITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TO THE FIELD
GEOTECHNICAL			
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES)

BAR SIZE	APPLICATION	CONCRETE COVER = 2.00 IN.		CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	MIN C/C SPACING
#3	DEVELOPMENT LAP SPLICE	12	12	4.50	12	6.50
		16	16	4.75	16	6.75
#4	DEVELOPMENT LAP SPLICE	15	12	4.50	15	6.50
		20	16	5.00	20	7.00
#5	DEVELOPMENT LAP SPLICE	19	15	4.75	19	6.75
		24	19	5.25	24	7.25
#6	DEVELOPMENT LAP SPLICE	22	17	4.75	22	6.75
		29	22	5.50	29	7.50
#7	DEVELOPMENT LAP SPLICE	33	25	5.00	33	7.00
		42	33	5.75	42	7.75
#8	DEVELOPMENT LAP SPLICE	37	29	5.00	37	7.00
		48	37	6.00	48	8.00
#9	DEVELOPMENT LAP SPLICE	46	36	5.25	42	7.25
		60	46	6.25	55	8.25
#10	DEVELOPMENT LAP SPLICE	57	44	5.25	47	7.25
		74	57	6.50	61	8.50
#11	DEVELOPMENT LAP SPLICE	68	53	5.50	52	7.50
		90	69	6.75	68	8.75

NOTES:

1. TABULATED VALUES ARE BASED ON UNCOATED GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE MINIMUM f_c = 4,000 PSI.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d.
4. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318, SECTIONS 12.2.3 AND 12.15, RESPECTIVELY.
5. LENGTHS ABOVE THE HEAVY LINE DO NOT CHANGE BASE ON COVER THICKNESS. LENGTHS BELOW THE HEAVY LINE AREA DIFFERENT AT EACH COVER THICKNESS.



NO	REVISION	DATE				

SCALE:	AS NOTED					
DATE:	5/5/2025					
DESIGNED BY:	DP					
DRAWN BY:	CR					
CHECKED BY:	KP					

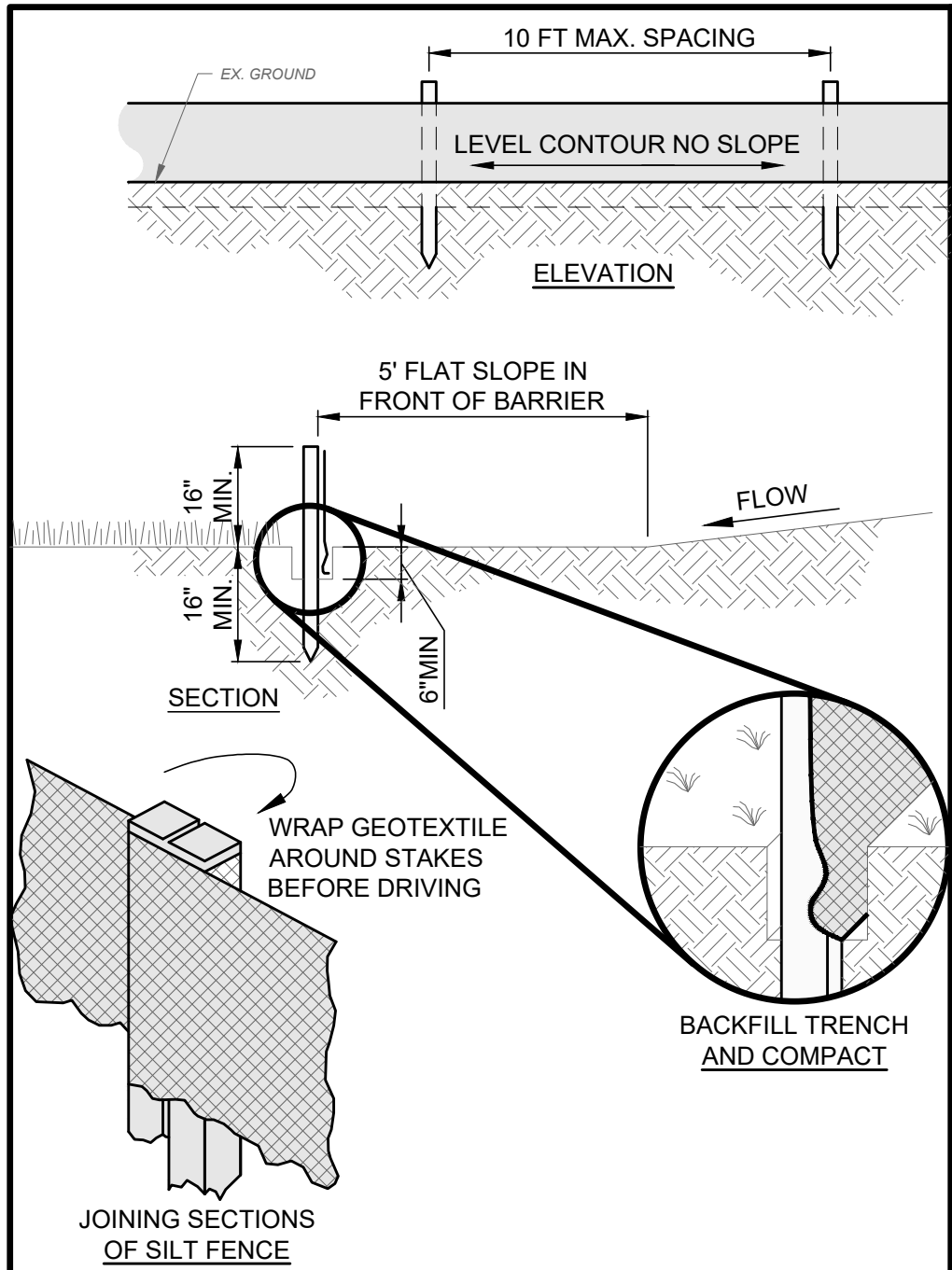
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

DROP SHAFT CONNECTION - 20 SERIES

STRUCTURAL NOTES

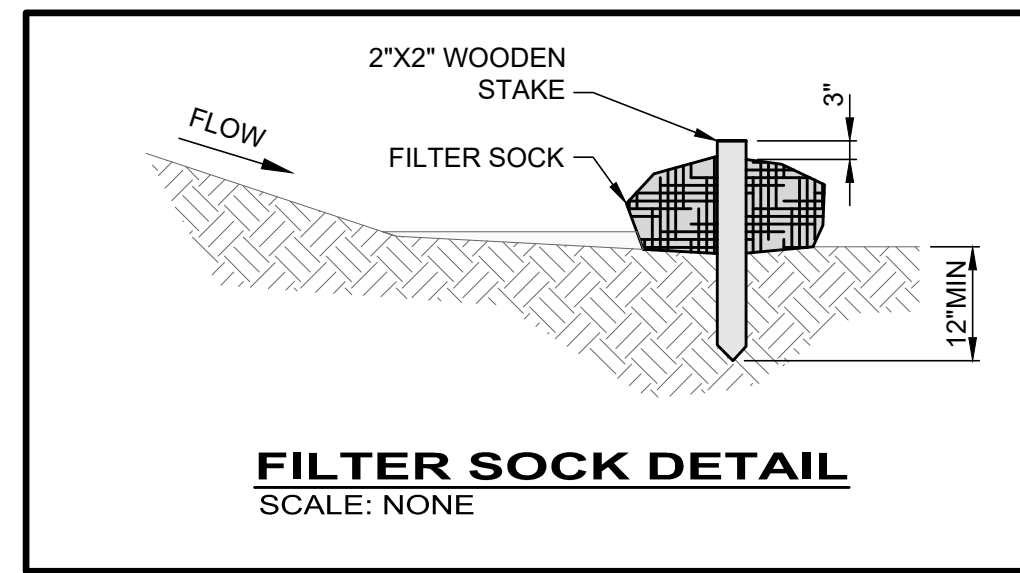
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30	31



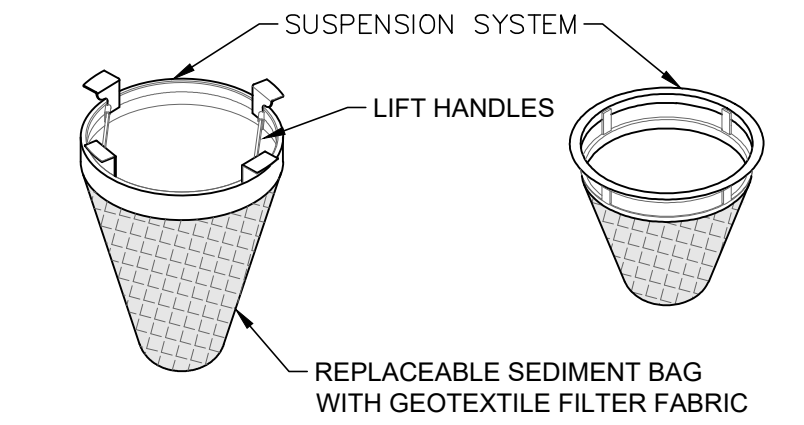
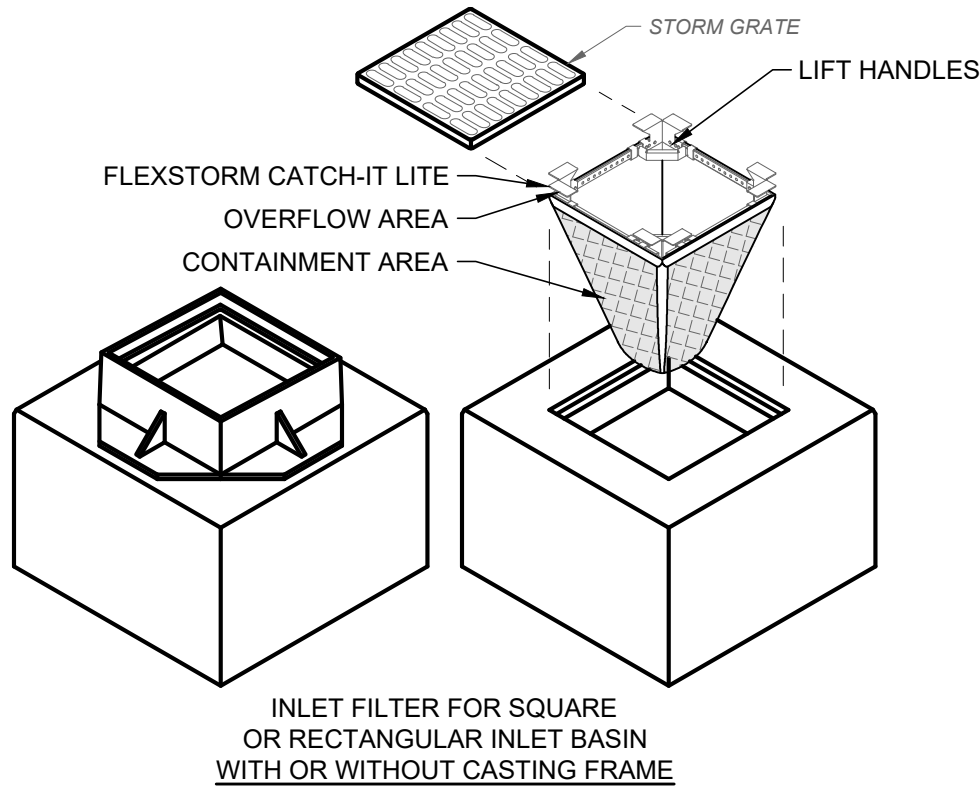
- NOTES:
- PRESERVE VEGETATION FOR 5 FEET, OR AS MUCH AS POSSIBLE, UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RE-ESTABLISHED WITHIN 7 DAYS FROM SILT FENCE INSTALLATION.
 - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. PERFORM ONE OF THE FOLLOWING 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

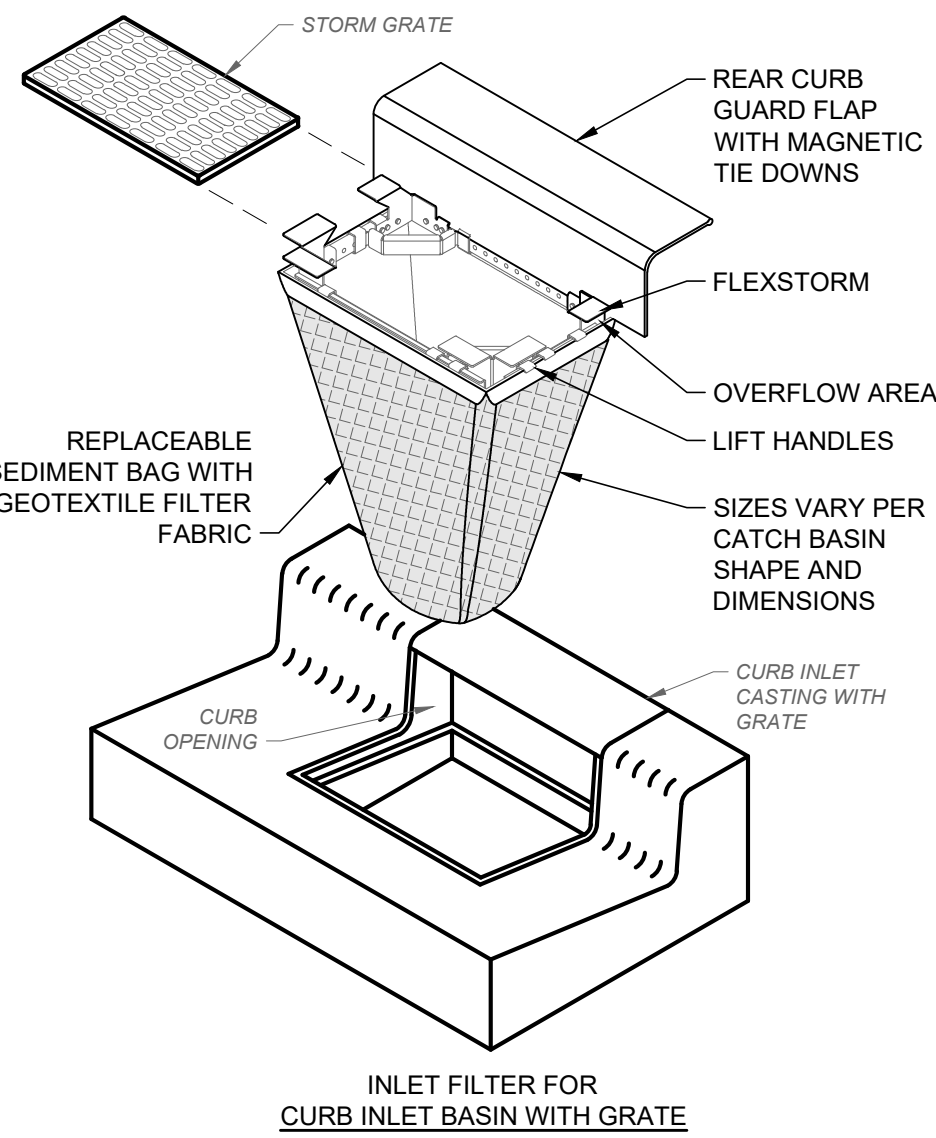
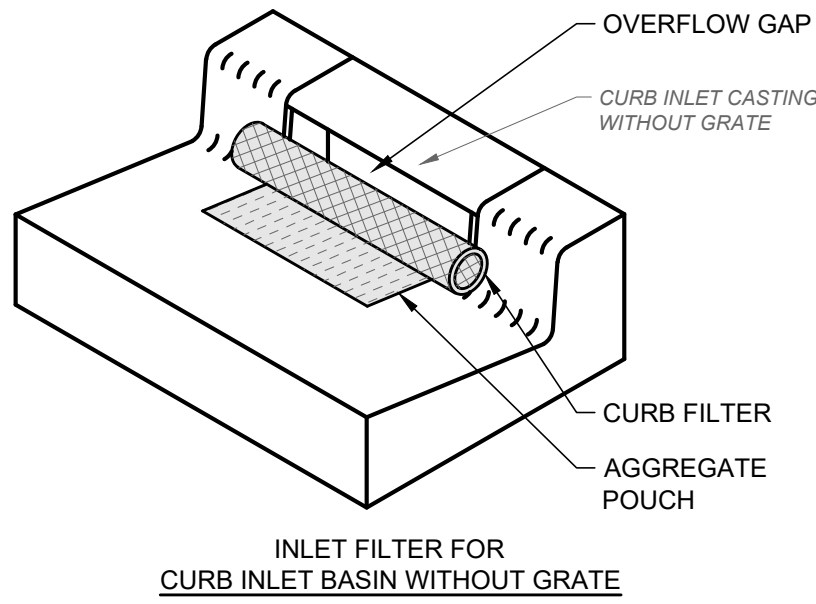
SILT FENCE
SCALE: NONE



FILTER SOCK DETAIL
SCALE: NONE

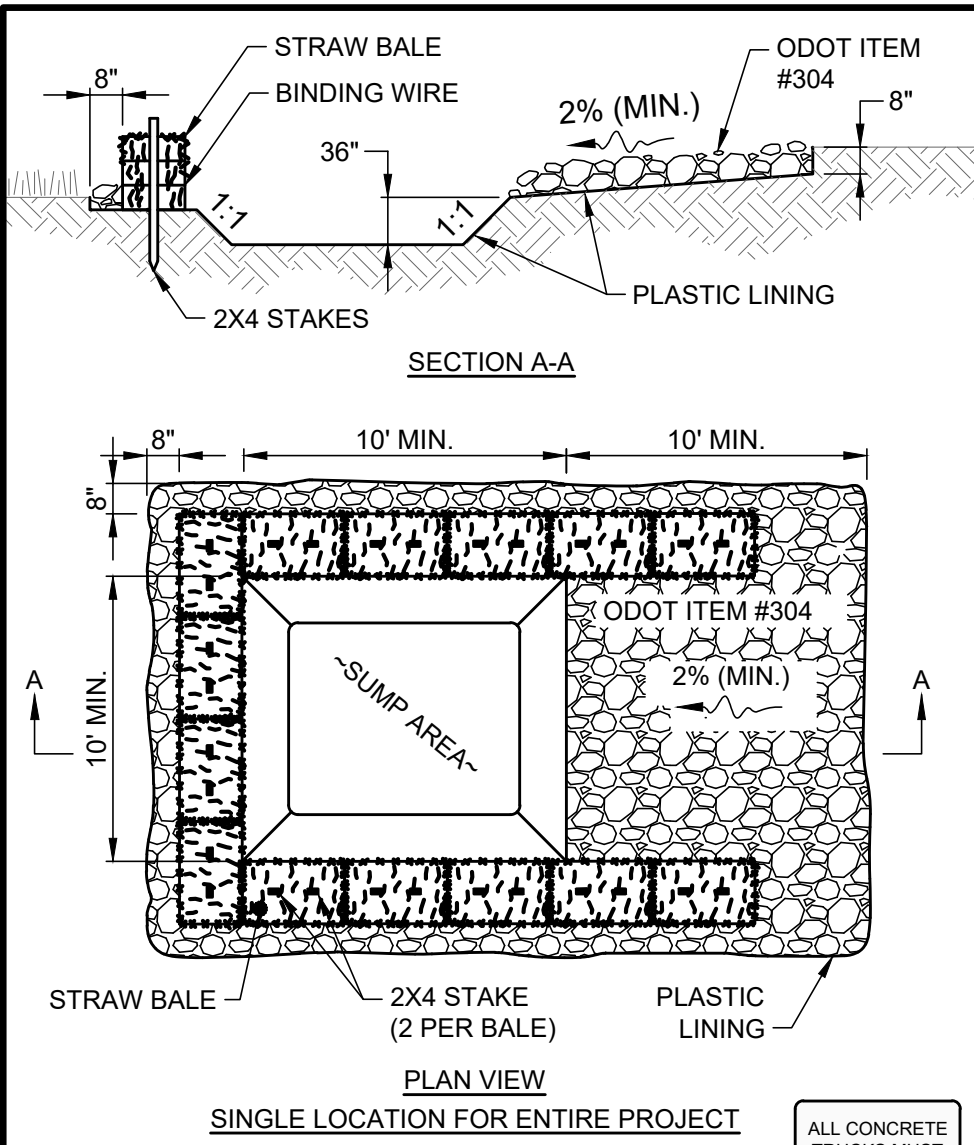


INLET FILTER FOR ROUND INLET BASIN WITH OR WITHOUT CASTING FRAME
INLET FILTER FOR NYLOPLAST CASTING



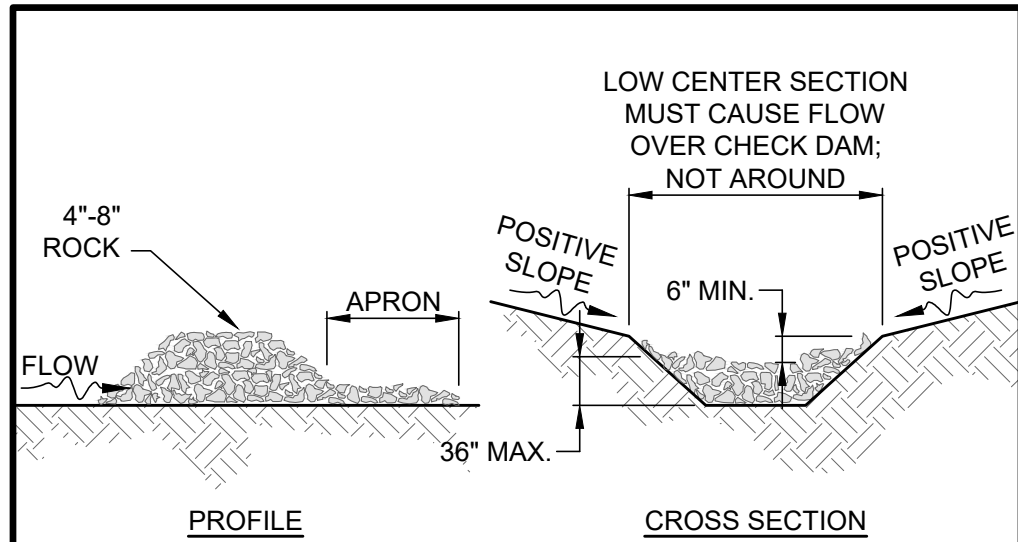
- NOTES:
- ALL FRAMING SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
 - CONTRACTOR SHALL PROVIDE EXISTING OR PROPOSED STRUCTURE DETAILED DIMENSIONS, CASTING CALLOUT, MAKE AND MODEL TO CONFIGURE AND ASSEMBLE CUSTOMIZED FLEXSTORM INLET FILTERS.

STORM DRAIN INLET PROTECTION DETAIL
SCALE: NONE



- NOTES:
- WASHOUT PIT SHALL BE LOCATED 100' MINIMUM FROM INLETS, STREAMS, WETLANDS AND ANY OTHER SURFACE WATERS.
 - 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.
 - CONCRETE WASHOUT AREA SHALL BE SUFFICIENT SIZE TO CONTAIN CONCRETE WASTE GENERATED. FOR LARGER SITES, MULTIPLE CONCRETE WASHOUT AREAS MAY BE REQUIRED.
 - IF CONCRETE WASHOUT AREA IS LOCATED AWAY FROM A PAVED SURFACE, CONSTRUCT A GRAVEL ACCESS ROUTE EQUAL IN COMPOSITION TO THE CONSTRUCTION ENTRANCE.
 - 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.
 - CONCRETE WASHOUT SIGNAGE SHALL BE CLEARLY VISIBLE AND LOCATED WITHIN 30 FEET OF EACH WASHOUT AREA.
 - CONCRETE WASHOUT AREAS SHALL BE COVERED DURING INCLEMENT WEATHER TO PREVENT OVERFLOWS.
 - PREFABRICATED, PORTABLE AND RE-USABLE CONCRETE WASHOUT CONTAINERS ARE ACCEPTABLE, BUT MUST BE SPECIFICALLY DESIGNED FOR CONCRETE WASHOUT USE.
 - 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.
 - SAW CUT CONCRETE, RESIDUE FROM SAW CUT, AND GRINDINGS SHALL BE DISPOSED OF IN THE WASHOUT PIT.

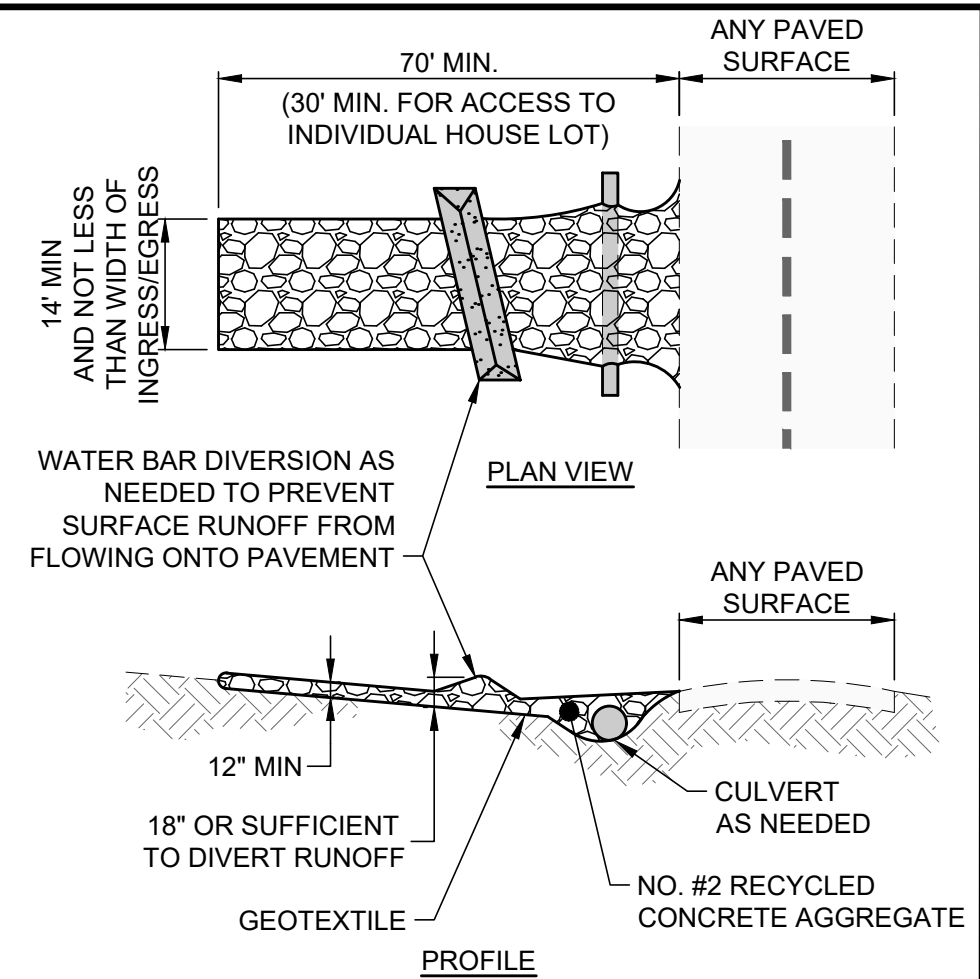
CONCRETE WASHOUT DETAIL
SCALE: NONE



- NOTES:
- THE CHECK DAM SHALL BE CONSTRUCTED OF 4" TO 8" DIAMETER STONE, PLACED SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL.
 - 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.
 - THE MAXIMUM HEIGHT OF THE CHECK DAM AT THE CENTER OF THE WEIR SHALL NOT EXCEED 36".
 - 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.

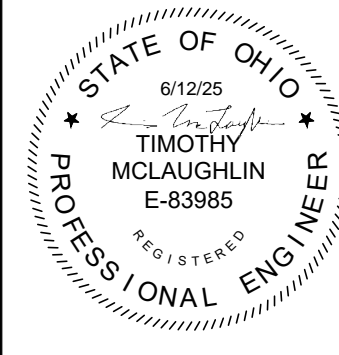
CHECK DAM DETAIL
SCALE: NONE



- NOTES:
- PLACE GEOTEXTILE OVER THE ENTIRE AREA PRIOR TO PLACING STONE MEETING THE MIN. SPECIFICATIONS:
 - TENSILE STRENGTH = 200 LBS.
 - PUNCTURE STRENGTH = 80 PSI
 - TEAR STRENGTH = 50 LBS.
 - BURST STRENGTH = 320 PSI
 - ELONGATION = 20%
 - EQUIVALENT OPENING SIZE ≤ 0.6 MM
 - PERMITTIVITY = 0.001 CM/SEC
 - APPLY ADDITIONAL STONE AS CONDITIONS DEMAND AND REPLENISH STONE WHEN THE DEPTH IS LESS THAN 6". REMOVE AND REPLACE IF STONES BECOMES MUD-LADEN.
 - IMMEDIATELY REMOVE MUD DROPPED, WASHED OR TRACKED ONTO ROADS OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS BY SCRAPING OR SWEEPING.
 - 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

Signer Name: Timothy McLaughlin
Signer Reason: I approved this document.
Signature Time: 2025-06-13 13:58:41 (EST)



verdantas

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

DATE	REVISION	NO

SCALE:	AS NOTED	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
		5/5/2025	TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO EROSION CONTROL - 30 SERIES EROSION CONTROL DETAILS
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PROJECT NO:	231100
DRAWING NAME	30EC-01
SHEET	OF
31	31