GENERAL

1. ALL ROAD SURFACES, EASEMENTS OR RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION OF ANY PART OF THIS IMPROVEMENT ARE TO BE RESTORED COMPLETELY TO THE SATISFACTION OF THE OWNER AND THE CITY OF CLEVELAND.
2. THE CONTRACTOR SHALL OBTAIN A CITY OF CLEVELAND STREET OPENING PERMIT BEFORE BEGINNING WORK WITHIN ANY PUBLIC STREET RIGHT-OF-WAY.
3. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS, BARRICADES, FLAGGERS, ETC. AS REQUIRED TO PERFORM THE REQUIRED WORK OR AS DIRECTED BY THE CITY OF CLEVELAND.
4. NO PARKING OF CONTRACTORS OR CONTRACTOR EMPLOYEE VEHICLES ON ANY CITY STREETS SHALL BE PERMITTED.
5. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES.

SITE DEMOLITION NOTES

1. PRIOR TO STARTING DEMOLITION, THE CONTRACTOR SHALL SECURE ALL REQUIRED PERMITS AND APPROVALS.
2. CONTRACTOR TO CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS), 1-800-362-2764, AND OHIO OIL AND GAS PRODUCERS (OGPUPS), 1-800-925-0988, 48 HOURS PRIOR TO COMMENCING ANY WORK.
3. CONTRACTOR SHALL REVIEW AND FOLLOW ALL PROJECT DEMOLITION SPECIFICATIONS PRIOR TO STARTING DEMOLITION.
4. LIMITS OF DEMOLITION/DISTURBANCE ARE CLEARLY NOTED ON THE STORMWATER POLLUTION PREVENTION PLAN (C2.00). ALL AREAS OUTSIDE THESE LIMITS SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY. CONSTRUCTION MATERIALS/VEHICLES/ETC. SHALL NOT BE DRIVEN OR STORED OUTSIDE OF THESE LIMITS WITHOUT CONSENT FROM THE OWNER.
5. CONTRACTOR MUST PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, ETC., (AND OTHER APPROPRIATE BEST MANAGEMENT PRACTICES) AS APPROVED BY CONSTRUCTION MANAGER.
6. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.
7. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED IN KIND AT CONTRACTOR'S EXPENSE.
8. THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS AS SHOWN.
9. ALL TREES, BRUSH AND OTHER VEGETATION WITHIN THE LIMITS OF THIS PROJECT THAT INTERFERE WITH THE CONSTRUCTION SHALL BE REMOVED FROM THE SITE, UNLESS OTHERWISE INDICATED ON SHEET C2.00. ALL STUMPS AND BRUSH SHALL BE GROUND OR CHIPPED AND REMOVED FROM THE SITE.
10. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING THE DEBRIS IN A LAWFUL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
11. ALL CLEARED AND DISTURBED AREAS MUST BE ROUGH GRADED TO ESTABLISH POSITIVE DRAINAGE BEFORE BEING SEEDED WITH TEMPORARY SEEDING.
12. COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF STRUCTURES.
    A. USE SATISFACTORY SOIL MATERIALS CONSISTING OF DRAINED ODOT #304 LIMESTONE, OR ON-SITE SOILS, APPROVED BY A GEOTECHNICAL ENGINEER, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS, AND OTHER ORGANIC MATTER.
    B. PRIOR TO PLACEMENT OF FILL MATERIALS, ENSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROST, FROZEN MATERIAL, TRASH AND DEBRIS AND ARE FREE DRAINING.
    C. PLACEMENT OF FILL MATERIALS SHALL MEET OR EXCEED THE COMPACTION REQUIREMENTS AND SPECIFICATIONS NOTED IN THE SITE GRADING AND EARTHWORK NOTES BELOW.
    D. AFTER FILL PLACEMENT AND COMPACTION, GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE FLOW TO SURFACE DRAINAGE STRUCTURES.
13. THE EXPORT OF ALL SOIL AND PAVEMENT TO OFF-SITE LOCATIONS MUST BE APPROVED BY OWNER. CONTRACTOR TO PREPARE AN AREA ON-SITE FOR STOCKPILING ANY CONTAMINATED SOILS FOUND DURING CONSTRUCTION. NOTIFY OWNER IMMEDIATELY OF ANY CONTAMINATION FOUND DURING CONSTRUCTION.
14. BELOW GRADE CONSTRUCTION: COMPLETELY REMOVE FOUNDATION WALLS AND OTHER BELOW-GRADE CONSTRUCTION, INCLUDING CONCRETE SLABS.
15. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION, REMOVAL, AND DISPOSAL OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.
16. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES ON REMOVAL AND RELOCATION OF ALL UTILITIES AND SERVICE CONNECTIONS ABOVE AND BELOW GROUND.
17. CONTRACTOR SHALL MAINTAIN UTILITY SERVICE AND ACCESS TO ALL ADJACENT BUSINESSES, AND NEIGHBORING PROPERTIES AT ALL TIMES. CONTRACTOR SHALL NOTIFY BUSINESS OWNERS AND NEIGHBORS OF ANY POTENTIAL DISTURBANCES 48 HOURS IN ADVANCE.
18. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES.
19. ANY ADDITIONAL UTILITY CONNECTIONS DISCOVERED DURING DEMOLITION AND CONSTRUCTION SHALL BE EVALUATED IN THE FIELD AND MAINTAINED, REMOVED OR ABANDONED AS DIRECTED BY THE OWNER.
20. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.
21. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. CONTRACTOR SHALL PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN THE ROAD RIGHT OF WAY DURING CONSTRUCTION.
22. ALL EXISTING SEWERS, PIPING AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY EXIST ON THE SITE. VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK.

BENCH MARKS:	
B.M. #1: TOP OF HYDRANT ON SOUTH SIDE OF MAYFIELD ROAD WEST OF EAST 115TH STREET	ELEV.=695.49 (NAVD88)
B.M. #2: MAGNAIL SET IN SANDSTONE WALK SOUTHEAST OF COZAD BATES BUILDING CORNER	ELEV.=700.70 (NAVD88)
ALL VERTICAL BENCH MARK INFORMATION SHOWN PER G.P.S. VRS FIELD OBSERVATIONS DATED SEPTEMBER 17, 2018.	

STORMWATER POLLUTION PREVENTION

1. ALL EROSION CONTROL DEVICES ARE TO BE INSPECTED AND MAINTAINED OR REPAIRED AS NECESSARY IMMEDIATELY FOLLOWING A STORM EVENT AND AT REGULAR INTERVALS.
2. ALL DISTURBED AREAS DURING CONSTRUCTION SHALL BE TEMPORARILY SEEDED PER SPECIFICATIONS ON SHEET C2.03.
3. THE CONTRACTOR SHALL FOLLOW ALL STORMWATER POLLUTION PREVENTION SPECIFICATIONS AS INDICATED IN THESE PLANS (SEE SHT. C2.01) AND ALL OTHER SPECIFICATIONS THAT MAY BE REQUIRED BY THE CITY OF CLEVELAND, OHIO E.P.A. AND/OR ANY OTHER GOVERNING AUTHORITY.
4. FERTILIZING, SEEDING AND MULCHING FOR RESTORATION OF DISTURBED AREAS SHALL CONFORM TO SECTIONS 659 AS SPECIFIED IN THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS (LATEST EDITION).
5. DUST CONTROL:
   THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL, AND EQUIPMENT SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE NECESSARY TO MAINTAIN ALL ROADWAYS BEING USED FOR ACCESS TO THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL ORDINANCES OF THE CITY OF CLEVELAND, THE OHIO E.P.A. AND/OR ANY OTHER GOVERNING AUTHORITY.

SITE LAYOUT NOTES

1. THESE PLANS HAVE BEEN CREATED FOR ELECTRONIC FIELD LAYOUT. DIMENSIONS SHOWN ARE FOR GRAPHIC REPRESENTATION ONLY AND SHOULD NOT BE USED FOR LAYOUT. CONTACT THE OWNER'S ENGINEER IF ANY DISCREPANCIES BETWEEN THE PLAN AND THE ELECTRONIC DATA ARE DISCOVERED.
2. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB, FACE OF BUILDING OR AS NOTED OTHERWISE.
3. EXACT LOCATION OF SIGNS TO BE COORDINATED WITH OWNER AND APPROVED PRIOR TO INSTALLATION.
4. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
5. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES REQUIREMENTS AND PROJECT SITE WORK SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.

SANITARY

1. PER THE CITY OF CLEVELAND "ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED."
2. DEFLECTION TESTS SHALL BE PERFORMED NO SOONER THAN 60 DAYS FOLLOWING THE COMPLETION OF BACKFILL. A RESPONSIBLE AGENCY OF AN ACCREDITED, INDEPENDENT TESTING LABORATORY SHALL PERFORM FINAL DEFLECTON TESTS AND SUBMIT VERIFICATION RECORDS OF RESULTS AND DATES TESTED. NO PIPE UNDER LOAD SHALL EXCEED A DEFLECTION OF 5 PERCENT OF THE BASE INSIDE DIAMETER PER ASTM D-2680 AND ASTM D-3034. DEFLECTION TESTING SHALL BE ACCOMPLISHED BY USING A GO, NO-GO MANDREL THROUGH THE PIPE, OR METHODS APPROVED BY LOCAL AUTHORITY. (UNIFORM STANDARDS FOR SEWAGE IMPROVEMENTS)
3. AN AIR LEAKAGE TEST SHALL BE PERFORMED PER ASTM F-1417. NOTE THAT THE LEAKAGE TEST LIMIT IS 100 GALLONS/INCH DIAMETER/MILE/DAY PER THE OHIO EPA STANDARDS.
4. THE LEAKAGE TEST LIMIT IS 100 GALLONS/IN DIAMETER OF PIPE/MILE/DAY.
5. THE CONTRACTOR IS RESPONSIBLE FOR TESTING THE SANITARY SEWERS AND MANHOLES IN ACCORDANCE WITH THE STANDARDS OF THE G.L.U.M.R.B. "TEN STATES STANDARDS" AND THE OHIO E.P.A.
6. PRECAST COLLARS AND/OR BRICKS FOR HEIGHT ADJUSTMENT SHALL MEET ASTM C-32 STANDARDS.

UTILITY MATERIALS LIST

SANITARY SEWER PIPE SHALL BE PVC MEETING ASTM D3034 WITH GASKET MATERIAL MEETING ASTM F-477 AND JOINTS MEETING ASTM D3212:

SDR 35	PIPES LESS THAN 8.5' DEEP
SDR 26	PIPES 8.5' THRU 21' DEEP

*VITRIFIED CLAY PIPE, TYPE B, PER ASTM C-700 ES REQUIRED WITHIN THE PUBLIC RIGHT-OF-WAY

OHIO EPA - WATER NOTES

1. A 10-FOOT MINIMUM HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN WATER LINE AND SANITARY SEWER.
2. A 18-INCH MINIMUM VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND SANITARY SEWER CROSSINGS.
3. A 10-FOOT MINIMUM HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND STORM SEWER.
4. A 18-INCH MINIMUM VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) WILL BE MAINTAINED BETWEEN THE WATER LINE AND STORM SEWER AT ALL CROSSINGS.

INDEX TO DRAWINGS:

	REV#	10/18/19 NEORSD SUBMITTAL	12/06/19 GRADING CLARIFICATION	12/30/19 NEORSD COMMENTS	01/02/20 WPC COMMENTS	02/04/20 FOR PERMIT	03/04/20 NEORSD COMMENT	04/16/20 CITY COMMENTS
			1	2	3		4	5
NOTES:								
GENERAL NOTES . . . C0.1		X	X	X		X		X
GENERAL NOTES . . . C0.2		X				X		
SURVEY:								
EXISTING CONDITIONS AND DEMOLITION PLAN . . . C1.0		X		X		X		X
STORMWATER POLLUTION PREVENTION:								
SWPPP - PLAN . . . C2.0		X		X		X		X
SWPPP - BIORETENTION BASIN DETAILS . . . C2.1A		X		X	X	X	X	
SWPPP - PERMEABLE PAVER DETAILS . . . C2.1B		X		X		X	X	X
5 SWPPP - INFILTRATION DETAILS . . . C2.1C		X					X	
SWPPP - SPECIFICATIONS . . . C2.2		X		X		X		
SWPPP - DETAILS . . . C2.3		X				X		
SWPPP - DETAILS . . . C2.4		X				X		
GRADING								
SITE GRADING PLAN . . . C3.0		X	X			X	X	X
UTILITIES:								
SITE UTILITY PLAN . . . C4.0		X		X	X	X	X	X
UTILITIES:								
SITE LAYOUT PLAN . . . C5.0		X		X		X	X	X
DETAILS								
SITE DETAILS . . . C7.0		X		X		X	X	X
SITE DETAILS . . . C7.1		X				X	X	
SITE DETAILS - ADS CHAMBERS . . . C7.2		X					X	
5 SITE DETAILS - ADS CHAMBERS . . . C7.3		X					X	

SUBMITTED BY:

DANIEL J. NEFF - REG. ENGINEER No. 50573

STATE OF OHIO * DANIEL J. NEFF E-50573 REGISTERED PROFESSIONAL ENGINEER *

04/16/20
DATE

UTILITY COMPANIES IN PROJECT AREA

CITY OF CLEVELAND
WATER POLLUTION CONTROL
12302 KIRBY AVENUE
CLEVELAND, OHIO 44108
ATTN: ELIE RAMY
PHONE: (216) 664-2756
FAX: (216) 664-3477
eramy@clevelandwpc.com

CLEVELAND DEPT. OF PUBLIC UTILITIES
DIVISION OF WATER
4600 HARVARD AVENUE
CLEVELAND, OHIO 44114
ATTN: FRED ROBERTS
PHONE: (216) 664-2444, EXT. 5526
FAX: (216) 664-2838
fred_roberts@ClevelandWater.com

CLEVELAND DEPT OF PUBLIC UTILITIES
CLEVELAND PUBLIC POWER
13000 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: BEAU STEINMETZ
PHONE: (216) 664-3922 X173
BSteinmetz@CPP.ORG
ATTN: STEVE HOLLAND (LIGHTING)
PHONE: (216) 664-6808 X450
FAX: (216) 664-6823
sholland@cpp.org

FIRST ENERGY (CEI)
6896 MILLER ROAD
SUITE 101
BRECKSVILLE, OH 44141
ATTN: CHARLES L. RANDALL
PHONE: (440) 546-8705
FAX: (440) 546-8773
clrandall@firstenergycorp.com

DOMINION EAST OHIO (GAS)
320 SPRINGSIDE DRIVE
SUITE 320
AKRON, OH 44333
ATTN: DEBRA HASSO
PHONE: (330) 664-2443
debra.hasso@dom.com

AT&T (TELEPHONE)
13630 LORAIN AVENUE
ROOM 200
CLEVELAND, OH 44111
ATTN: GARY SAYLOR
PHONE: (216) 476-6265
gs8265@att.com

CHARTER COMMUNICATIONS (CABLE T.V.)
8150 DOW CIRCLE EAST
STRONGSVILLE, OHIO 44136
ATTN: DAN McCAFFERTY
PHONE: (216) 575-8016
Daniel.McCafferty@charter.com

OHIO Utilities Protection SERVICE
Call Before You Dig
1-800-362-2764
A825501510-00A
A825501517-00A
A825501524-00A
Also call: OGPUPS @ 1-800-925-0988
(Ohio Oil & Gas Underground Protection Service)
-- or dial 8-1-1--

GENERAL NOTES

COZAD-BATES HOUSE - INTERPRETIVE CENTER
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
TEL 440.884.3100 | FAX 440.884.3104
www.neffassoc.com

SHEET NO.
C0.1

SITE GRADING AND EARTHWORK NOTES

1. CONTRACTOR TO CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS), 1-800-362-2764, AND OHIO OIL AND GAS PRODUCERS (OGPUPS), 1-800-925-0988, 48 HOURS PRIOR TO COMMENCING ANY WORK.
2. THE CONTRACTOR SHALL DEWATER THE SUBGRADE AS NECESSARY AND MAINTAIN GOOD SURFACE DRAINAGE OF THE CONSTRUCTION AREA. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES AND SHALL BACKFILL AND GRADE EXCAVATED AREAS SO AS TO ELIMINATE PONDING ON THE SITE.
3. ADJUST ALL EXISTING UTILITIES THAT ARE AFFECTED BY THIS WORK (MANHOLES, VAULTS, VALVES, METERS, ETC.) TO FINISHED GRADE OF NEW PAVEMENT OR LANDSCAPED AREAS.
4. CONTRACTOR TO PREPARE AN AREA ON-SITE FOR STOCKPILING ANY CONTAMINATED SOILS FOUND DURING CONSTRUCTION. NOTIFY OWNER IMMEDIATELY OF ANY CONTAMINATION FOUND DURING CONSTRUCTION.
5. MEET GRADES AT PROPERTY LINES AND EXISTING BOTTOM OF CURB GRADES AT EXISTING PAVEMENT UNLESS OTHERWISE NOTED.
6. IT IS THE EARTHWORK CONTRACTOR'S RESPONSIBILITY TO EVALUATE THE EXISTING AND PROPOSED GRADING PLANS AND THE NOTED ASSUMPTIONS PRIOR TO BEGINNING ANY WORK. IF ANY DISCREPANCIES ARE ENCOUNTERED DURING THIS EVALUATION, THE EARTHWORK CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY TO RESOLVE ANY SUCH DISCREPANCIES AND MUTUALLY DETERMINE WHAT, IF ANY, ADJUSTMENTS WILL BE MADE TO THE PROPOSED GRADING PLAN. IT IS ULTIMATELY THE EARTHWORK CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE OWNER A SUBGRADE WHICH REFLECTS THE INTENT OF THIS GRADING PLAN. THERE WILL BE NO PAYMENT FOR IMPORT OR EXPORT OF MATERIAL, UNLESS SPECIFICALLY NOTED HEREON OR AGREED TO BY THE OWNER IN WRITING PRIOR TO THE BEGINNING OF ANY WORK.
7. TOPSOIL MAY BE USED ON SITE AS INSTRUCTED BY A GEOTECHNICAL ENGINEER, HOWEVER THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL UNUSED EXCESS TOPSOIL AND SHALL BID THE WORK ACCORDINGLY.
8. THE CONTRACTOR SHALL ANTICIPATE THE NEED FOR DISKING AND DRYING OF ENGINEERED FILL, AS IT SHOULD BE ANTICIPATED FOR EARTHWORK FILL PROJECTS IN NORTHEAST OHIO. CHEMICAL DRYING AGENTS/ STABILIZERS MUST BE APPROVED BY THE OWNER AND IF USED BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
9. ALL ENGINEERED FILL SHALL BE COMPACTED TO 98% OF THE MATERIALS STANDARD PROCTOR (ASTM 698), MAXIMUM DRY DENSITY WITH MOISTURE CONTENT ADJUSTED TO ± 2% OPTIMUM.
10. ALL ELEVATIONS SHOWN ARE TO FINISHED GRADE.
11. ALL BELOW GRADE CONSTRUCTION AND FILL SHALL BE INSPECTED, MONITORED AND APPROVED BY THE OWNER OR OWNER'S GEOTECHNICAL ENGINEER.
12. NO OFFSITE GRADING PERMITTED WITHOUT PRIOR WRITTEN CONSENT FROM THE ADJOINING PROPERTY OWNER.
13. ALL EXISTING STREETS SHALL BE KEPT CLEAN OF SOIL AND/OR DEBRIS.
14. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
15. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
16. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
17. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA OR APPLICABLE STATE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
18. TOPOGRAPHIC INFORMATION WAS GENERATED FROM FIELD MEASUREMENTS AND RECORD INFORMATION AND PROVIDED BY THE OWNER. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
19. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
20. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

SITE UTILITY NOTES

1. CONTRACTOR TO CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS), 1-800-362-2764, AND OHIO OIL AND GAS PRODUCERS (OGPUPS), 1-800-925-0988, 48 HOURS PRIOR TO COMMENCING ANY WORK.
2. PRIOR TO CONSTRUCTION OF ON SITE UTILITIES, CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ELEVATIONS OF ALL CONNECTIONS TO EXISTING UTILITIES AND VERIFY THAT ALL CONNECTIONS CAN BE INSTALLED AS SHOWN. NOTIFY OWNER'S ENGINEER OF ANY DISCREPANCIES.
3. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO ANY EXISTING FACILITIES CAUSED BY THE CONTRACTOR'S WORK FORCE.
4. EXISTING UTILITIES MUST BE KEPT IN WORKING CONDITION THROUGHOUT THE DURATION OF THE IMPROVEMENTS. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY SERVICES FOR AND ACCESS TO ALL OCCUPIED BUILDINGS AND ADJACENT PROPERTIES ARE MAINTAINED.
5. MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL WATER, STORM, AND SANITARY SEWER CROSSINGS.
6. REFER TO CITY OF CLEVELAND DETAILS AND NOTES FOR UTILITY CLEARANCE REQUIREMENTS IN RELATION TO WATERLINES.
7. IF STORM AND SANITARY SEWERS ARE CLOSER THAN 6FT BARREL TO BARREL, PREMIUM JOINTS ARE REQUIRED.
8. SITE CONTRACTOR SHALL STUB PROPOSED UTILITIES WITHIN 5' OF PROPOSED BUILDING PAD. SITE CONTRACTOR SHALL PROVIDE A TEMPORARY PLUG AT THE END. IN COORDINATION WITH THE CONSULTING ARCHITECT, BUILDING CONTRACTOR SHALL CONNECT PROPOSED UTILITIES TO THE PROPOSED BUILDING.
9. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
10. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
11. MINIMUM TRENCH WIDTH SHALL BE 2 FEET.
12. CONTRACTOR SHALL MAINTAIN MINIMUM DEPTHS OF WATER MAINS AND SERVICE CONNECTIONS AS REQUIRED BY THE CITY OF CLEVELAND WATER DEPARTMENT. 6'-0" OF COVER MUST BE MAINTAINED FOR WATER MAINS AND 5'-6" COVER ON ALL WATERLINE SERVICE CONNECTIONS. REFER TO CITY OF CLEVELAND WATERLINE DETAILS AND NOTES FOR ADDITIONAL WATER MAIN REQUIREMENTS AND DEPTHS.
13. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING, THE WATER LINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18" CLEARANCE. MEETING REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50) ALSO REFER TO CLEVELAND WATER DETAILS AND NOTES.
14. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
15. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.
16. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES (CITY OF CLEVELAND, CLEVELAND WATER, AND CLEVELAND WATER POLLUTION CONTROL WHERE APPLICABLE) WITH REGARD TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
17. THE CONTRACTOR SHALL COORDINATE WITH ALL REQUIRED UTILITY COMPANIES AND THE DESIGN ENGINEER REGARDING REMOVAL OF EXISTING POLES, OVERHEAD WIRES, UNDERGROUND WIRES AND GAS LINES. ALL ADJUSTMENT OR RECONSTRUCTION WORK, EXCEPT FOR THOSE STRUCTURES OWNED BY PRIVATE COMPANIES, SHALL BE PERFORMED BY THE CONTRACTOR. WHERE APPLICABLE, THE TIME BETWEEN RESETTING THE CASTINGS AND PAVEMENT CONSTRUCTION SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
18. THE LOCATIONS OF ALL EXISTING UTILITIES, GAS LINES AND OVERHEAD AND/OR UNDERGROUND ELECTRIC, TELEPHONE, CABLE T.V. AND FIBER OPTICS SHALL BE DETERMINED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES AND VALVE BOXES, ETC., ARE TO BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.
19. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING UNDERGROUND AND ABOVE GROUND UTILITY LINES. IT MAY BE NECESSARY TO CHANGE THE ALIGNMENT OR THE FLOW LINE ELEVATION OF PROPOSED SEWERS DUE TO EXISTING UTILITY LINES. THE CONTRACTOR SHALL MAKE INVESTIGATIONS TO DETERMINE THE LOCATION OF EXISTING UTILITY LINES PRIOR TO THE INSTALLATION OF THE PROPOSED IMPROVEMENTS. ALL PROPOSED CHANGES MUST BE APPROVED BY THE OWNER'S ENGINEER.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING WATER AND SEWERAGE SYSTEM RESULTING FROM NON-CONFORMANCE WITH THE APPLICABLE STANDARDS OR THROUGH GENERAL NEGLIGENCE.
21. THE END OF EACH CONNECTION SHALL BE SEALED WITH A TIGHT FITTING PLUG AND SHALL BE MARKED WITH A 2" X 2" HARDWOOD STAKE, EXTENDING VERTICALLY FROM THE END OF THE CONNECTION TO A POINT APPROXIMATELY THREE FEET ABOVE THE SURFACE OF THE GROUND. MARKERS SHALL BE COLOR CODED: STORM - GREEN; SANITARY - RED; WATER - BLUE. CURBS SHALL BE MARKED WITH THE FOLLOWING SYMBOLS ON EACH LOT AT TIME OF PAVEMENT INSTALLATION (IF POSSIBLE):

    Δ - SANITARY
    + - STORM
    w - WATER

22. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
23. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES.
24. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION. THIS TO INCLUDE BUT NOT LIMITED FOR ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR OSHA.
25. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
26. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING & COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
27. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN CRANES AND BOOMED VEHICLES ARE OPERATED NEAR OVERHEAD POWER LINES PER O.S.H.A. REGULATIONS. ALL OVERHEAD POWER LINES SHALL BE CONSIDERED ENERGIZED UNLESS THE OWNER OF THE LINE OR THE ELECTRIC UTILITY COMPANY INDICATES THAT THE OVERHEAD POWER LINE HAS BEEN DE-ENERGIZED AND IT IS VISIBLY GROUNDED. THE O.S.H.A. REGULATIONS ARE SUMMARIZED AS FOLLOWS:
    A. EMPLOYERS SHALL ENSURE THAT OVERHEAD POWER LINES ARE DE-ENERGIZED OR SEPARATED FROM THE CRANE AND ITS LOAD BY IMPLEMENTING ONE OR MORE OF THE FOLLOWING PROCEDURES:
        27.1. DE-ENERGIZE AND VISIBLY GROUND ELECTRICAL DISTRIBUTION AND TRANSMISSION LINES.
        27.2. USE INDEPENDENT INSULATED BARRIERS TO PREVENT PHYSICAL CONTACT WITH THE POWER LINES.
        27.3. MAINTAIN MINIMUM CLEARANCE BETWEEN ENERGIZED POWER LINES AND THE CRANE AND ITS LOAD.
    B. WHERE IT IS DIFFICULT FOR THE CRANE OPERATOR TO MAINTAIN CLEARANCE BY VISUAL MEANS, A PERSON SHALL BE DESIGNATED TO OBSERVE THE CLEARANCE BETWEEN THE ENERGIZED POWER LINES AND THE CRANE AND ITS LOAD.
    C. THE USE OF CAGE-TYPE BOOM GUARDS, INSULATING LINKS, OR PROXIMITY WARNING DEVICES SHALL NOT ALTER THE NEED TO FOLLOW REQUIRED PRECAUTIONS. THESE DEVICES ARE NOT A SUBSTITUTE FOR DE-ENERGIZING AND GROUNDING LINES OR MAINTAINING SAFE LINE CLEARANCES.
28. THE CONTRACTOR SHALL INSTALL PROXIMITY WARNING DEVICES ON ALL EXISTING, TEMPORARY AND PERMANENT OVERHEAD WIRES LOCATED ON THE SITE.

COZAD-BATES HOUSE - INTERPRETIVE CENTER

GENERAL NOTES

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

REV NO	DATE	DESCRIPTION
	02/04/20	FOR PERMIT
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

SHEET NO.
C0.2

KEY NOTES

1. EX. BUILDING TO REMAIN (SEE ARCHITECTURAL PLANS)
2. EX. COVERED PORCH AND WOODEN STEPS TO REMAIN
3A. EX. SANDSTONE PAVER WALK TO BE REMOVED. (REFER TO LANDSCAPE PLANS FOR POSSIBLE REUSE OF EXISTING MATERIAL)
3B. EX. CONCRETE SIDEWALK TO BE REMOVED
4. REMOVE EX GRAVEL PARKING AREA FULL DEPTH
5. AREA OF PROPOSED LAWN/VEGETATION DISTURBANCE. CLEAR, GRUB, EXCAVATE TO PROPOSED SUBGRADE ELEVATION AND PROOF ROLL.
6. NOT USED
7. EX. POLE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
8. FIELD LOCATED UNDERGROUND POWER SERVICE PRIOR TO COMMENCING EXCAVATION.
9. EX. STORM STRUCTURE TO BE REPLACED (SEE SHT. C4.0)
10. REMOVE EXISTING ROCK PLAQUE AND BENCH. SALVAGE AND RETURN TO OWNER
11. REMOVE EXISTING MEMORIAL PLAQUE. SALVAGE AND RETURN TO OWNER
12. REMOVE EXISTING INTERPRETIVE SIGN. SALVAGE AND RETURN TO OWNER
13. PROTECT EXISTING TREES DURING CONSTRUCTION. PLACE ORANGE CONSTRUCTION FENCE AROUND DRIPLINE OF TREE AND MAINTAIN DURING CONSTRUCTION.
14. REMOVE EXISTING CONCRETE PAVEMENT, SAWCUT CLEAN EDGE
15. REMOVE EXISTING WOOD FENCE
16. REMOVE SECTION OF BRICK WALL

SYMBOL LEGEND (DEMO)

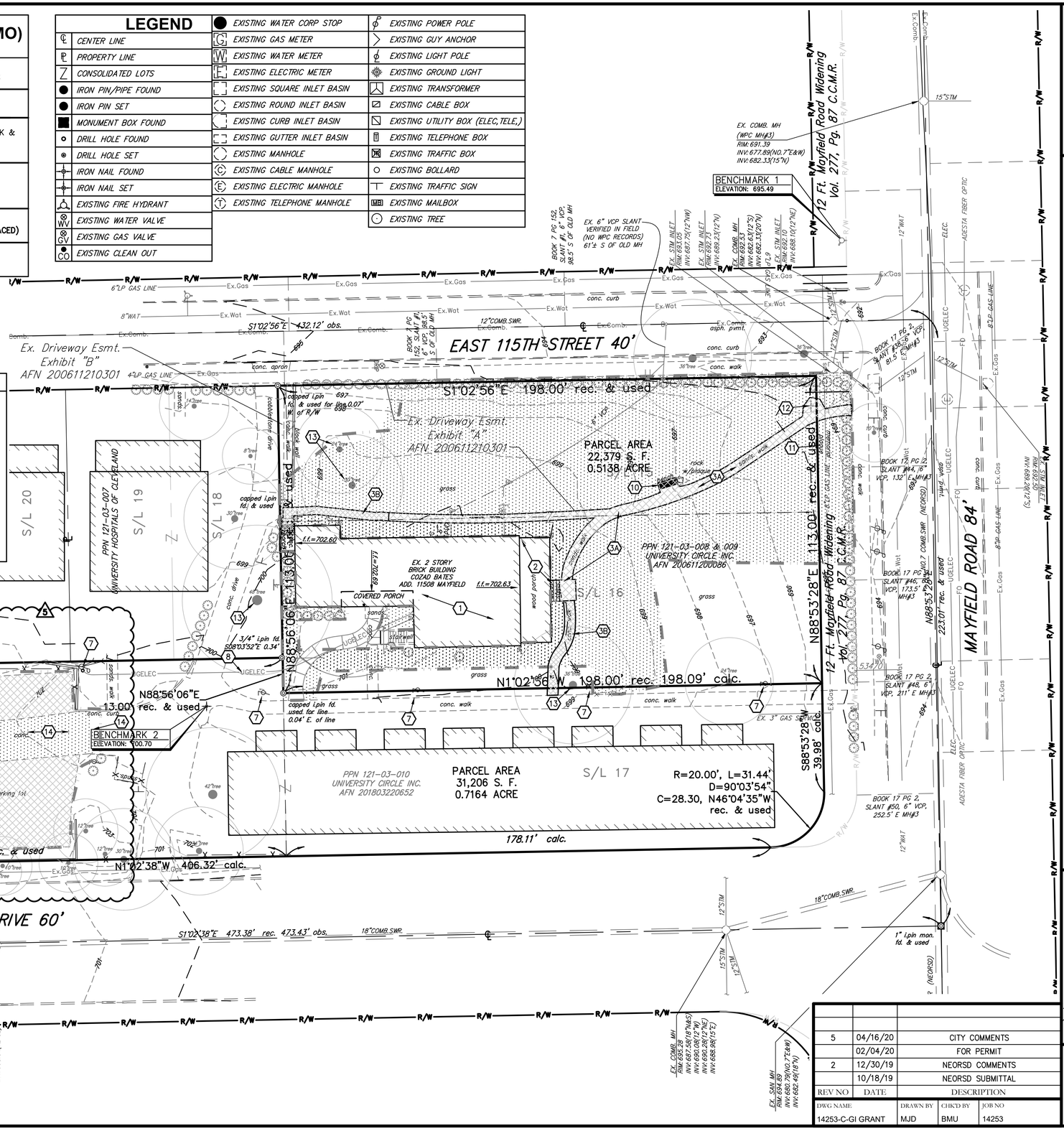
- LIMITS OF EARTH DISTURBANCE ACTIVITIES
- EX. CURB/WALL (TO BE REMOVED)
- EX. PAVEMENT, SIDEWALK & DRIVEWAY (TO BE REMOVED)
- AREA OF PROPOSED LAWN/VEGETATION DISTURBANCE
- EX. UTILITY (TO BE REMOVED/REPLACED)
- EX. TREE (TO BE REMOVED)

LEGEND

CENTER LINE	EXISTING WATER CORP STOP	EXISTING POWER POLE
PROPERTY LINE	EXISTING GAS METER	EXISTING GUY ANCHOR
CONSOLIDATED LOTS	EXISTING WATER METER	EXISTING LIGHT POLE
IRON PIN/PIPE FOUND	EXISTING ELECTRIC METER	EXISTING GROUND LIGHT
IRON PIN SET	EXISTING SQUARE INLET BASIN	EXISTING TRANSFORMER
MONUMENT BOX FOUND	EXISTING ROUND INLET BASIN	EXISTING CABLE BOX
DRILL HOLE FOUND	EXISTING CURB INLET BASIN	EXISTING UTILITY BOX (ELEC,TELE,)
DRILL HOLE SET	EXISTING GUTTER INLET BASIN	EXISTING TELEPHONE BOX
IRON NAIL FOUND	EXISTING MANHOLE	EXISTING TRAFFIC BOX
IRON NAIL SET	EXISTING CABLE MANHOLE	EXISTING BOLLARD
EXISTING FIRE HYDRANT	EXISTING ELECTRIC MANHOLE	EXISTING TRAFFIC SIGN
EXISTING WATER VALVE	EXISTING TELEPHONE MANHOLE	EXISTING MAILBOX
EXISTING GAS VALVE		EXISTING TREE
EXISTING CLEAN OUT		

ABBREVIATIONS

C. or CALC.... CALCULATED	U..... USED
℄..... CENTER LINE	VOL..... VOLUME
CONC..... CONCRETE	
C.D.R..... COUNTY DEED RECORD	
C.P.R..... COUNTY PLAT RECORD	SAN..... SANITARY
D..... DEED	STM..... STORM
EX..... EXISTING	WAT..... WATER
FD..... FOUND	INV..... INVERT
FF EL..... FINISH FLOOR ELEVATION	
INSTR..... INSTRUMENT	
L/A..... LIMITED ACCESS	PVC..... POLYVINYL CHLORIDE
MON..... MONUMENT	VCP..... VITRIFIED CLAY PIPE
O. or OBS..... OBSERVED	RCP..... REINFORCED CONCRETE PIPE
PG..... PAGE	CMP..... CORRUGATED METAL PIPE
ℙ or P/L..... PROPERTY LINE	
R. or REC..... RECORD	
R/W..... RIGHT OF WAY	GUT..... GUTTER
	TC..... TOP OF CURB



BENCH MARKS:

B.M. #1: TOP OF HYDRANT ON SOUTH SIDE OF MAYFIELD ROAD WEST OF EAST 115TH STREET	ELEV.=695.49 (NAVD88)
B.M. #2: MAGNAIL SET IN SANDSTONE WALK SOUTHEAST OF COZAD BATES BUILDING CORNER	ELEV.=700.70 (NAVD88)

ALL VERTICAL BENCH MARK INFORMATION SHOWN PER G.P.S. VRS FIELD OBSERVATIONS DATED SEPTEMBER 17, 2018.

EXISTING CONDITIONS AND DEMOLITION PLAN

COZAD-BATES HOUSE - INTERPRETIVE CENTER

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | FAX: 440.884.3104
www.NeffAssoc.com

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

SHEET NO.
C1.0

LEGEND

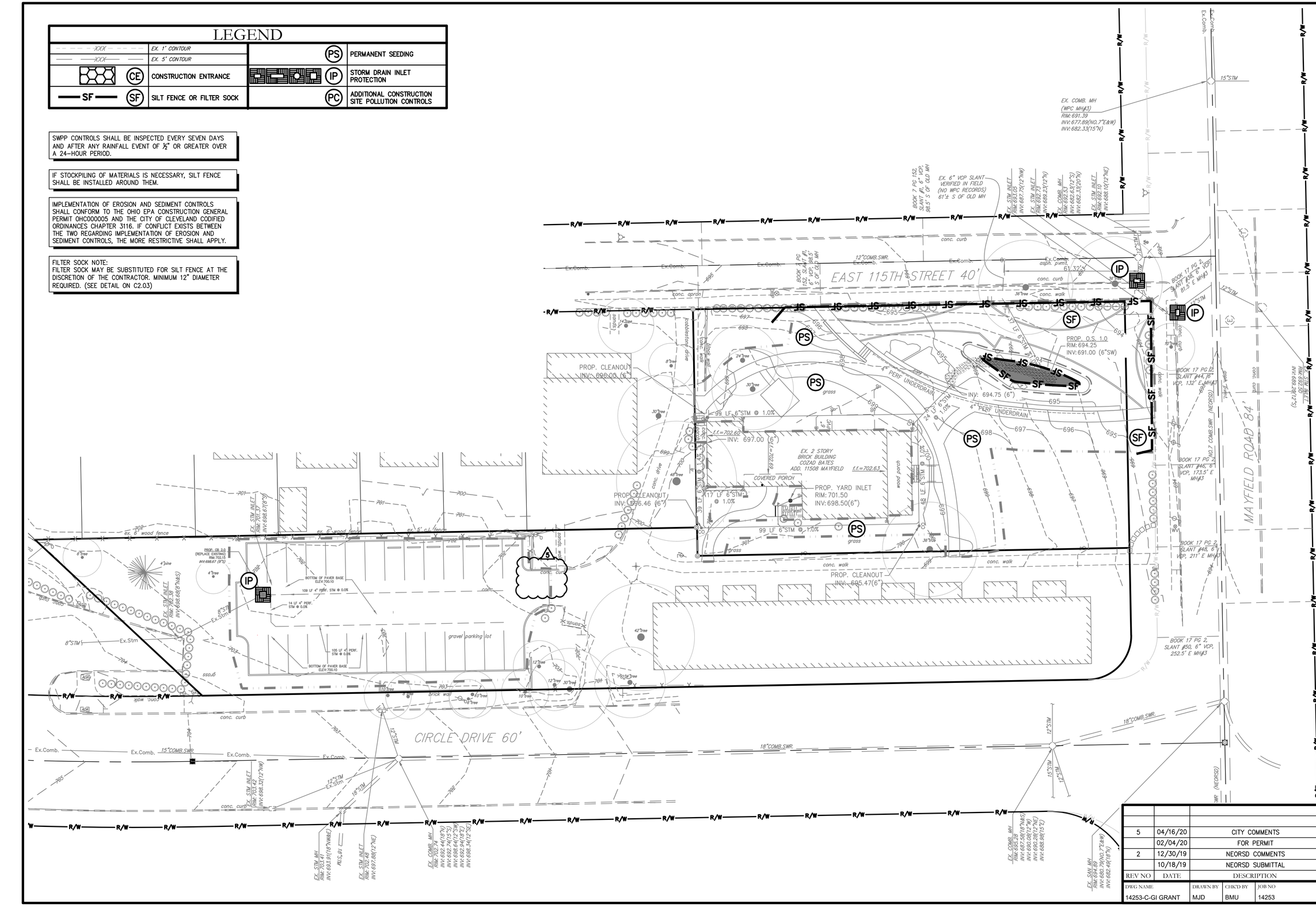
XXX EX. 1' CONTOUR		PS	PERMANENT SEEDING
XXX EX. 5' CONTOUR			
CE	CONSTRUCTION ENTRANCE	IP	STORM DRAIN INLET PROTECTION
SF — SF	SILT FENCE OR FILTER SOCK	PC	ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS

SWPP CONTROLS SHALL BE INSPECTED EVERY SEVEN DAYS AND AFTER ANY RAINFALL EVENT OF ½" OR GREATER OVER A 24–HOUR PERIOD.

IF STOCKPILING OF MATERIALS IS NECESSARY, SILT FENCE SHALL BE INSTALLED AROUND THEM.

IMPLEMENTATION OF EROSION AND SEDIMENT CONTROLS SHALL CONFORM TO THE OHIO EPA CONSTRUCTION GENERAL PERMIT OHC000005 AND THE CITY OF CLEVELAND CODIFIED ORDINANCES CHAPTER 3116. IF CONFLICT EXISTS BETWEEN THE TWO REGARDING IMPLEMENTATION OF EROSION AND SEDIMENT CONTROLS, THE MORE RESTRICTIVE SHALL APPLY.

FILTER SOCK NOTE:
FILTER SOCK MAY BE SUBSTITUTED FOR SILT FENCE AT THE DISCRETION OF THE CONTRACTOR. MINIMUM 12" DIAMETER REQUIRED. (SEE DETAIL ON C2.03)



COZAD-BATES HOUSE - INTERPRETIVE CENTER

SWPPP - PLAN

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME:	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

SHEET NO.
C2.0

Bioretention Area Design

Water Quality Volume

WQv required = C*P*A/12
WQv required = Water Quality Volume in Acre–Feet
C = 0.50 Runoff Coefficient
P = 0.90 Inch Precipitation Depth
A = 0.20 Ac.
WQv required = (0.50)*0.90*(0.2)/12 Acre–Feet
Total WQv Storage Required = 0.008 Acre–Feet = 327 Cubic Feet

WQv Provided–Bioretention Area = 500 Cubic Feet

Bioretention Required Ponding Area and Drawdown Time

A = (WQv)(ds)/[(k)(hs+ds)(ts)] (based on Darcy's Law)
A = Surface area of the landscaped ponding area (Square Feet)
WQv = Treatable water quality volume (Cubic Feet)
ds = Planting soil depth (2.5 Feet minimum)
k = Coefficient of permeability of planting media (Feet/Day)
hs = Average height of water above planting soil and mulch (Feet)
ts = Design filter bed drain time (Days) 1–2 day(s) (24–48 hrs.) or less as required by OEPA.

Bioretention Required Ponding Area

Ada = 8,712 Square Feet = 0.20 Square Feet(Contributing Area)
Aimp = 4,356 Square Feet = 0.10 Square Feet (Impervious Area)
I = 4,356/8,712 x 100 = 50.0% (Impervious Percentage)
Since I = 50.0% is greater than 25%, then;
Afilter bed = 0.05 x 4,356 Square Feet = 218 Square Feet

Afilter bed Provided = 280 SF

Bioretention Drawdown Time

A = 780 Square Feet (Provided)
WQv = 500 Cubic Feet (Provided)
ds = 2.0 Feet
k = 0.75 Feet/Day
hs = 0.50 Feet

ts = (780)(2.0)/[(0.75)(0.50+2.0)(780)] Days (Provided)
ts = 0.68 Days (Provided)

Bioretention Area (B)

Description

Bioretention practices are stormwater basins that utilize a soil media, mulch and vegetation to treat runoff and improve water quality for small drainage areas. Bioretention practices provide effective treatment for many runoff quality problems including reduction of total suspended solids, heavy metals, organic compounds, bacteria and nutrients (phosphorous and nitrogen) by promoting settling, adsorption, microbial breakdown, and nutrient assimilation by plants.

A bioretention area consists of a depression that allows shallow ponding of runoff and gradual percolation through a soil media, after which it either infiltrates through undisturbed soils or enters the storm sewer system through an underdrain system. Bioretention practices are sized for common storm events (the water quality volume) whereas runoff volumes from larger events are typically designed to bypass these practices.

Mulch Layer – The mulch layer shall consist of coarse shredded hardwood mulch. Pine mulches and fine or chipped hardwood mulches may not be used since they tend to float and move, and may block drainage systems, or leave the area with high flows.

Bioretention media
A. The bioretention media shall consist of the following (by volume) to start:
- Sand: 7.5 parts clean sand (i.e. ASTM C–33 or equivalent, <1% passing No. 200 sieve)
- Native Soil: 1.5 part (loam, silt loam or clay loam texture)
- Decomposed Organic Matter: 1 part (leaf compost, pine bark fines, mulch fines, etc.)

B. Soils and soil mixes must be certified by a quality laboratory (1 test per 100 cubic yards of material) and have the following attributes:
a. Texture class: loamy sand. The soil shall have no less than 80% sand and no greater than 10% clay considering only the material fraction of the soil.
b. pH range: 5.2–8.0
c. Organic matter: 500 ppm maximum
d. Decomposed organic matter: 3–5% by weight [Note: this translates to 8–20% organic matter by volume.]
e. Phosphorus: soil p–index should be between 15 and 60 ppm as determined by the Mehlich III test.
f. Sand added shall be clean and meet AASHTO M–6 or ASTM C–33 with a grain size of 0.02–0.04 inches.

Filter layer
A. The filter layer shall be 3 inches of clean medium concrete sand (ASTM C–33) over 3 inches of double–washed #8 or #78 stone (pea gravel).

Drainage layer
A. A gravel bed consisting of double–washed #57 stone shall be provided as the drainage layer and bedding material for underdrain. The gravel layer shall be 12 inches thick with a minimum of 3 inches of gravel provided above and below underdrain pipes.

Underdrains shall be a perforated pipe capable of withstanding the expected load above it and exceeding the drainage capacity of the planting soil layer. The following requirements apply to underdrains:
- The underdrain system shall be placed at a minimum 0.5% slope.
- Underdrain pipes shall be a minimum 6–in. diameter ridged schedule 40 PVC. Perforations shall be ⅜ inch diameter spaced 6 inches apart, 4 holes per row.
- Underdrains are placed within a layer of #57 washed gravel, having a minimum of 3–in. of gravel above and 3–in. below the pipe.
- Underdrains pipes shall end with a cap, or an elbow with a vertical pipe providing observation and/or cleanout at the elevated end of the pipe. Observation/cleanout pipes shall consist of a minimum 6 inch diameter vertical non–perforated PVC pipe extending to the surface of the practice and sealed with a removable watertight cap.
- Underdrains shall drain to an existing drainage system or other suitable stable outlet having positive drainage.

Planting Materials – See the landscape plan for species and location of all proposed plantings within the bioretention area.

Post–Construction Inspection Procedures

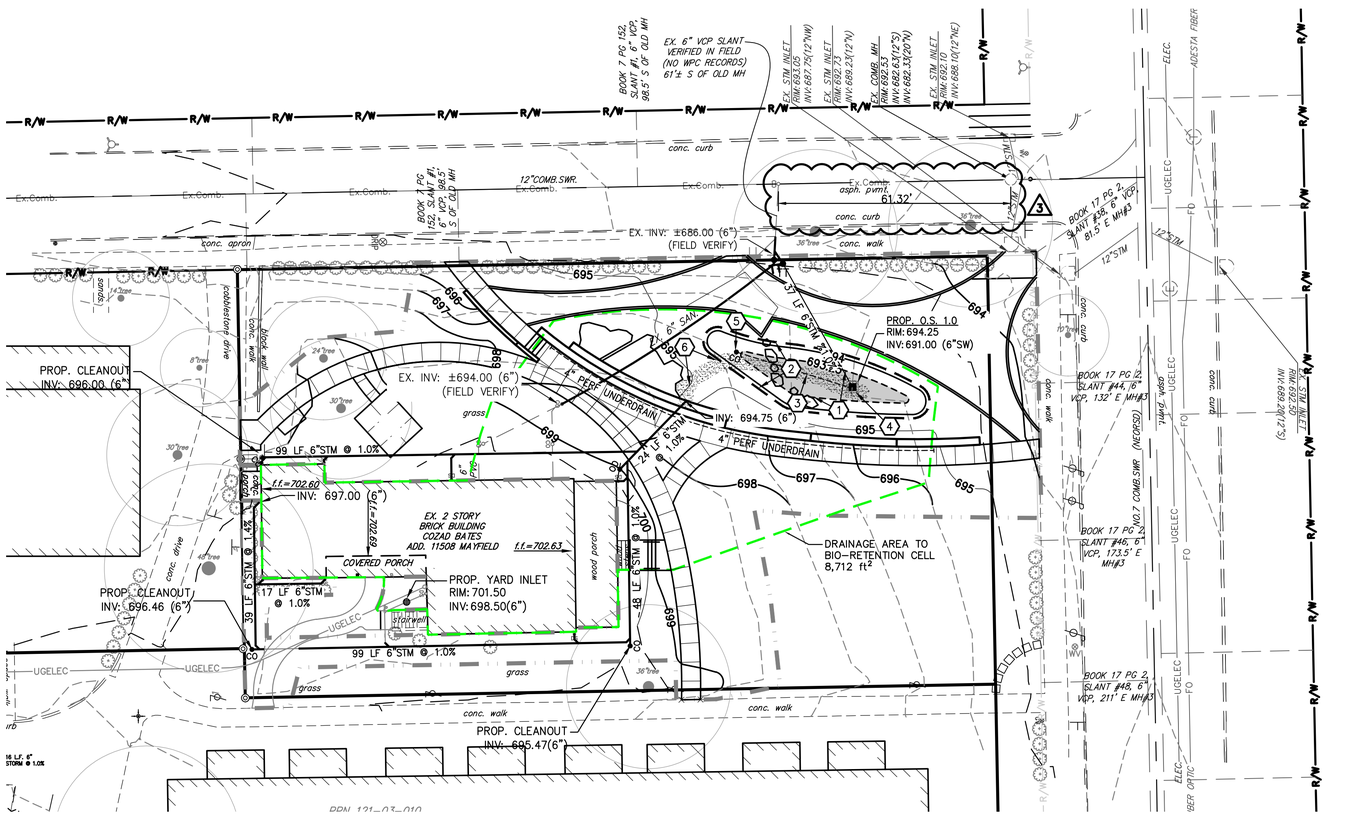
Owner or its authorized representative(s) is responsible for the inspection of the newly installed structures for outlet damage, proper flow, and sediment accumulations.
Maintenance costs, if inspected by Owner or Owner representative(s), will be paid by Owner.
Regular inspections, especially following major storm events, will require an inspection report that shall be kept by The Owner and submitted, if required, to the local governing agency or engineering department.

Maintenance

Proper functioning of a bioretention practice is dependent on the planting soil continuing to drain, and the plant survival. Most maintenance activities influence these goals. Maintaining the pretreatment area and minimizing erosion will extend the life of the planting soil. Bioretention areas are a landscaped feature of a site and regular attention to the plants is necessary. Take measures to insure winter snow plowing does not pile snow on the landscaped ponding area.

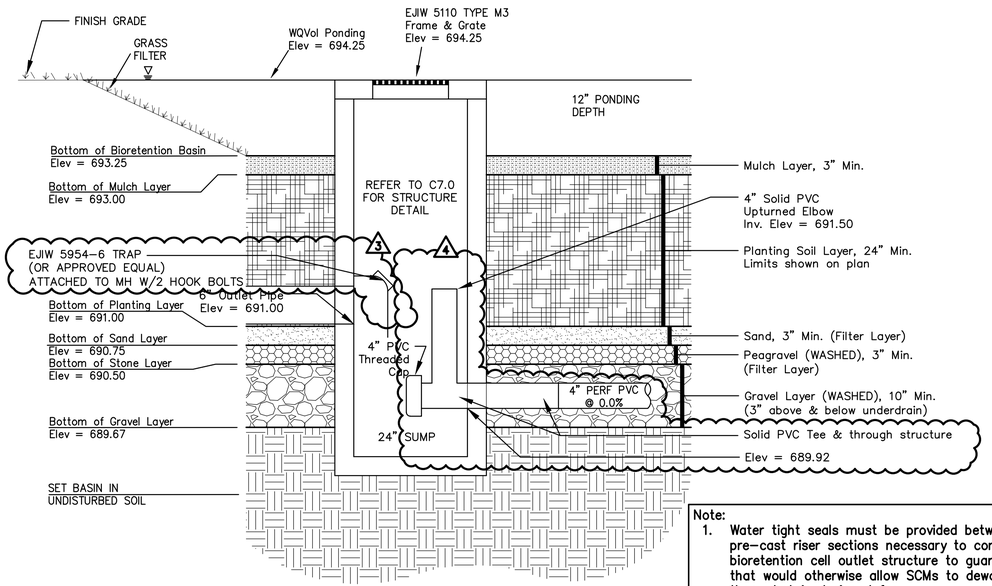
Over time (3–10 years); clogging of the planting soil or filter layer with fines particles may occur. This is expected and can be corrected by replacing a portion of the planting soil or replacing all the planting soil and the filter layer until better permeability is achieved. The following maintenance activities are suggested as a minimum:

Activity	Schedule
Water Plants	As necessary during first growing season
Prune and weed plants for appearance	As needed
Inspect & replace poorly suited or diseased plants	As needed
Check for erosion or deposition in pretreatment areas; Clean out and repair damaged areas	Semi–annually
Inspect facility for salt damages	Monthly
Remove litter and debris	Monthly
Add additional mulch	Annually
Test soil and adjust as necessary to maintain in 5.2–7.0 pH range	Biannually
Check planting soil and filter layer for clogging, replacing portions necessary	2–10 years



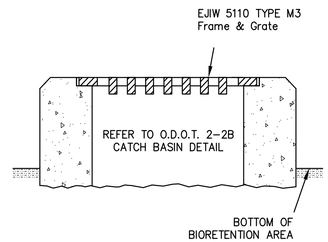
1 BIORETENTION BASIN ENLARGEMENT
1" = 10'

1 LIMITS OF BIORETENTION SOIL AREA, SEE THIS SHEET FOR DETAILS
2 PONDING LIMITS
3 UNDERDRAIN
4 OUTLET STRUCTURE
5 CLEANOUT, CUT SLIGHTLY ABOVE GROUND LEVEL
6 STONE RIP RAP AT FLOW PATH (REFER TO LANDSCAPE ARCHITECTURAL PLANS)



SIDE VIEW CROSS–SECTION
(NOT TO SCALE)
*SEE PLAN VIEW FOR ADDITIONAL INFORMATION

Note:
1. Water tight seals must be provided between all stacked, pre–cast riser sections necessary to construct the bioretention cell outlet structure to guard against leaks that would otherwise allow SCMs to dewater more quickly than what is designed for.
2. All pipe penetrations shall be water tight.



OUTLET STRUCTURE ENLARGEMENT
(1" = 1'–0")

SCALE
1 INCH = 20 FEET
22 x 34
SHEETS ONLY

SWPPP - BIORETENTION BASIN DETAILS

COZAD-BATES HOUSE - INTERPRETIVE CENTER
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neffassoc.com

REV NO	DATE	DESCRIPTION
	02/04/20	FOR PERMIT
3	01/02/20	WPC COMMENTS
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	YO	BMU	14253

SHEET NO.
C2.1A

N:\LAND DEVELOPMENT\Proj\14253 Cozad-Bates E 115th CLE\dwg\14253-C GI GRANT.dwg, 3/4/2020 2:29:23 PM, buhlen

General Information

Drainage area to permeable pavers	10,500 sf
Concrete draining to permeable pavers	4,275 sf
Permeable paver area	3,640 sf
Paver to concrete ratio	1.17:1
Storage depth	10"
Porosity coefficient	0.40

Water Quality Volume

WQ_v required = R_v*P*A/12
WQ_v required = Water Quality Volume in Acre-Feet
R_v = 0.05+0.9i Volumetric Runoff Coefficient
i = 6,125/10,500 = 0.583 fraction of post construction impervious surface
R_v = 0.575 Runoff Coefficient
P = 0.90 Inch Precipitation Depth
A = 0.24 Ac.
WQ_v required = (0.575)*0.90*(0.24)/12 Acre-Feet
Total WQ_v Storage Required = 0.010 Acre-Feet = 450 Cubic Feet
20% Storage Increase = 450 Cubic Feet x 1.20 = 541 Cubic Feet

WQ_v Provided = 3640 ft²*0.83(10")*0.4 = 1,213 Cubic Feet

Determine Drawdown Time

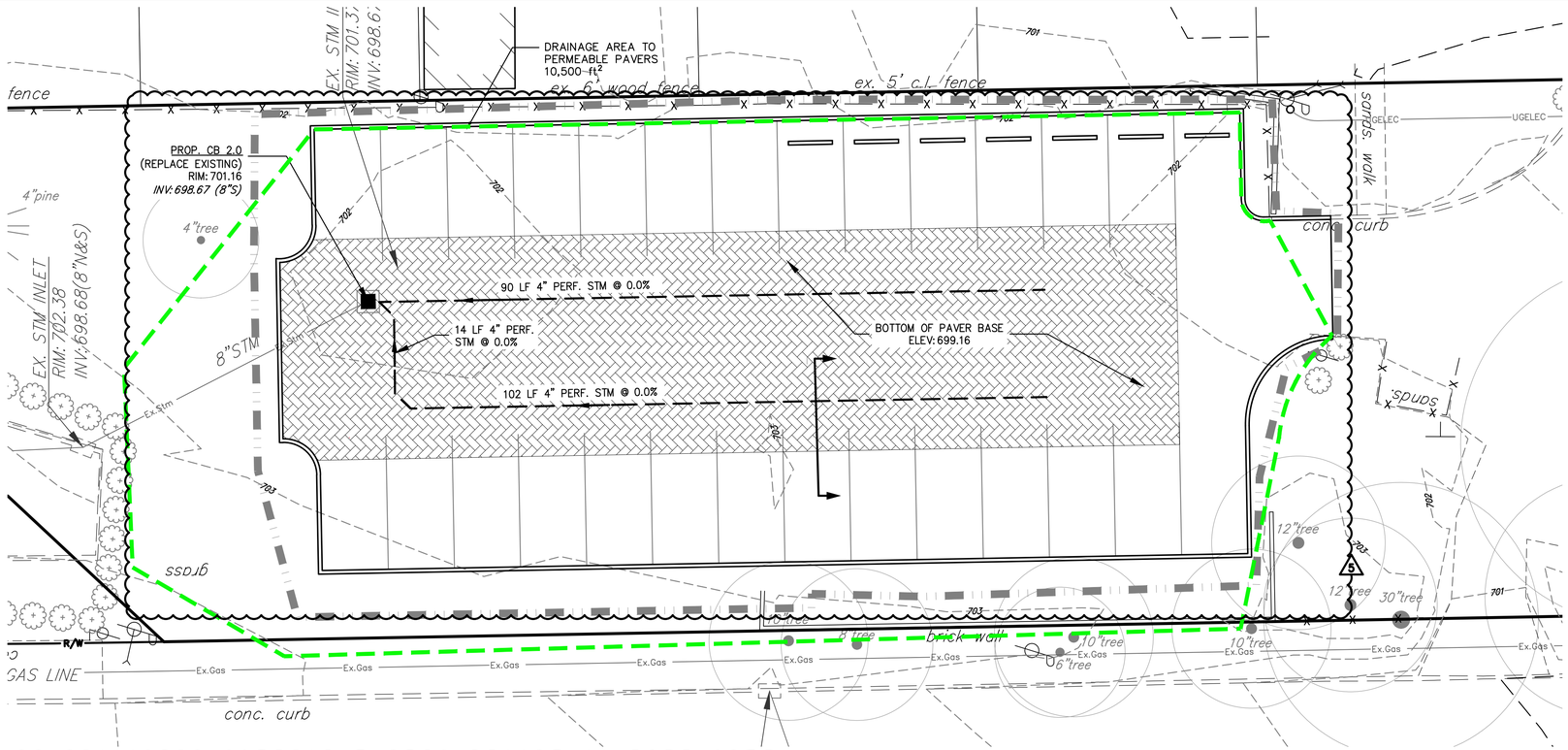
$T_d = WQ_v/(f)(A_{inf})(P_{aggregate})$

T_d = drawdown time (T)
WQ_v = Water quality volume (L^3)
f = Infiltration rate of subgrade soil (L/T)
A_{inf} = area of infiltration bed (L^2)
$P_{aggregate}$ = porosity of aggregate base

f_{design}=0.40 0.50(0.40) = 0.20 in/hr

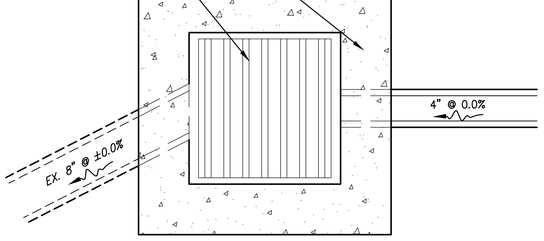
T_d = 0.12ac-in/(0.083 ac)(0.20) =7.2 hr
T_d = 8 hr < 48 hr

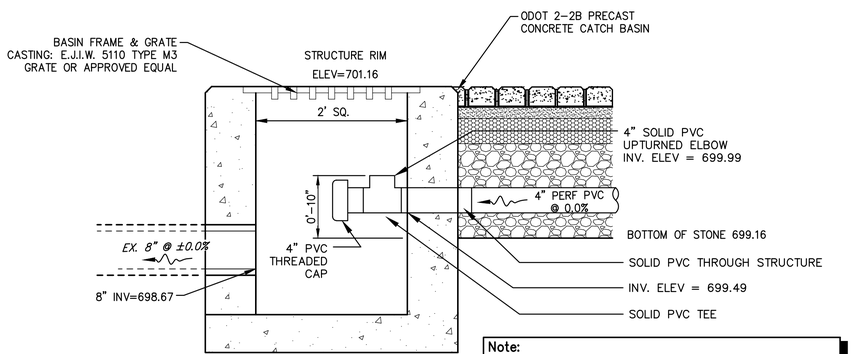
5



1 PERMEABLE PAVEMENT AND INFILTRATION ENLARGEMENT (SOUTH PARKING LOT)
1" = 10'

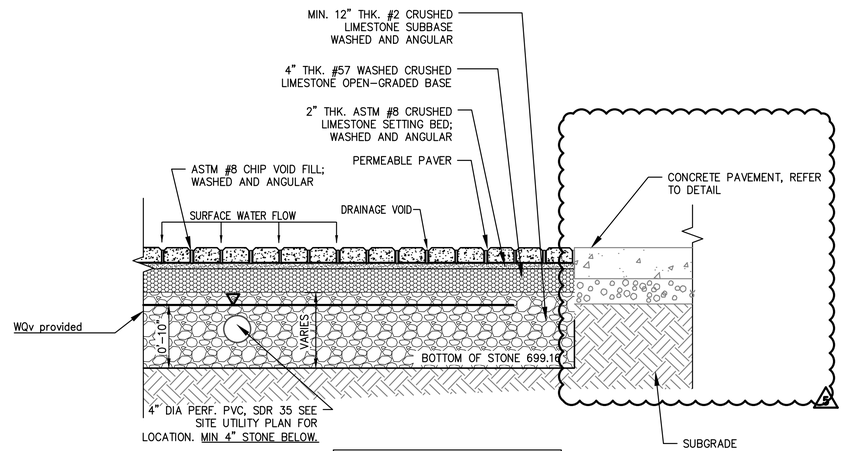
5





Note:
1. Water tight seals must be provided between all stacked, pre-cast riser sections necessary to construct the bioretention cell outlet structure to guard against leaks that would otherwise allow SCMs to dewater more quickly than what is designed for.
2. All pipe penetrations shall be water tight.

1 OUTLET STRUCTURE DETAIL (CB 2.0)
NOT TO SCALE



NOTE:
* SEE SHEET C4.0 & ABOVE FOR LOCATION OF UNDERDRAINS, AND TIE IN POINTS.

CONCRETE PAVER SPECIFICATION:

COMPANY: UNILOCK
SERIES: ECO-OPTILOC
COLOR: PER OWNER
FINISH: PER OWNER
PATTERN: PATTERN A

OR OWNER APPROVED SIMILAR

3 PERMEABLE PAVER SECTION (SECTION A-A)
NOT TO SCALE

20 10 5 0
SCALE
1 INCH = 10 FEET
22 x 34
SHEETS ONLY

COZAD-BATES HOUSE - INTERPRETIVE CENTER
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

SWPPP - PERMEABLE PAVER DETAILS

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neffassoc.com

SHEET NO.
C2.1B

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	YO	BMU	14253

N:\LAND DEVELOPMENT\Proj\14253 Cozad-Bates II 1199 CLE\dwg\14253-C-GI GRANT.dwg, 4/17/2020 10:00:24 AM, bulten

STORM WATER MANAGEMENT AND SEDIMENT POLLUTION RATIONAL

1. **The site disturbance is less than one acre (0.48 acres).**
2. **Standard post construction BMPS would not be necessary for this site. the Ohio EPA General Permit OH000005 excludes sites less than an acre under part I.b.1.**
3. **The proposed site improvements will not exceed one-half acre (0.50) of land disturbance and therefore will not be subject to Northeast Ohio Regional Sewer District (NEORSD) Title IV requirements. As a result, a GIG grant has been awarded for items that exceed Title IV compliance requirements. These Post Construction BMPS are summarized below.**
4. **Although the current general permit does not require BMPS or a Notice of Intent (NOI) for a site of this size, an abbreviated Stormwater Pollution Prevention Plan has been created as good site operation and maintenance practices during and after construction. this includes sediment barriers, timing requirements, storm sewer inlet protection, establishment of permanent vegetation, and control of materials and debris.**

Post Construction BMP Summary

Bioretention Basin
Three separate green infrastructure practices have been incorporated into the site redevelopment design. The first practice is a bioretention basin that will be situated along the interpretive walkway where it will be readily accessible by visitors to the interpretive center and the general public. All of the stormwater runoff from the existing building's roof will be rerouted to the bioretention basin for water quality treatment. An overflow structure will permit rainfall events that exceed the water quality volume to be bypassed into the existing public combined sewers. An upturn elbow will be incorporated into the design to allow for potential additional infiltration. Planting materials will include species adapted to the region that are pollutant tolerant and able to survive variable moisture conditions.

Porous Pavement
The second proposed green infrastructure practice is porous pavement. A variety of porous pavement types will be utilized throughout the site for both pedestrian and vehicular areas. The proposed parking lot expansion will be constructed using a heavy duty permeable paver system. Permeable pavers will be installed over an open-graded stone base that is installed with a level bottom to promote infiltration into the undisturbed sandy soils below. The naturally existing soils in this area have exhibited infiltration rates ranging from 4 inches per hour to over 20 inches per hour on nearby sites and are well-suited for infiltration practices.

Infiltration
To further take advantage of the existing soil conditions, the runoff from the existing parking lot will be redirected to an ADS stormwater chamber system wrapped in fabric (isolator row) to promote additional infiltration. Runoff from the existing parking lot will be intercepted through the installation of an ADA compliant vehicular trench drain. The runoff will then be routed through the filter wrapped chamber system which will pre-treat the runoff and remove debris and sediment that could clog the underlying permeable soils. Finally, the runoff will be dispersed into the open-graded aggregate base for infiltration into the underlying soils.

SEDIMENT AND EROSION CONTROLS

Non-Structural Preservation Methods

Practices shall be used which preserve the existing natural condition as much as possible. Such practices may include: preserving riparian areas adjacent to surface waters of the State, preserving existing vegetation and vegetative buffer strips, phasing construction operations in order to minimize the amount of disturbed land at any one time, and designation of tree preservation areas or other protective clearing or grubbing practices. The recommended buffer that operators should leave undisturbed along a surface water of the State is 25 feet as measured from the ordinary high water mark of the surface water.

Erosion Control Practices

All disturbed areas of the site shall be protected by stabilization practices. Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing of construction operations, use of construction entrances, and the use of alternative ground cover.

Permanent Stabilization

The timing specifications for the permanent seed can be found in the table below. The permanent seed shall be applied as per the permanent seeding specifications. Note that 70% vegetative density is required on all disturbed soil areas for stabilization.

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Runoff Control Practices

Measures shall be implemented which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may includes: rock check dams, pipe slope drains, diversions to direct flow away from exposed soils, and protective grading practices. These practices shall divert runoff away from disturbed areas and steep slopes where practicable. Velocity dissipation devices shall be placed at discharge locations along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected.

Sediment Control Practices

Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days, which store runoff allowing sediments to settle and/or divert flows away from exposed soils or otherwise limit runoff from exposed areas. Such practices may include, among others: sediment settling ponds, silt fences, earth diversion dikes or channels which direct runoff to a sediment settling pond, and storm drain inlet protection. All sediment control practices must be capable of ponding runoff in order to be considered functional. Earth diversion dikes or channels alone are not considered a sediment control practice unless those are used in conjunction with a sediment settling pond.

Timing

Sediment control structures shall be functional throughout the course of earth disturbing activity. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing. They shall continue to function until the up slope development area is restabilized. As construction progresses and the topography is altered, appropriate controls must be constructed or existing controls altered to address the changing drainage patterns.

Inlet Protection

Inlet protection shall be used to minimized sediment laden water entering the active storm sewer system.

Surface Waters of the State Protection

If construction activities disturb areas adjacent to surface waters of the State, structural practices shall be implemented on site to protect all adjacent surface waters of the State from the impacts of sediment runoff. No structural sediment controls (e.g., the installation of silt fence or a sediment settling sediment pond) shall be used in a surface water of the State. For all construction activities immediately adjacent to surface waters of the State, it is recommended that a setback of at least 25-feet, as measured from the ordinary high water mark of the surface water, be maintained in its natural state as a permanent buffer.

OTHER CONTROLS

Non-Sediment Pollutant Controls

Non-sediment pollutant sources, which may be present on a construction site, include paving operations, concrete washout, structure painting, structure cleaning, demolition debris disposal, drilling and blasting operations, material storage, slag, solid waste, hazardous waste, contaminated soils, sanitary and septic wastes, vehicle fueling and maintenance activities, and landscaping operations.

Handling of Toxic or Hazardous Materials

All hazardous and toxic waste materials will be disposed of in the manner specified by Local or State regulation or by the manufacturer. The individual who manages the day-to-day site operations will be responsible for seeing that these practices are followed. No toxic or hazardous wastes shall be disposed into storm drains, septic tanks, or by burying, burning, or mixing the wastes.

Waste Disposal

Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill. No construction related waste materials are to be buried on-site. By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.

Sanitary Waste Disposal

All sanitary waste will be collected from the portable units as necessary by a licensed sanitary waste management contractor, as required by local regulation.

Clean Hard Fill

All bricks, hardened concrete, and soil waste must be free from contamination which may leach constituents to waters of the State. Any clean construction wastes that will be disposed into the property must meet all Local, City, and State regulations.

Construction and Demolition Debris

All construction and demolition debris waist will be disposed of in an Ohio EPA approved construction and demolition debris landfill as required by Ohio Revised Code 3714.

Off-Site Vehicle Tracking

Off-site vehicle tracking sediment shall be minimized. Construction vehicles are limited to the construction access roads noted on the plan. A stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. All paved streets adjacent to the site will be swept as necessary to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

Open Burning

The contractor shall only perform on-site open burning as a means of waste disposal as allowed per Local, State, and Federal regulations.

Dust Control

Construction traffic must enter and exit the site at the stabilized construction entrance(s). Water trucks will be used as needed during construction to reduce dust generation. Dust control must be provided to a degree that is acceptable and in compliance with applicable local and state dust control regulations. After construction, the site will be stabilized (as described elsewhere in this plan), which will reduce the potential for dust generation.

Product Specific Practices

The following product specific practices will be followed onsite:

Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. All contaminated soils must be treated and/or disposed in Ohio EPA approved solid waste management facilities or hazardous waste treatment, storage or disposal facilities.

Paints

The site superintendent responsible for the day-to-day site operations, will be the spill prevention and cleanup coordinator.

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and Local regulations.

Concrete Trucks

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site. A concrete wash-out pit shall be by the contractor in order to control concrete wash water.

Additional Construction Site Pollution Controls (PC)

Description

Although sediment is the primary pollutant of concern resulting from construction activity, other pollutants need to be considered as well. These include petrochemicals: fuel, oil, and asphalt; and construction chemicals and materials: paints, solvents, fertilizer, soil additives, concrete wash water, etc. Also included are solid wastes and construction debris. Keeping these substances from polluting runoff can be accomplished to a large extent through good housekeeping and following the manufacturer's recommendations for their use and disposal.

Specifications for Additional Construction Site Pollution Controls

1. Construction personnel, including subcontractors who may use or handle hazardous or toxic materials, shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:
   - Prevent spills
   - Use products up
   - Follow label directions for disposal
   - Remove lids from empty bottles and cans when disposing in trash
   - Recycle wastes whenever possible
   - Don't pour into waterways, storm drains or onto the ground
   - Don't pour down the sink, floor drain or septic tanks
   - Don't bury chemicals or containers
   - Don't burn chemicals or containers
   - Don't mix chemicals together
2. Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site. Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.
3. No construction related waste materials are to be buried on-site. By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.
4. Handling Construction Chemicals. Mixing, pumping, transferring or other handling of construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any watercourse, ditch or storm drain.
5. Equipment Fueling and Maintenance, oil changing, etc., shall be performed away from watercourses, ditches or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.
6. Concrete Wash Water shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged. For small projects, truck chutes may be rinsed away from any water conveyances.
7. Spill Reporting Requirements: Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.
8. Contaminated Soils. If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water run off associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.
9. Open Burning. No materials containing rubber, grease, asphalt, or petroleum products, such as tires, autoparts, plastics or plastic coated wire may be burned (OAC 3745-19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of to 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbeques. Outside of restricted areas, open burning is permissible for landscape or land-clearing wastes (plant material, with prior written permission from Ohio EPA), and agricultural wastes, excluding buildings.
10. Dust Control or dust suppressants shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.
11. Other Air Permitting Requirements: Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.
12. Process Waste Water/Leachate Management. Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on-site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.
13. A Permit To Install (PTI) is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

COZAD-BATES HOUSE - INTERPRETIVE CENTER

SWPPP - SPECIFICATIONS

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neffassoc.com

SHEET NO.
C2.2

REV NO	DATE	DESCRIPTION
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

Permanent Seeding (PS)

Description

Perennial vegetation is established on areas that will not be re-disturbed for periods longer than 12 months. Permanent seeding includes site preparation, seedbed preparation, planting seed, mulching, irrigation and maintenance.

Permanent vegetation is used to stabilize soil, reduce erosion, prevent sediment pollution, reduce runoff by promoting infiltration, and provide storm water quality benefits offered by dense grass cover.

Specifications for Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime – Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer – Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":
   - From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
   - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
   - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
   - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials:
   - Straw – If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
   - Hydroseeders – If wood cellulose fiber is used, it shall be applied at 2000 lb./ac. or 46 lb./1,000 sq.-ft.
   - Other – Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
3. Straw and Mulch Anchoring Methods:
   Straw mulch shall be anchored immediately to minimize loss by wind or water.
   - Mechanical – A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
   - Mulch Netting – Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
   - Asphalt Emulsion – Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.
   - Synthetic Binders – Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
   - Wood Cellulose Fiber – Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

Seed Mix	Seeding Rate		Notes:
	Lbs./Acre	Lbs./1,000 Sq. Feet	
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch Tall Fescue	10-20 20-30	1/4-1/2 1/2-3/4	Do not seed later than August
Flat Pea Tall Fescue	20-25 20-30	1/2-3/4 1/2-3/4	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100-200	2 2	
Kentucky Bluegrass Creeping Red Fescue	100-200	2 1-1/2	For shaded areas

Note: Other approved species may be substituted.

Temporary Seeding (TS)

Description

Temporary seedings establish temporary cover on disturbed areas by planting appropriate rapidly growing annual grasses or small grains. Temporary seeding provides erosion control on areas in between construction operations. Grasses, which are quick growing, are seeded and usually mulched to provide prompt, temporary soil stabilization. It effectively minimizes the area of a construction site prone to erosion and should be used everywhere the sequence of construction operations allows vegetation to be established.

Specifications for Temporary Seeding

Temporary Seeding Species Selection			
Seeding Dates	**Species**	**Lb./1000 ft2**	**Lb./Acre**
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (4 Bushel) 40 40
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	55 142 17 17
	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (3 Bushel) 40 40
August 16th to November	Rye Tall Fescue Annual Ryegrass	3 1 1	112 (2 Bushel) 40 40
	Wheat Tall Fescue Annual Ryegrass	3 1 1	120 (2 Bushel) 40 40
	Perennial Rye Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	40 40 40
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 14 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments – Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method – Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

1. Applications of temporary sedding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.
2. Materials:
   - Straw – If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons/acre or 90 lbs./1,000 sq.-ft. (2-3 bales)
   - Hydroseeders – If wood cellulose fiber is used, it shall be used at 2,000 lbs./ac. or 46 lb./1,000 sq.-ft.
   - Other – Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ac.
3. Straw mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
   - Mechanical – A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
   - Mulch Netting – Netting shall be used according to manufacturer's recommendations. Netting may be necessary to hold mulching place in areas of concentrated runoff and on critical slopes.
   - Synthetic Binders – Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Track or equivalent may be used at rates recommended by the manufacturer.
   - Wood-Cellulose Fiber – Wood -cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal.

Dust Control (DC)

Description

Dust control involves preventing or reducing dust from exposed soils and other surfaces during land disturbing, demolition and construction activities to reduce the presence of airborne substances which may present health hazards, traffic safety problems or harm animal or plant life.

Specifications for Dust Control

1. Vegetative cover and/mulch – Apply temporary or permanent seeding and mulch to areas that will remain idle for over 21 days. Saving existing trees and large shrubs will also reduce soil and air movement across disturbed areas. See Temporary Seeding; Permanent Seeding; Mulching Practices; and Tree and Natural Area Protection practices.
2. Watering – Spray site with water until the surface is wet before and during grading and repeat as needed, especially on haul roads and other heavy traffic routes. Watering shall be done at a rate that prevents dust but does not cause soil erosion. Wetting agents shall be utilized according to manufacture's instructions.
3. Spray-On Adhesives – Apply adhesives according to the following table or manufacture's instructions.

Adhesive	Water Dilution (Adhesive: Water)	Nozzle Type	Application Rate Gal./Ac.
Latex Emulsion	12.5:1	Fine	235
Resin in Water Acrylic Emulsion (No-Traffic)	4:1	Fine	300
Acrylic Emulsion (No-Traffic)	7:1	Coarse	450
Acrylic Emulsion (Traffic)	3.5:1	Coarse	350

4. Stone – Graded roadways and other suitable areas will be stabilized using crushed stone or coarse gravel as soon as practicable after reaching an interim or final grade. Crushed stone or coarse gravel can be used as a permanent cover to provide control of soil emissions.
5. Barriers – Existing windbreak vegetation shall be marked and preserved. Snow fencing or other suitable barrier may be placed perpendicular to prevailing air currents at intervals of about 15 times the barrier height to control air currents and blowing soil.
6. Calcium Chloride – This chemical may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage. Application rates should be strictly in accordance with supplier's specified rates.
7. Operation and Maintenance – When Temporary Dust Control measures are used; repetitive treatment should be applied as needed to accomplish control.
8. Street Cleaning – Paved areas that have accumulated sediment from construction should be cleaned daily, or as needed, utilizing a street sweeper or bucket-type endloader or scraper.

COZAD-BATES HOUSE - INTERPRETIVE CENTER

SWPPP-DETAILS

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel 440.884.3100 | Fax 440.884.3104
www.neffassoc.com

REV NO	DATE	DESCRIPTION
	02/04/20	FOR PERMIT
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	YO	BMU	14253

SHEET NO.
C2.3

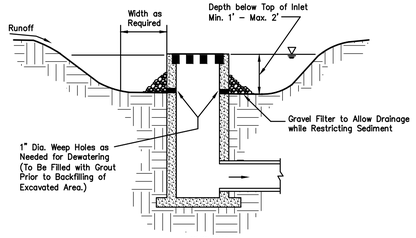
Storm Drain Inlet Protection (IP)

Description

Storm drain inlet protection devices remove sediment from storm water before it enters storm sewers and downstream areas. Inlet protection devices are sediment barriers that may be constructed of washed gravel or crushed stone, geotextile fabrics and other materials that are supported around or across storm drain inlets.

Inlet protection is installed to capture some sediment and reduce the maintenance of storm sewers and other underground piping systems prior to the site being stabilized. Due to their poorer effectiveness, inlet protection is considered a secondary sediment control to be used in conjunction with other more effective controls.

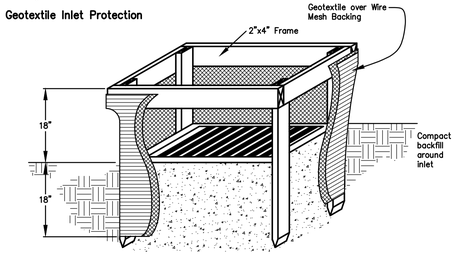
Specifications for Excavated Drop Inlet Sediment Protection



SECTION

1. The excavated trap should sized to proved a minimum storage capacity calculated at the rate of 135 cubic yards for one (1) acre of drainage area. A trap should be no more than one (1) foot, nor more than two (2) feet deep measured from the top of the inlet structure. Side slopes should not be steeper than 2:1.
2. The slopes of the trap may vary to fit the drainage are and terrain.
3. Where the area receives concentrated flows, such as in the highway median, provide the trap with a shape having a 2:1 ratio of length to width, with the length oriented in the direction of flow.
4. Sediment should be removed and the trap restored to the original depth when the sediment has accumulated to 40% the design depth of the trap. Removed sediment should be spread in a suitable area and stabilized so it will not erode.
5. During final grading, the inlet should be protected with geotextile–stone inlet protection. Once final grading is achieved, sod or a suitable temporary erosion control material shall be implemented to protect the area until permanent vegetation is established.

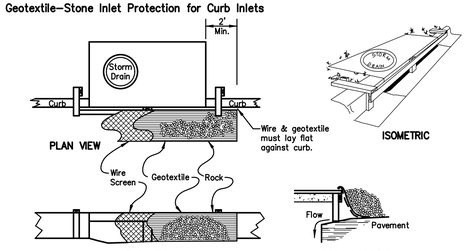
Specifications for Geotextile Inlet Protection



SECTION

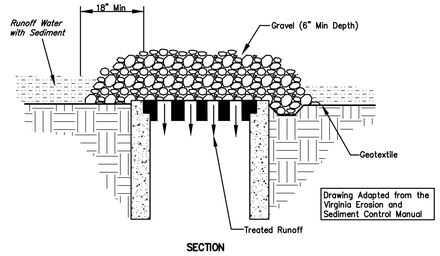
1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. The earth around the inlet shall be excavated completely to a depth at least 18 inches.
3. The wooden frame shall be constructed of 2–inch by 4–inch construction–grade lumber. The 2 inch by 4–inch posts shall be driven one (1) f.t into the ground at four corners of the inlet and the top portion of 2–inch by 4–inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
5. Geotextile material shall have an equivalent opening size of 20–40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.
6. Backfill shall be placed around the inlet in compacted 6 inch layers until the earth is even with notch elevation on ends and top elevation on sides.
7. A compacted earth dike or a check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

Specifications for Geotextile–Stone Inlet Protection for Curb Inlets



1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. Construct a wooden frame of 2–by–4–in. construction–grade lumber. The end spacers shall be a minimum of 1 ft. beyond both ends of the throat opening. The anchors shall be nailed to 2–by–4–in. stakes driven on the opposite side of the curb.
3. The wire mesh shall be of sufficient strength to support fabric and stone. It shall be a continuous piece with a minimum width of 30 in. and 4 ft. longer than the throat length of the inlet, 2 ft. on each side.
4. Geotextile cloth shall have an equivalent opening size (EOS) of 20–40 sieve and be resistant to sunlight. It shall be at least the same size as the wire mesh.
5. The wire mesh and geotextile cloth shall be formed to the concrete gutter and against the face of the curb on both sides of the inlet and securely fastened to the 2–by–4–in. frame.
6. Two–inch stone shall be placed over the wire mesh and geotextile in such a manner as to prevent water from entering the inlet under or around the geotextile cloth.
7. This type of protection must be inspected frequently and stone and/or geotextile replaced when clogged with sediment.

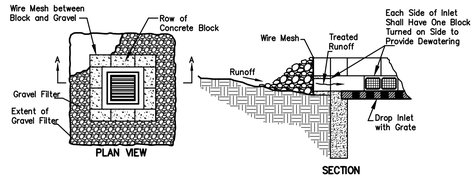
Specifications for Geotextile–Stone Inlet Protection



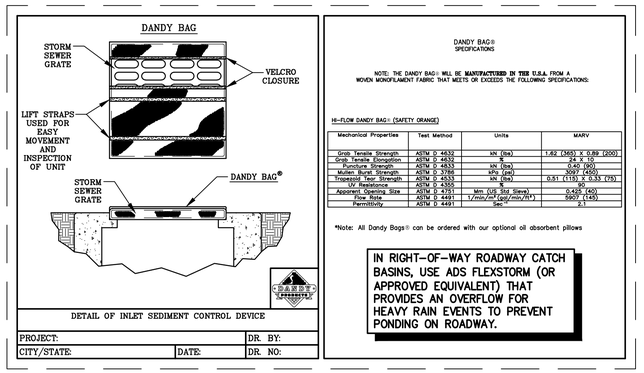
SECTION

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. Geotextile and/or wire material shall be placed over the top of the storm sewer and approximately six (6) inches of 2–inch or smaller clean aggregate placed on top. Extra support for geotextile is provided by placing hardware cloth or wire mesh across the inlet cover. The wire should be no larger than ½" mesh and should extend an extra 12 inches across the top and sides of the inlet cover.
3. Maintenance must be preformed regularly, especially after storm events. When clogging of the stone or geotextile occurs, the material must be removed and replaced.

Specifications for Block and Gravel Drop Inlet Filter



1. Place 4–inch by 8–inch by 12–inch concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, with the ends of adjacent blocks abutting. The height of the barrier can be varied, depending upon the design needs, by stacking combinations of the same size blocks. The barrier of blocks should be at least 12–inches high but no greater than 24–inches high.
2. Wire mesh should be placed over the outside vertical face (webbing) of the concrete blocks to prevent stone from being washed through the block cores. Hardware cloth or comparable wire mesh with ½–inch openings should be used.
3. Two–inch stone should be piled against the wire to the top of the block barrier, as shown above.
4. If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, pull stone away from the blocks, clean and/or replace.

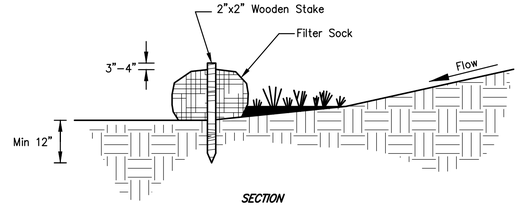


Filter Sock (FS)

Description

Filter socks are sediment–trapping devices using compost inserted into a flexible, permeable tube with a pneumatic blower device or equivalent. Filter socks trap sediment by filtering water passing through the berm and allowing water to pond, creating a settling of solids.

Specifications for Filter Sock



SECTION

1. Materials – Filter sock must be composted sock and 12" wide minimum. Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well–decomposed source of organic matter and consist of a particles ranging from ⅜" to 2".
2. Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE ⅜" knitted mesh netting material, filled with compost passing the above specifications for compost products.

Installation :

3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

Maintenance:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach ½ of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

Topsoiling (TP)

Description

Topsoiling occurs during grading operations as the upper most organic layer of soil is stripped and stockpiled from areas being graded and subsequently replaced on the newly graded areas. Topsoil provides a more suitable growing medium than subsoil or on areas with poor moisture, low nutrient levels, undesirable pH, or in the presence of other materials that would inhibit establishment of vegetation. Replacing topsoil helps plant growth by improving the water holding capacity and nutrient content and consistency of the soils.

Specifications for Topsoiling

Salvaging and Stockpiling

1. Determine the depth and suitability of topsoil at the site. (For help, contact your local SWCD office to obtain a county soil survey report).
2. Prior to stripping topsoil, install appropriate downslope erosion and sedimentation controls such as sediment traps and basins.
3. Remove the soil material no deeper than what the county soil survey describes as "surface soil" (ie. A or Ap horizon).
4. Construct stockpiles in accessible locations that do not interfere with natural drainage. Install appropriate sediment controls to trap sediment such as silt fence immediately adjacent to the stockpile or sediment traps or basins downstream of the stockpile. Stockpile side slopes shall not exceed a ratio of 2:1.
5. If topsoil is stored for more than 21 days, it should be temporary seeded, or covered with a tarp.

Spreading the Topsoil

1. Prior to applying topsoil, the topsoil should be pulverized.
2. To ensure bonding, grade the subsoil and roughen the top 3–4 in. by disking.
3. Do not apply when site is wet, muddy, or frozen, because it makes spreading difficult, causes compaction problems, and inhibits bonding with subsoil.
4. Apply topsoil evenly to a depth of at least 4 inches and compact slightly to improve contact with subsoil.
5. After spreading, grade and stabilize with seeding or appropriate vegetation.

COZAD-BATES HOUSE - INTERPRETIVE CENTER

SWPPP - DETAILS

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

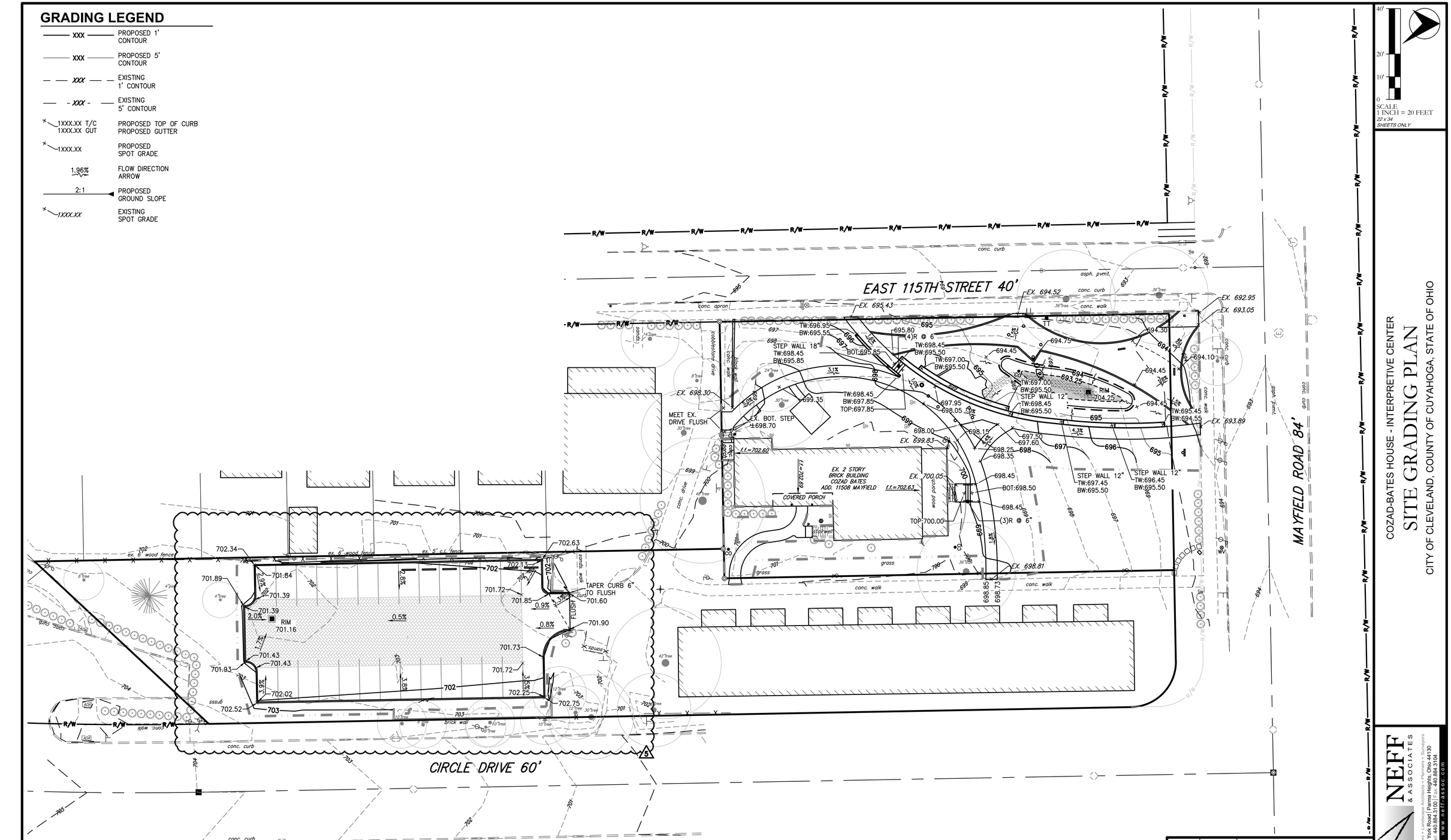
REV NO	DATE	DESCRIPTION
	02/04/20	FOR PERMIT
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	YO	BMU	14253

SHEET NO.
C2.4

GRADING LEGEND

XXX	PROPOSED 1' CONTOUR
XXX	PROPOSED 5' CONTOUR
XXX	EXISTING 1' CONTOUR
- XXX -	EXISTING 5' CONTOUR
1XXX.XX T/C 1XXX.XX GUT	PROPOSED TOP OF CURB PROPOSED GUTTER
1XXX.XX	PROPOSED SPOT GRADE
1.96%	FLOW DIRECTION ARROW
2:1	PROPOSED GROUND SLOPE
1XXX.XX	EXISTING SPOT GRADE



40'		
20'		
10'		
0		

SCALE
1 INCH = 20 FEET
22 x 34 SHEETS ONLY

COZAD-BATES HOUSE - INTERPRETIVE CENTER

SITE GRADING PLAN

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neffassoc.com

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
1	12/06/19	GRADING CLARIFICATION
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

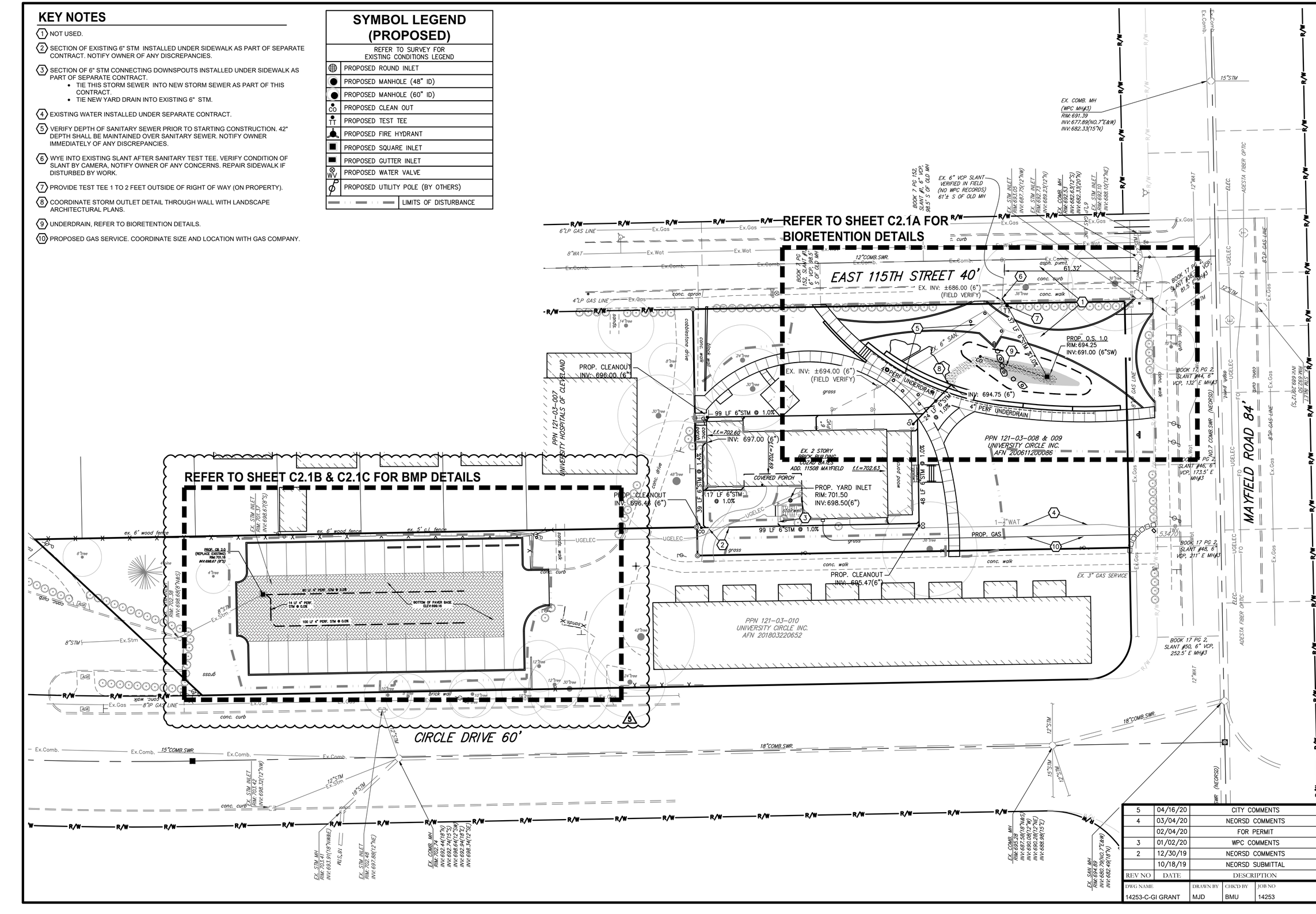
SHEET NO.
C3.0

KEY NOTES

1. NOT USED.
2. SECTION OF EXISTING 6" STM INSTALLED UNDER SIDEWALK AS PART OF SEPARATE CONTRACT. NOTIFY OWNER OF ANY DISCREPANCIES.
3. SECTION OF 6" STM CONNECTING DOWNSPOUTS INSTALLED UNDER SIDEWALK AS PART OF SEPARATE CONTRACT.
   - TIE THIS STORM SEWER INTO NEW STORM SEWER AS PART OF THIS CONTRACT.
   - TIE NEW YARD DRAIN INTO EXISTING 6" STM.
4. EXISTING WATER INSTALLED UNDER SEPARATE CONTRACT.
5. VERIFY DEPTH OF SANITARY SEWER PRIOR TO STARTING CONSTRUCTION. 42" DEPTH SHALL BE MAINTAINED OVER SANITARY SEWER. NOTIFY OWNER IMMEDIATELY OF ANY DISCREPANCIES.
6. WYE INTO EXISTING SLANT AFTER SANITARY TEST TEE. VERIFY CONDITION OF SLANT BY CAMERA, NOTIFY OWNER OF ANY CONCERNS. REPAIR SIDEWALK IF DISTURBED BY WORK.
7. PROVIDE TEST TEE 1 TO 2 FEET OUTSIDE OF RIGHT OF WAY (ON PROPERTY).
8. COORDINATE STORM OUTLET DETAIL THROUGH WALL WITH LANDSCAPE ARCHITECTURAL PLANS.
9. UNDERDRAIN, REFER TO BIORETENTION DETAILS.
10. PROPOSED GAS SERVICE. COORDINATE SIZE AND LOCATION WITH GAS COMPANY.

SYMBOL LEGEND (PROPOSED)

REFER TO SURVEY FOR EXISTING CONDITIONS LEGEND	
	PROPOSED ROUND INLET
	PROPOSED MANHOLE (48" ID)
	PROPOSED MANHOLE (60" ID)
CO	PROPOSED CLEAN OUT
TT	PROPOSED TEST TEE
	PROPOSED FIRE HYDRANT
	PROPOSED SQUARE INLET
	PROPOSED GUTTER INLET
WV	PROPOSED WATER VALVE
P	PROPOSED UTILITY POLE (BY OTHERS)
	LIMITS OF DISTURBANCE



SITE UTILITY PLAN

COZAD-BATES HOUSE - INTERPRETIVE CENTER

CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
3	01/02/20	WPC COMMENTS
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

SHEET NO.
C4.0

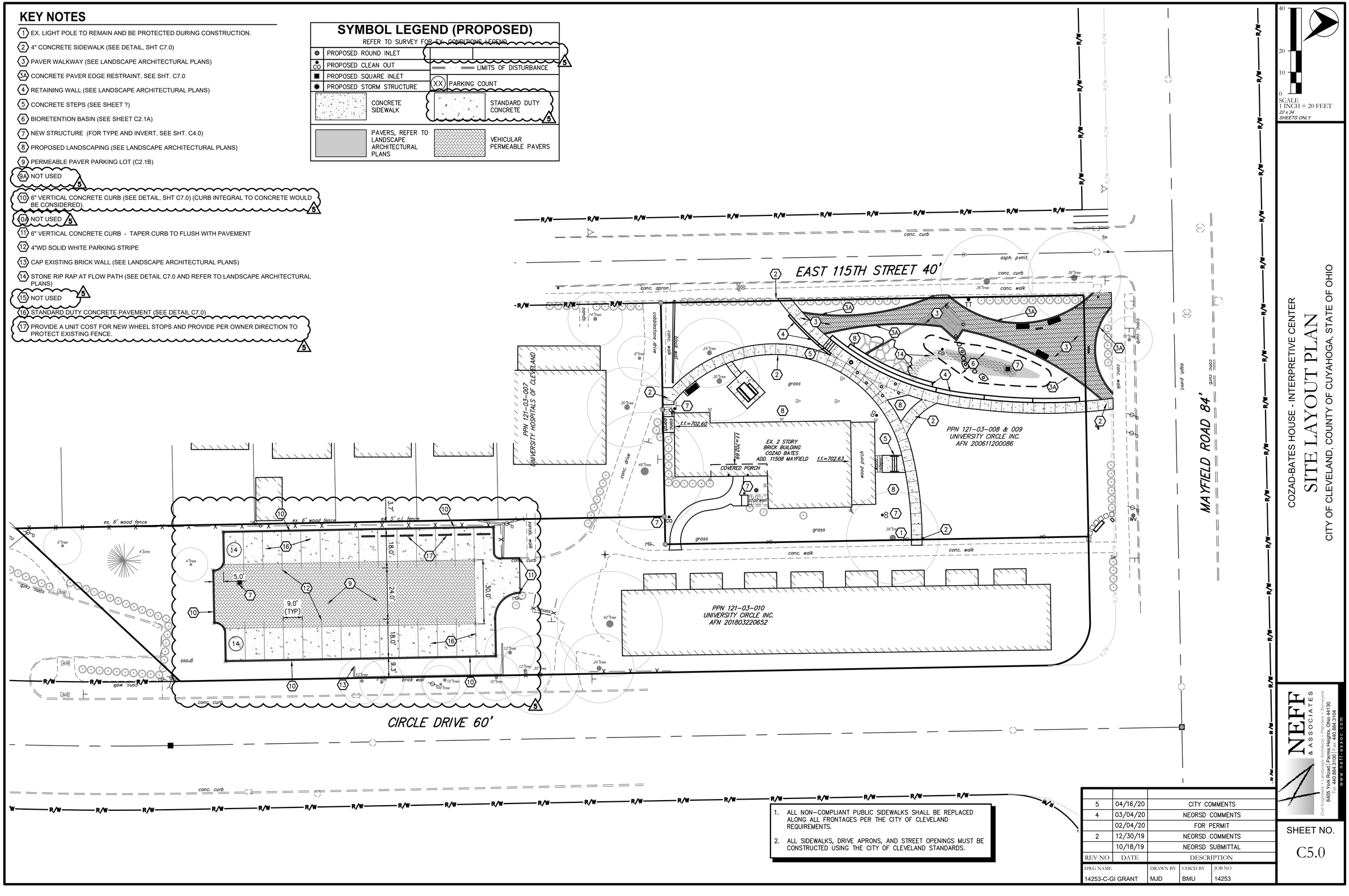
KEY NOTES

1. EX. LIGHT POLE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
2. 4" CONCRETE SIDEWALK (SEE DETAIL, SHT C7.0)
3. PAVER WALKWAY (SEE LANDSCAPE ARCHITECTURAL PLANS)
3A. CONCRETE PAVER EDGE RESTRAINT, SEE SHT. C7.0
4. RETAINING WALL (SEE LANDSCAPE ARCHITECTURAL PLANS)
5. CONCRETE STEPS (SEE SHEET ?)
6. BIORETENTION BASIN (SEE SHEET C2.1A)
7. NEW STRUCTURE (FOR TYPE AND INVERT, SEE SHT. C4.0)
8. PROPOSED LANDSCAPING (SEE LANDSCAPE ARCHITECTURAL PLANS)
9. PERMEABLE PAVER PARKING LOT (C2.1B)
9A. NOT USED 5
10. 6" VERTICAL CONCRETE CURB (SEE DETAIL, SHT C7.0) (CURB INTEGRAL TO CONCRETE WOULD BE CONSIDERED). 5
10A. NOT USED 5
11. 6" VERTICAL CONCRETE CURB - TAPER CURB TO FLUSH WITH PAVEMENT
12. 4"WD SOLID WHITE PARKING STRIPE
13. CAP EXISTING BRICK WALL (SEE LANDSCAPE ARCHITECTURAL PLANS)
14. STONE RIP RAP AT FLOW PATH (SEE DETAIL C7.0 AND REFER TO LANDSCAPE ARCHITECTURAL PLANS)
15. NOT USED 5
16. STANDARD DUTY CONCRETE PAVEMENT (SEE DETAIL C7.0)
17. PROVIDE A UNIT COST FOR NEW WHEEL STOPS AND PROVIDE PER OWNER DIRECTION TO PROTECT EXISTING FENCE. 5

SYMBOL LEGEND (PROPOSED)

REFER TO SURVEY FOR EX. CONDITIONS LEGEND

- PROPOSED ROUND INLET
- CO PROPOSED CLEAN OUT
- PROPOSED SQUARE INLET
- PROPOSED STORM STRUCTURE
- LIMITS OF DISTURBANCE 5
- XX PARKING COUNT
- CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE 5
- PAVERS, REFER TO LANDSCAPE ARCHITECTURAL PLANS
- VEHICULAR PERMEABLE PAVERS



1. ALL NON-COMPLIANT PUBLIC SIDEWALKS SHALL BE REPLACED ALONG ALL FRONTAGES PER THE CITY OF CLEVELAND REQUIREMENTS.
2. ALL SIDEWALKS, DRIVE APRONS, AND STREET OPENINGS MUST BE CONSTRUCTED USING THE CITY OF CLEVELAND STANDARDS.

REV NO	DATE	DESCRIPTION
5	04/16/20	CITY COMMENTS
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	NEORSD COMMENTS
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

SCALE
1 INCH = 20 FEET
22 x 34
SHEETS ONLY

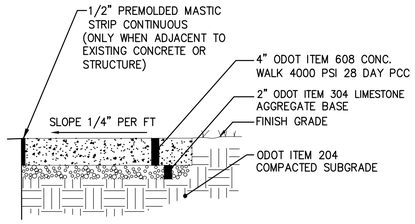
COZAD-BATES HOUSE - INTERPRETIVE CENTER

SITE LAYOUT PLAN

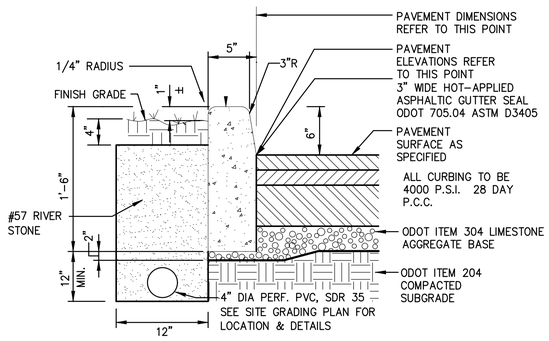
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | FAX: 440.884.3104
www.NeffAssoc.com

SHEET NO.
C5.0

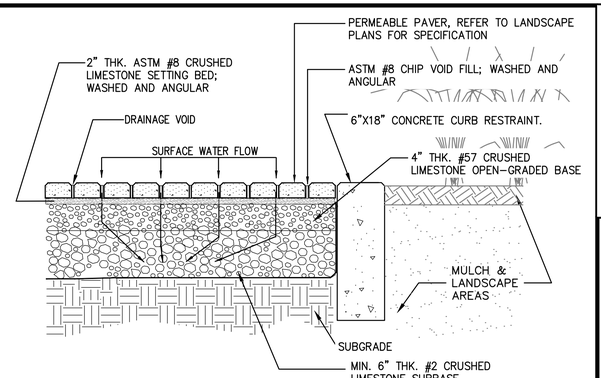


1 CONCRETE SIDEWALK
NOT TO SCALE

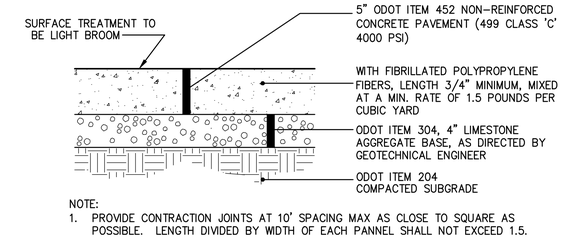


- PROVIDE SAWCUT CONTRACTION JOINTS AT 10' O.C.
- EXPANSION JOINTS 300' O.C., END OF DAYS POUR, AND AT STRUCTURES

2 6" VERTICAL CONCRETE CURB
NOT TO SCALE

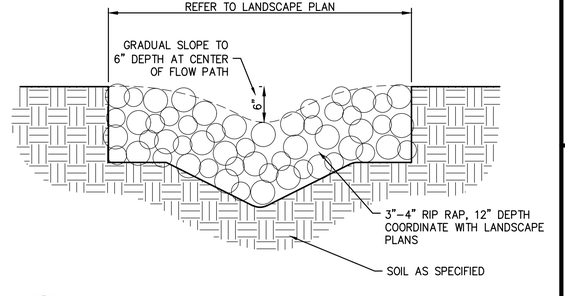


4 PERMEABLE CONCRETE PAVER (PEDESTRIAN)
NOT TO SCALE



NOTE:
1. PROVIDE CONTRACTION JOINTS AT 10' SPACING MAX AS CLOSE TO SQUARE AS POSSIBLE. LENGTH DIVIDED BY WIDTH OF EACH PANNEL SHALL NOT EXCEED 1.5.

5 STANDARD DUTY CONCRETE PAVEMENT
NOT TO SCALE



6 STONE RIP RAP AT FLOW PATH
NOT TO SCALE

REV NO	DATE	DESCRIPTION
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
2	12/30/19	REVISION #2
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CHK'D BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

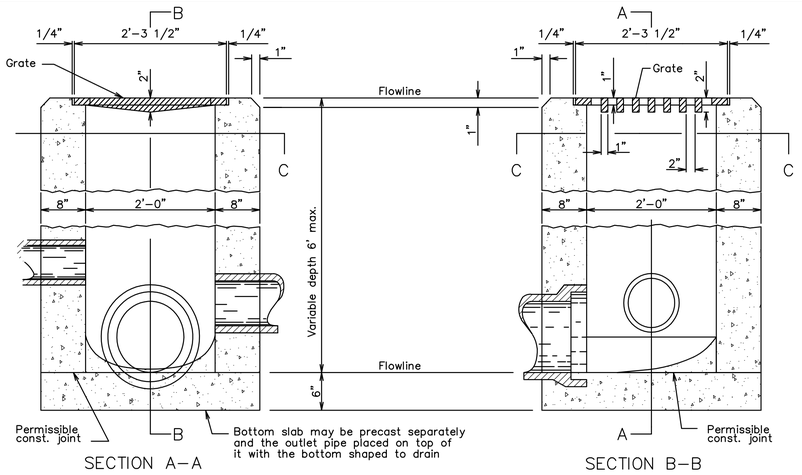
COZAD-BATES HOUSE - INTERPRETIVE CENTER

SITE DETAILS

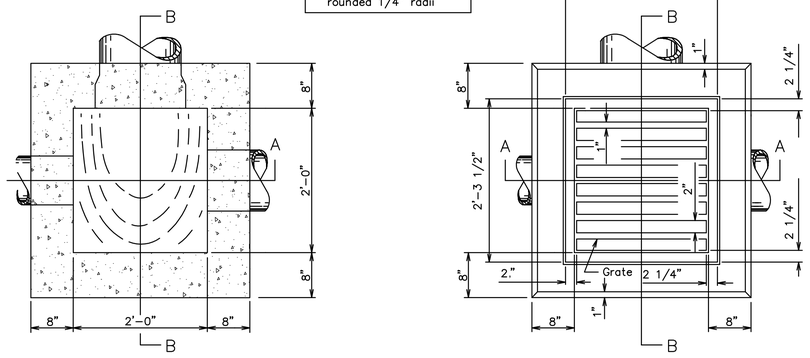
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

NEFF & ASSOCIATES
Civil Engineers + Landscape Architects + Planners + Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neff-assoc.com

SHEET NO.
C7.0



All grate edges to be rounded 1/4" radii



NOTES:

GRATE: The design shall be essentially the same and equally as strong as the one shown (see construction information table), or meet the requirements of CMS 711.14. Grate openings and dimensions shall not differ from those shown unless otherwise shown in the plans.

If necessary, bicycle safe grates shall be specified in the plans. Bicycle safe grates shall be Neenah No. R–4859–C or East Jordan No. 5110 Type M3 or approved equals.

The following text shall be cast into the top of the grate:

"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Text shall be printed in bold, capital letters with a minimum height of 1/2". "WATERWAY" may be substituted with "STREAM","RIVER","LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Brick or cast–in–place walls have a nominal thickness of 8". Precast walls shall have a minimum thickness of 6" and be reinforced sufficiently to permit shipping and handling without damage.

CONCRETE: Cast–in–place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 and be marked with the catch basin number.

PRECAST BASE: If a precast base is used, it shall be set deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation shall be at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth for CB No. 2–2B shall be the O.D. of the outlet pipe plus 4".

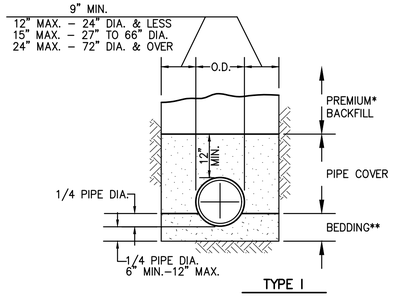
2–2B GRATE ELEVATION: Grate elevation is to be placed 4" to 6" below normal ditch returning to normal 10' to 15' each side of inlet.

OPENINGS: Pipe openings shall be the O.D. of the pipe being supplied plus 2" when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

PAYMENT: All materials and labor, including excavation and backfilling, shall be paid for under Item 604 – Catch Basin, No. 2–2B.

Structure to have watertight joints and seals

1 O.D.O.T. 2–2B CATCH BASIN (NO SUMP)
NOT TO SCALE



* NOTE:
PROVIDE PREMIUM BACKFILL TO SUBGRADE UNDER ALL PROPOSED AND EXISTING PAVED AREAS INCLUDING SIDEWALK. OR WHEN TRENCH IS WITHIN 45° ZONE OF INFLUENCE OF PROPOSED PAVED AREAS OR BUILDING FOUNDATIONS. NATIVE BACKFILL SHALL ONLY BE USED WHEN APPROVED IN WRITING BY THE OWNER, OWNER'S GEOTECHNICAL ENGINEER AND THE CITY ENGINEER.

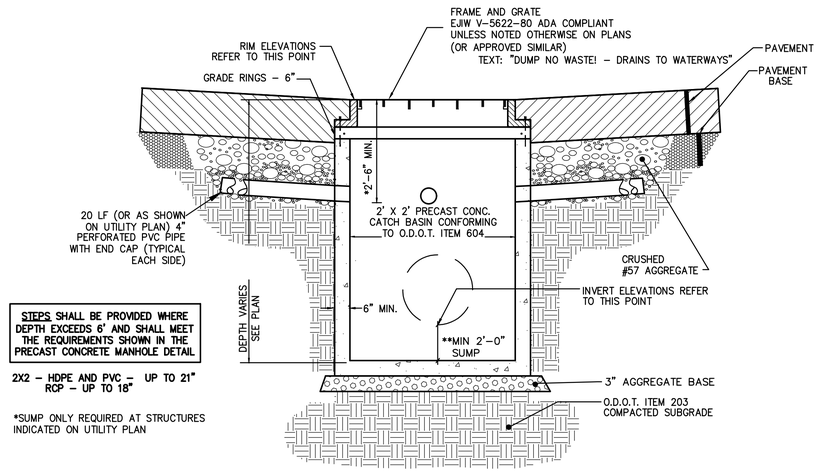
** NOTE:
LATERAL CONNECTIONS TO HAVE A MINIMUM BEDDING DEPTH OF 3" COARSE AGGREGATE.

BEDDING
ASTM D2321, BEDDING SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 FOR 60" OR SMALLER DIA. PIPE. FOR 66" DIA. PIPE OR LARGER No. 4 AGGREGATE MAY ALSO BE USED.

PREMIUM BACKFILL
PREMIUM BACKFILL SHALL CONSIST OF ODOT ITEM 304 LIMESTONE.

PIPE COVER
PIPE COVER SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE No. 6, 67, 68, 7, 78, OR 8 LIMESTONE.

3 TYPICAL TRENCH DETAILS
NOT TO SCALE

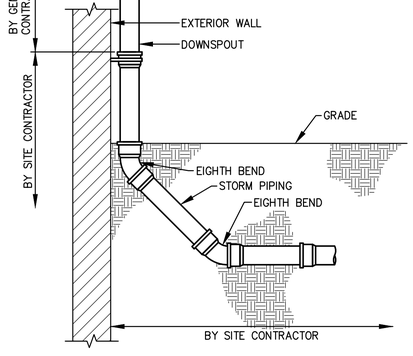


2x2 CATCH BASIN
NOT TO SCALE

PLAN DESIGNATION – CB

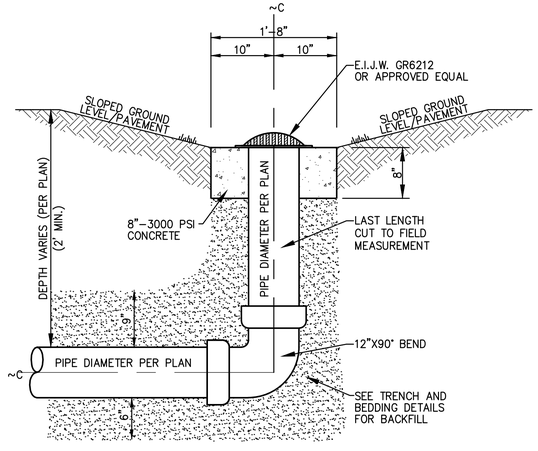
NOTE: 2'X2' STRICTURES CANNOT BE USED IF STEPS ARE REQUIRED. 3'X3' SHOULD BE USED INSTEAD.

2 PRECAST CATCH BASIN / INLET BASIN
NOT TO SCALE



GENERAL NOTES:
1. REFER TO PLANS FOR PIPE SIZES
2. SITE CONTRACTOR IS RESPONSIBLE TO CONNECT DOWNSPOUT DRAIN TO SITE STORM SEWER SYSTEM
3. CLEAN OUT TO MATCH DOWNSPOUT COLOR

4 DOWNSPOUT DETAIL
NOT TO SCALE



5 YARD INLET
NOT TO SCALE

REV NO	DATE	DESCRIPTION
4	03/04/20	NEORSD COMMENTS
	02/04/20	FOR PERMIT
	10/18/19	NEORSD SUBMITTAL

DWG NAME	DRAWN BY	CH'KD BY	JOB NO
14253-C-GI GRANT	MJD	BMU	14253

COZAD-BATES HOUSE - INTERPRETIVE CENTER
CITY OF CLEVELAND, COUNTY OF CUYAHOGA, STATE OF OHIO

SITE DETAILS

NEFF & ASSOCIATES
Civil Engineers • Landscape Architects • Planners • Surveyors
6405 York Road | Parma Heights, Ohio 44130
Tel: 440.884.3100 | Fax: 440.884.3104
www.neffassoc.com

SHEET NO.
C7.1