CITY OF CLEVELAND

DEPARTMENT OF PUBLIC UTILITIES

WATER POLLUTION CONTROL

WPC PAVEMENT AND DRAINAGE IMPROVEMENT PROJECT

PHASE II

FOR BID / PERMIT

FRANK G. JACKSON, MAYOR

RACHID ZOGHAIB

COMMISSIONER, WATER POLLUTION CONTROL

DRAWING INDEX

WORK LOCATION MAP

WATER POLLUTION CONTROL
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED PROFESSIONAL ENGINEER
Gregory D. Cifra, P.E.
05/24/17

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: PAVEMENT IMPROVEMENTS
TITLE SHEET, DRAWING INDEX AND LOCATION MAP

DRAWN BY: JDR	SCALE	G-001		SHEET 1 / 13
DESIGN BY: JDR				
CHECKED BY: GDC	DATE:	DWG NO:	RECORD NO:	

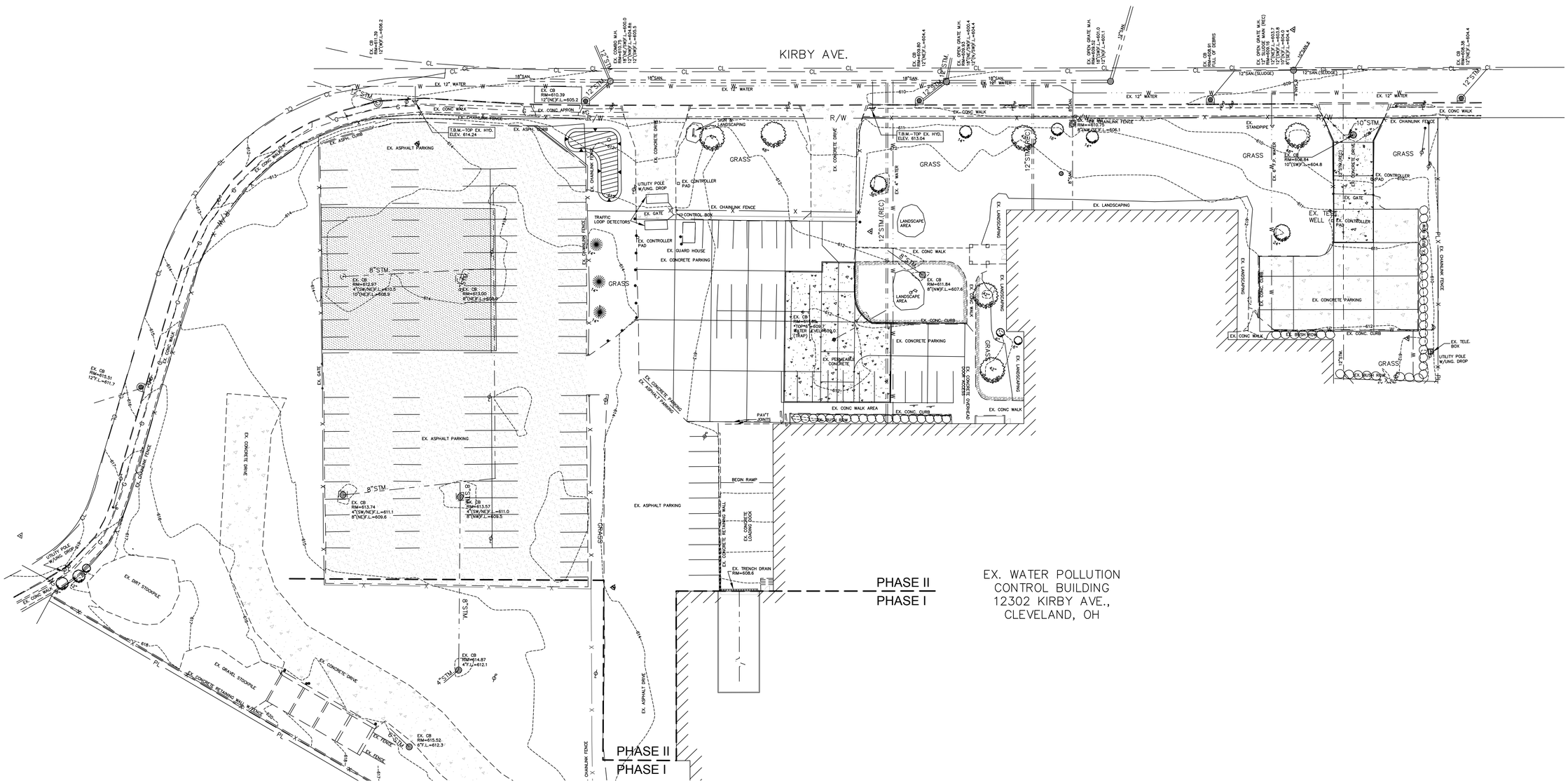
FILE ID:

FOR BID / PERMIT

NORTH

0 15 30 60

1" = 30'



GENERAL NOTES

1. EXISTING SURVEY PROVIDED BY CWD.
2. TWO HYDRANTS ALONG KIRBY AVENUE ARE SHOWN ON THE SURVEY AS BENCHMARKS; CONTRACTOR SHALL BACK CHECK BENCHMARKS WITH EACH OTHER ALONG WITH EXISTING SITE FEATURES SUCH AS MANHOLE CASTINGS.
3. CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IF THEY DISCOVER ANY DISCREPANCIES BETWEEN THE SURVEY AND THE DESIGN DRAWINGS WHICH ALTER ANY QUANTITIES OR THE DESIGN.

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED PROFESSIONAL ENGINEER
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

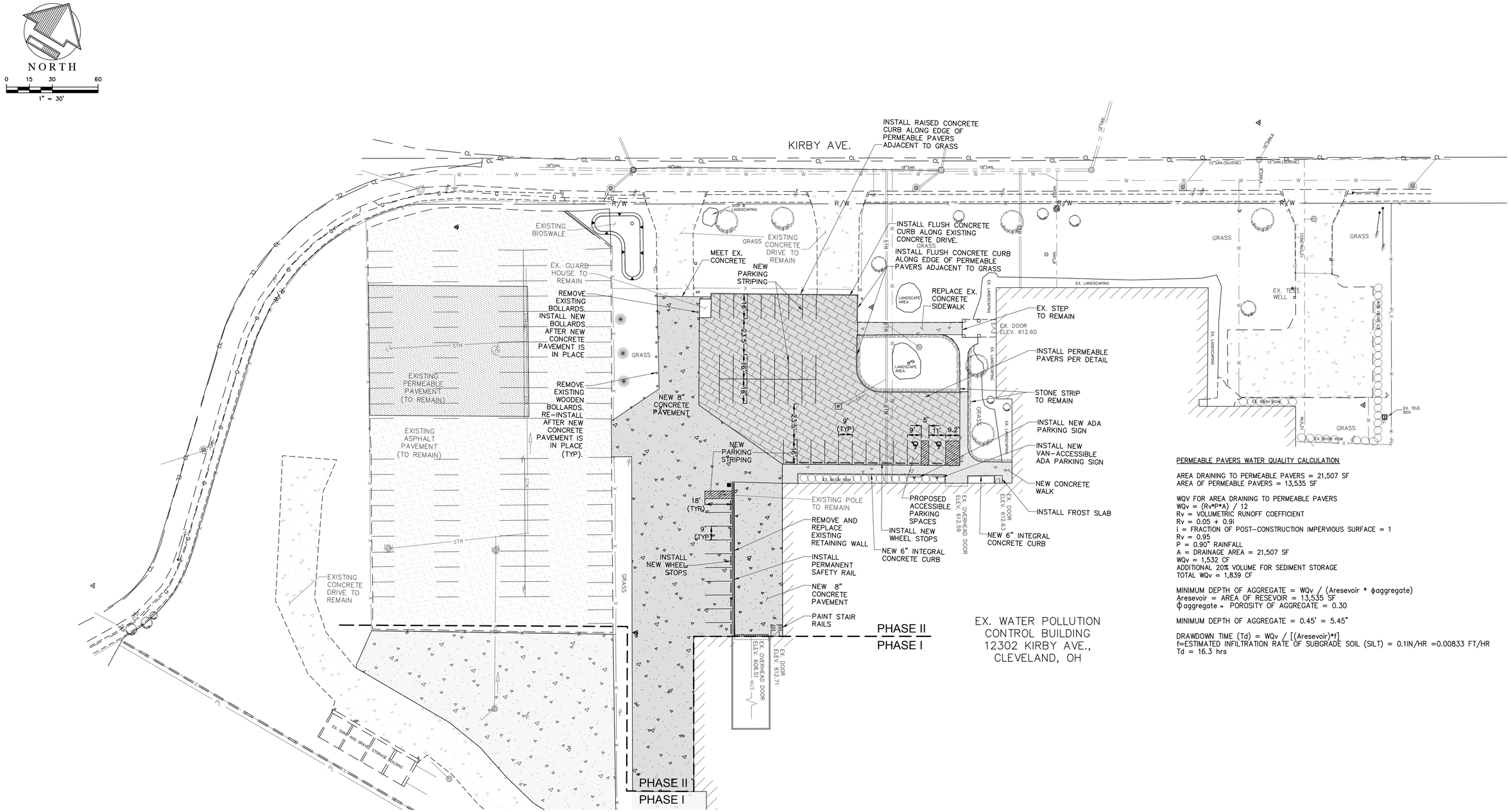
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
EXISTING CONDITIONS

DRAWN BY: JDR	SCALE	SHEET	
DESIGN BY: JDR		DWG NO: C-001	02 / 13
CHECKED BY: GDC	DATE:	RECORD NO:	

FOR BID / PERMIT

FILE ID:



PERMEABLE PAVERS WATER QUALITY CALCULATION

AREA DRAINING TO PERMEABLE PAVERS = 21,507 SF
AREA OF PERMEABLE PAVERS = 13,535 SF

WQV FOR AREA DRAINING TO PERMEABLE PAVERS
WQv = (Rv*P*A) / 12
Rv = VOLUMETRIC RUNOFF COEFFICIENT
Rv = 0.05 + 0.9i
i = FRACTION OF POST-CONSTRUCTION IMPERVIOUS SURFACE = 1
Rv = 0.95
P = 0.90" RAINFALL
A = DRAINAGE AREA = 21,507 SF
WQv = 1,532 CF
ADDITIONAL 20% VOLUME FOR SEDIMENT STORAGE
TOTAL WQv = 1,839 CF

MINIMUM DEPTH OF AGGREGATE = WQv / (Aresevoir * ϕaggregate)
Aresevoir = AREA OF RESEVOIR = 13,535 SF
ϕaggregate = POROSITY OF AGGREGATE = 0.30

MINIMUM DEPTH OF AGGREGATE = 0.45' = 5.45"

DRAWDOWN TIME (Td) = WQv / [(Aresevoir)*f]
f=ESTIMATED INFILTRATION RATE OF SUBGRADE SOIL (SILT) = 0.1IN/HR =0.00833 FT/HR
Td = 16.3 hrs

GENERAL NOTES

1. REMOVE ALL EXISTING PAVEMENTS INCLUDING EXISTING AGGREGATE BASE TO ALLOW FOR INSTALLATION OF NEW PAVEMENTS AS SHOWN.
2. PROVIDE CLEAN SAW-CUT LINE ALONG EXISTING PAVEMENTS TO REMAIN.
3. AFTER PAVEMENT AGGREGATE BASE REMOVAL; RE-COMPACT SUBGRADE PER EARTHWORK SPECIFICATIONS.
4. AFTER RE-COMPACTION OF SUBGRADE; PERFORM PROOF-ROLL. AREAS FAILING THE PROOF ROLL WILL NEED FURTHER COMPACTION AND OR OVER-EXCAVATION AND FILL USING IMPORTED ENGINEERED MATERIAL PER THE EARTHWORK SPECS.
5. CURBING ADJACENT TO CONCRETE PAVEMENT SHALL BE INTEGRAL PER DETAILS.
6. ALL PAVEMENT MARKINGS SHALL BE WHITE AND 4" WIDE EXCEPT ADA SYMBOL.
7. ALL CONCRETE PAVEMENT AND WALKS ADJACENT TO PERMEABLE PAVERS SHALL HAVE A TURNED DOWN EDGE TO -12" BELOW FINISHED GROUND TO ACT AS A RESTRAINT FOR THE PAVERS AND PAVER BASE.

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01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WPC WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
PROPOSED SITE PLAN

DRAWN BY: JDR
DESIGN BY: JDR
CHECKED BY: GDC
SCALE
DATE:
DWG NO: **C-002**
RECORD NO:
SHEET 03 / 13

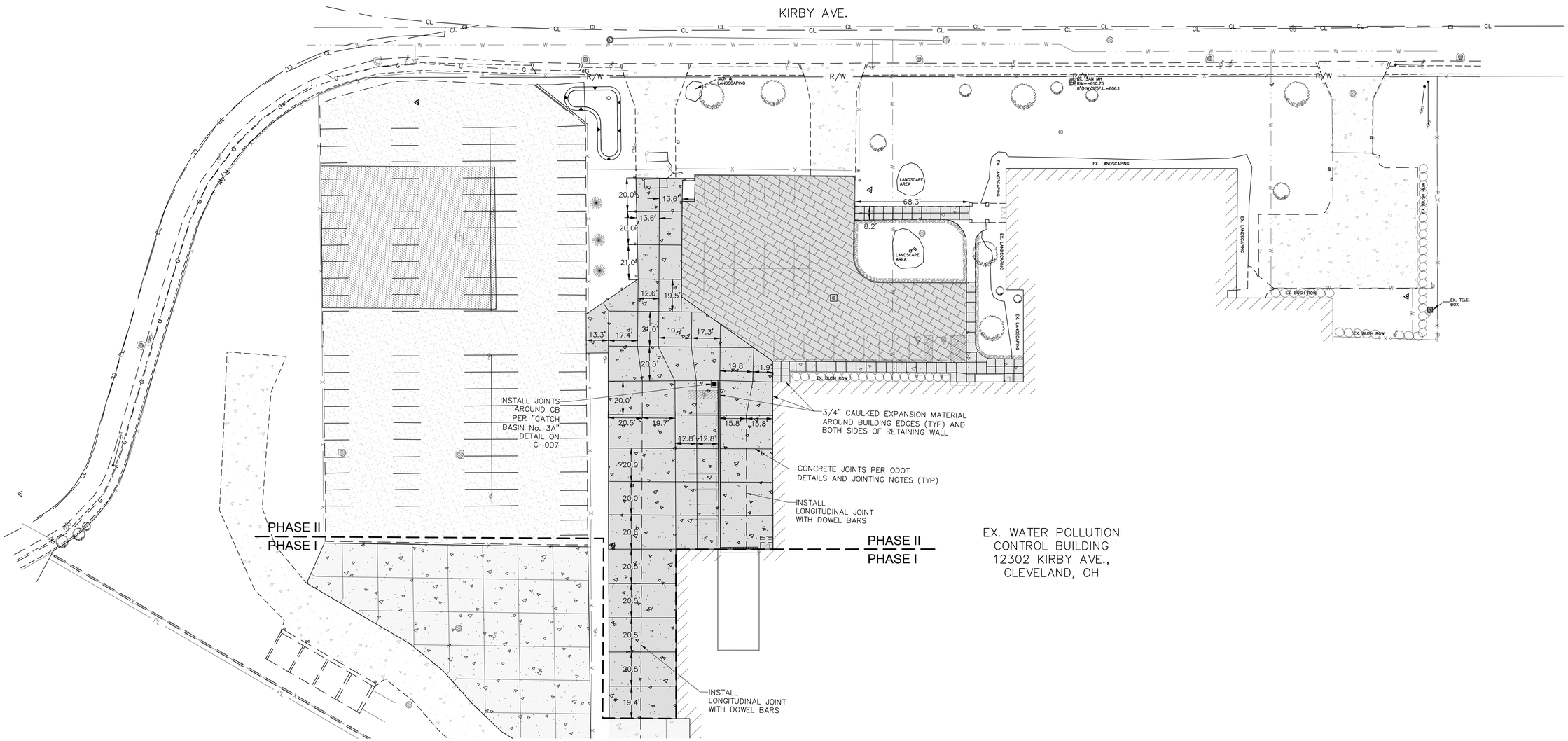
FILE ID:

FOR BID / PERMIT

NORTH

0 15 30 60

1" = 30'



GENERAL NOTES

1. CONCRETE PAVEMENT SHALL BE 8" (AS SHOWN ON SHEETS C-002) THICK WITH A 6" AGGREGATE BASE PER DETAIL ON SHEET C-006.
2. PAVEMENT SHALL BE REINFORCED WITH WIRE FABRIC OR WITH MACRO-FIBERS AS NOTED ON ODOT DETAIL BP-1.1. (ODOT CONCRETE PAVEMENT DETAILS PROVIDED ON SHEET C-007).
3. SPACING OF THE JOINTS SHALL BE 21' MAXIMUM SPACING.
4. ALL JOINTS SHALL BE SAWCUT (¼" WIDE) PER DETAIL BP-2.2 SHEET 1 – "CONTRACTION JOINT SECTIONS", AND THEN SEALED, USING A BACKER ROD AND GREY SILICONE JOINT SEALANT, APPLIED AS NEATLY AS POSSIBLE.
5. LONGITUDINAL PAVEMENT JOINTS SHALL BE INSTALLED WHERE SHOWN ON THE PLANS PER ODOT DETAIL BP-2.1.
6. DOWEL BARS SHALL NOT BE INSTALLED AT PAVEMENT JOINTS EXCEPT WHERE A COLD JOINT IS FORMED, CREATING A CONSTRUCTION JOINT, SEE DETAIL BP-2.2 SHEET 1 "CONSTRUCTION JOINT".
7. 3/4" EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE BUILDING PAD AND THE EXTERIOR CONCRETE PAVEMENT WITH NO DOWEL BAR CONNECTIONS BETWEEN THE TWO. SEAL THE TOP OF THE EXPANSION MATERIAL WITH SILICONE JOINT SEALANT.
8. THE MAXIMUM ASPECT RATIO OF ANY PANEL SHALL BE 2:1, THE LONGER PANEL DIMENSION SHALL BE NO MORE THAN TWICE THE SHORTER PANEL DIMENSION.
9. PAVEMENT JOINTS AS SHOWN ARE ONLY A MINIMUM SUGGESTED LAYOUT. CONTRACTOR SHALL MODIFY / ADD ADDITION JOINTS AS THEY DEEM NECESSARY TO ELIMINATE CRACKING.
10. CURBING ADJACENT TO CONCRETE PAVEMENT SHALL BE INTEGRAL PER DETAILS.

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AECOM
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CITY OF CLEVELAND WATER POLLUTION CONTROL WPC

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NO	DATE	BY

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CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
CONCRETE JOINT PLAN

DRAWN BY: JDR	SCALE	C-003	SHEET 04	13
DESIGN BY: JDR				
CHECKED BY: GDC	DATE:	DWG NO:	RECORD NO:	

FOR BID / PERMIT

FILE ID:

NORTH

0 15 30 60

1" = 30'

KIRBY AVE.

EXISTING BIOSWALE

EX. GUARD HOUSE TO REMAIN

EXISTING PERMEABLE PAVEMENT (TO REMAIN)

EXISTING ASPHALT PAVEMENT (TO REMAIN)

EXISTING CONCRETE DRIVE TO REMAIN

SHRUB & LANDSCAPING

GRASS

FILL IN GRASS AREA TO BE FLUSH WITH TOP OF CURB

TAPER CURB UP TO 6" ABOVE EOP OVER 2'

EXISTING CONCRETE DRIVE TO REMAIN

EX. CB. RIM=611.65

PR. CB. RIM=612.83

EXISTING POLE TO REMAIN

PHASE II

PHASE I

EX. WATER POLLUTION CONTROL BUILDING
12302 KIRBY AVE.,
CLEVELAND, OH

EX. SAND AND GRAVEL STORAGE BUILDING

EX. TEST WELL

EX. TELE. BOX

EX. BRUSH ROW

EX. LANDSCAPING

LANDSCAPE AREA

1.0% CROSSLOPE

EX. DOOR ELEV. 612.60

EX. OVERHEAD DOOR ELEV. 612.59

EX. DOOR ELEV. 612.63

EX. OVERHEAD DOOR ELEV. 608.51

EX. DOOR ELEV. 612.71

EXTOP OF STEP=612.50
PRBTM OF STEP=612.00

PR.PVMT=613.20 MATCH EX.

PR.PVMT=611.92 MATCH EX.

PR.PVMT=611.94 MATCH EX.

PR.PVMT=614.61 MATCH EX.

PR.PVMT=614.64 MATCH EX.

PR.PVMT=608.60 MATCH EX.

PR.WALK=612.13 EX.WALK=612.13

PR.WALK=612.71 EX.WALK=612.34

PR.WALK=612.75 EX.WALK=612.41

PR.WALK=612.63 EX.WALK=612.56

PR.WALK=612.59 EX.WALK=612.48

GENERAL NOTES

1. CONTRACTOR MUST VERIFY THAT ALL SITE PAVEMENT IS SLOPED TO DRAIN AT 0.5% MIN.
2. CONTRACTOR TO NOTIFY ENGINEER OF ANY AREA WHICH THEY DISCOVER IN THE FIELD WILL HAVE AN ISSUE WITH PROPERLY DRAINING.
3. SLOPES WITHIN THE ADA PARKING AREAS SHALL BE INSTALLED BETWEEN 0.5% AND 2.0% MAXIMUM.
4. WALKS SHALL BE SLOPED TO DRAIN WITH A 2.0% MAXIMUM CROSS SLOPE.

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01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
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CITY OF CLEVELAND WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

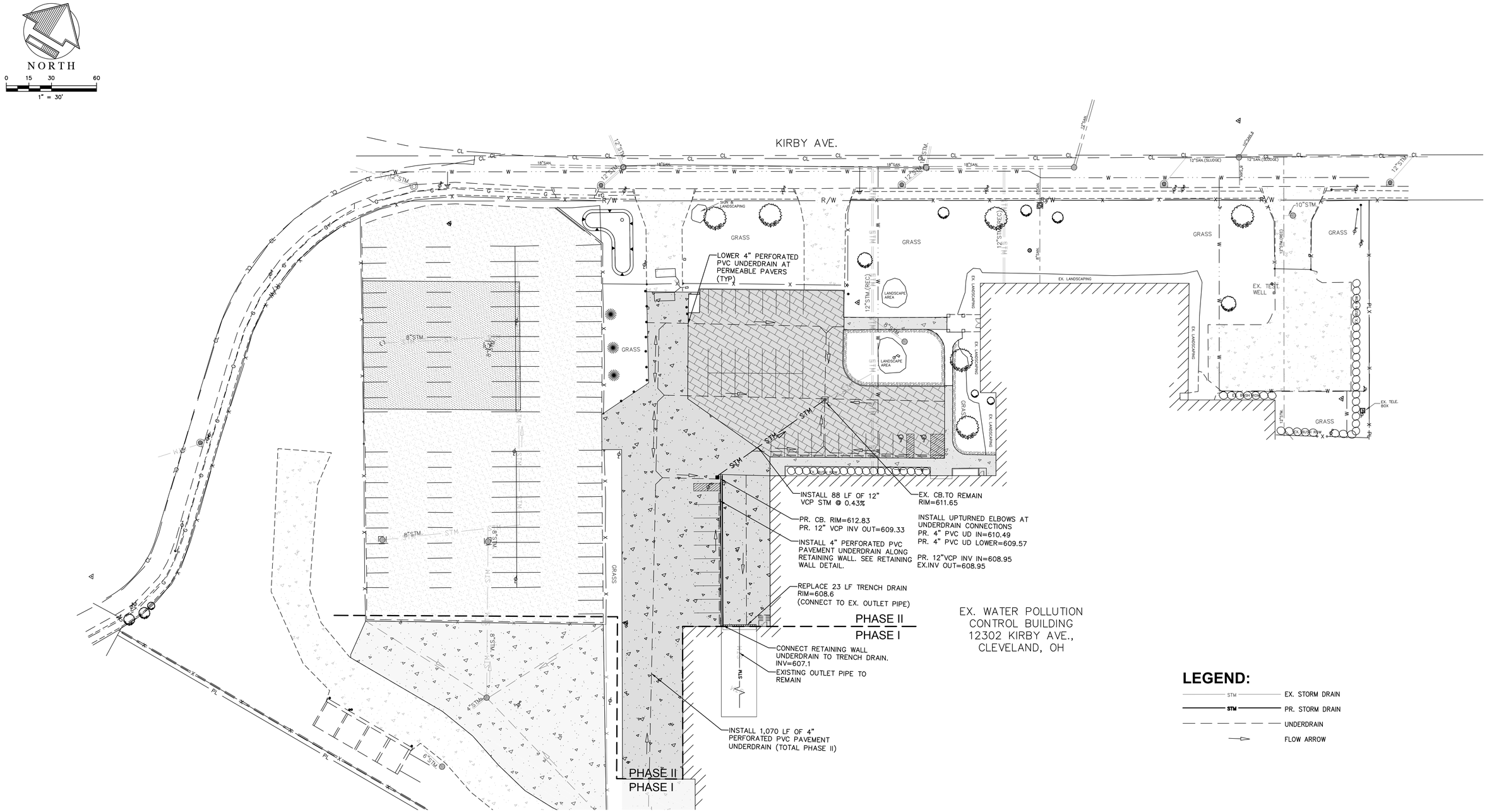
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
PROPOSED GRADING PLAN

DRAWN BY: JDR	SCALE	C-004	SHEET 05	13
DESIGN BY: JDR				
CHECKED BY: GDC	DATE:	DWG NO:	RECORD NO:	

FOR BID / PERMIT

FILE ID:



GENERAL NOTES

1. ALL UTILITY WORK SHALL BE DONE UNDER THE PRESENCE OF THE CITY OF CLEVELAND WPC REPRESENTATIVE.
2. EXISTING UTILITIES BASED OFF SURVEY PROVIDED BY OWNER
3. REMOVE EXISTING STORM STRUCTURES AND ASSOCIATED PIPING WHERE NEW STORM INLETS AND PIPING ARE SHOWN.
4. CONTRACTOR TO RE-CONNECT ANY BUILDING STORM AND SANITARY LATERALS TO NEW OR EXISTING LINES IF THEY ARE DISCOVERED DURING PAVEMENT AND UTILITY REMOVAL AND REPLACEMENT.
5. INSTALL UNDERDRAINS AS SHOWN UNDER ALL NEW PAVEMENTS. CONNECT UNDERDRAINS TO EXISTING OR PROPOSED STORM STRUCTURES. MAINTAIN POSITIVE SLOPE TO DRAIN.

LEGEND:

- EX. STORM DRAIN
- PR. STORM DRAIN
- UNDERDRAIN
- FLOW ARROW

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CLEVELAND, OH 44108

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#E-68267
REGISTERED PROFESSIONAL ENGINEER
Gregory D. Cifra, P.E.
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL WPC

REVISIONS		
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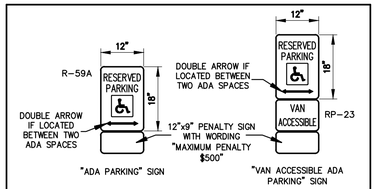
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
PROPOSED UTILITY PLAN

DRAWN BY:	JDR	SCALE	C-005	SHEET	06 / 13
DESIGN BY:	JDR				
CHECKED BY:	GDC	DATE:	DWG NO:	RECORD NO:	

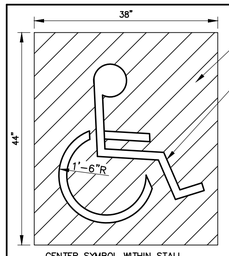
FILE ID:

FOR BID / PERMIT



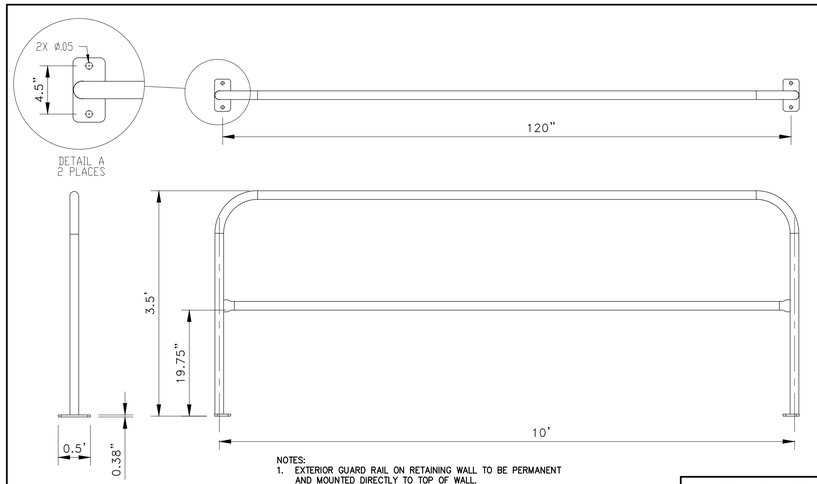
1. SIGN DESIGNATIONS PER ODOT UNIFORM TRAFFIC CONTROL DEVICES.
2. ALL SIGNS SHALL FOLLOW "TYPICAL SIGN CONSTRUCTION" DETAIL ON THIS SHEET.
3. ALL SIGNS SHALL BE A MIMIMUM OF 18 GUAGE STEEL.

Details - Civil Traffic Control Signs



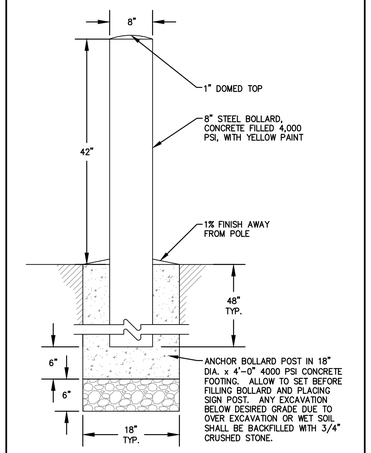
NOTES:
1. SYMBOL TO MEET CURRENT ADA GUIDELINES.
2. PAINT AT ENTRANCE OF EACH ADA PARKING SPACE AS SHOWN ON THE PLAN SHEET C-002.

Details - Civil ADA Parking

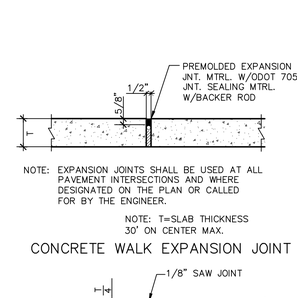


NOTES:
1. EXTERIOR GUARD RAIL ON RETAINING WALL TO BE PERMANENT AND MOUNTED DIRECTLY TO TOP OF WALL.
2. FINISH OF RAILING AND BRACKETS, BOLTS AND ACCESSORIES TO BE GALVANIZED AND POWDER COATED SAFETY YELLOW.

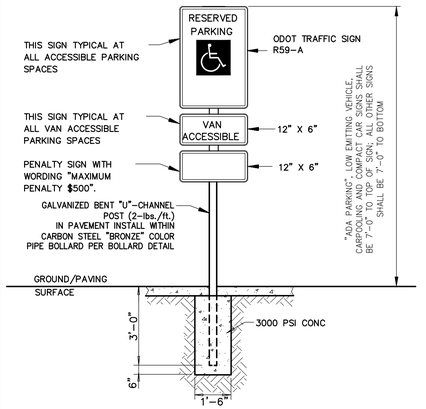
Details - Civil 10' Mounted Safety Rail

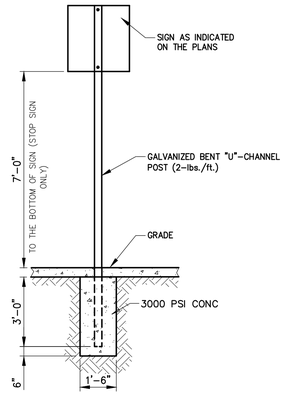


Details - Civil Bollard



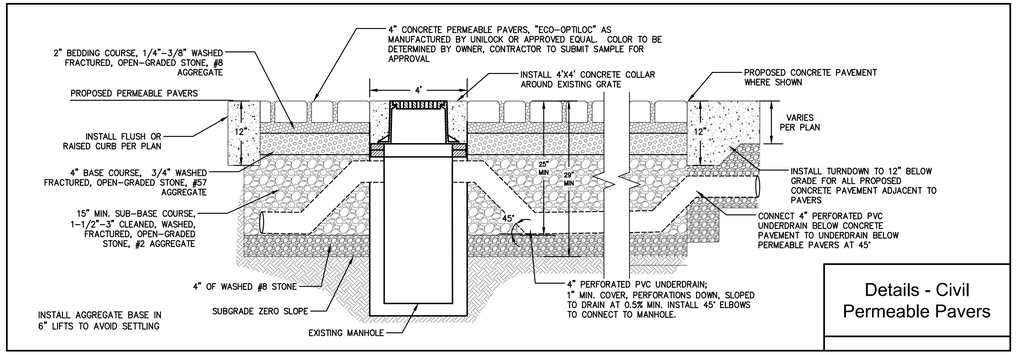
Details - Civil Concrete Walk Joints



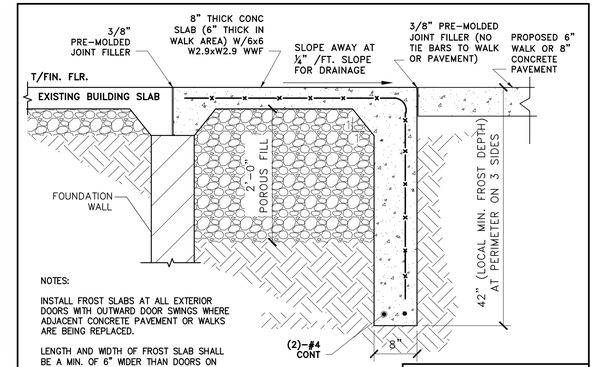


DOUBLE SIDED SIGNS: ATTACH TO POSTS WITH BOLT CUT FLUSH AFTER NUT ON ONE SIDE. INSTALL AN ADDITIONAL 18-GAUGE PLATE ON THE OPEN CHANNEL SIDE BEHIND THE SIGN FOR SUPPORT OR INSTALL SIGNS ON A SQUARE BOX GALVANIZED SIGN POST WITH STEEL THICKNESS EQUAL OR GREATER THAN THE U-CHANNEL POST

Details - Civil Typical Sign Construction



Details - Civil Permeable Pavers

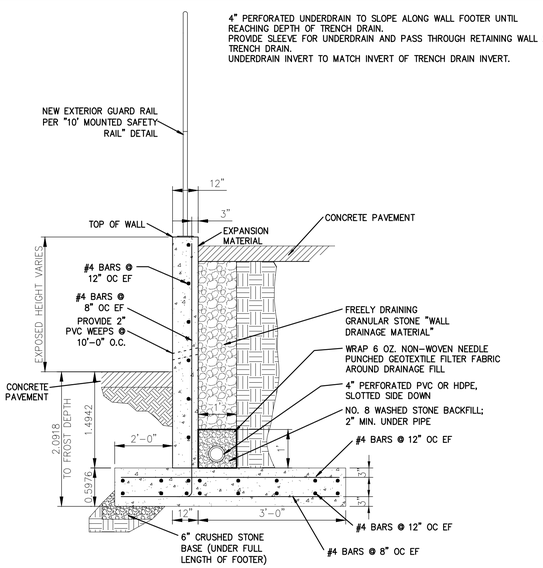


NOTES:

INSTALL FROST SLABS AT ALL EXTERIOR DOORS WITH OUTWARD DOOR SWINGS WHERE ADJACENT CONCRETE PAVEMENT OR WALKS ARE BEING REPLACED.

LENGTH AND WIDTH OF FROST SLAB SHALL BE A MIN. OF 6" WIDER THAN DOORS ON EACH SIDE AND MIN. 6" PAST DOOR SWING OR LARGER AS SHOWN ON SITE PLANS.

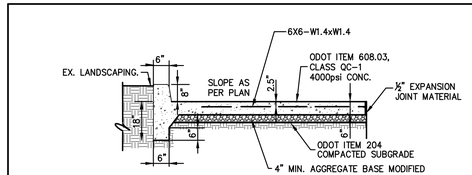
Details - Civil Concrete Frost Slab



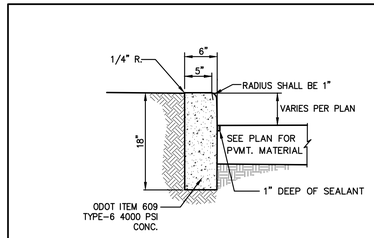
WALL AND FOOTER TO BE AIR ENTRAINED 4000 PSI CONCRETE PER ODOT ITEM 511 CLASS QC1.

PROVIDE CLEAN SAWCUT REMOVAL OF EXISTING WALL AT BUILDING. INSTALL 30# FELT BOND BREAKER AT EDGE OF NEW WALL AND BUILDING, DO NOT DOWEL INTO THE EXISTING BUILDING.

Details - Civil Retaining Wall

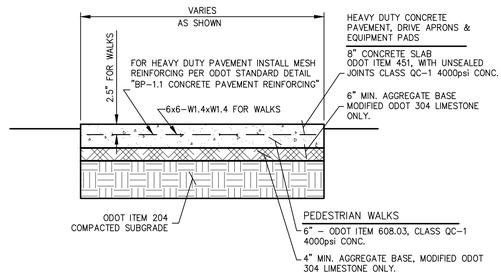


Details - Civil Raised Integral Curb and Walk



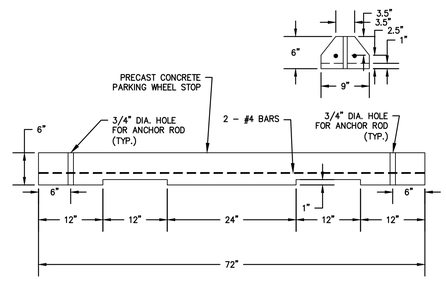
JOINT SPACING
1/4" CONTRACTION JOINT AT 10'-0" O.C.
1/2" EXPANSION JOINT AT EVERY FIFTH JOINT

Details - Civil 6"x18" Vertical Concrete Curb



NOTES:
1. NOTE: TO COMPLY WITH THE REQUIREMENTS OF THE EARTHWORK SPECIFICATIONS, FOR ALL PAVEMENTS, THE MAXIMUM FINES PASSING THE #200 SIEVE FOR THE ODOT ITEM 304 SHALL BE RESTRICTED TO 5% MAX.; NOT 0%-15% AS ALLOWED PER ODOT ITEM 304.
2. HEAVY DUTY CONCRETE PAVEMENT AREA SHALL FOLLOW TYPICAL ODOT DETAILS AS SHOWN ON SHEETS C-007
3. CROSS SLOPES FOR WALKS = 1/4" PER FOOT UNLESS OTHERWISE NOTED ON THE DRAWINGS.
4. INSTALL WALK CONTRACTION JOINTS 6' ON CENTER MAX.
5. INSTALL WALK EXPANSION JOINTS 30' ON CENTER MAX.
6. BROOM FINISH WALKS PERPENDICULAR TO TRAFFIC FLOW. TROWEL FINISH EDGES.

Details - Civil Concrete Walks & Pavement



NOTES:
1. MIN. 4,000 PSI CONCRETE.
2. STEEL ANCHOR RODS SHALL BE 24" LONG 3/4" DIA.
3. RODS SHALL BE FLARED AND DRIVEN TO TOP OF STOP.

Details - Civil Wheel Stop

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01/08/19

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CITY OF CLEVELAND WATER POLLUTION CONTROL WPC

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

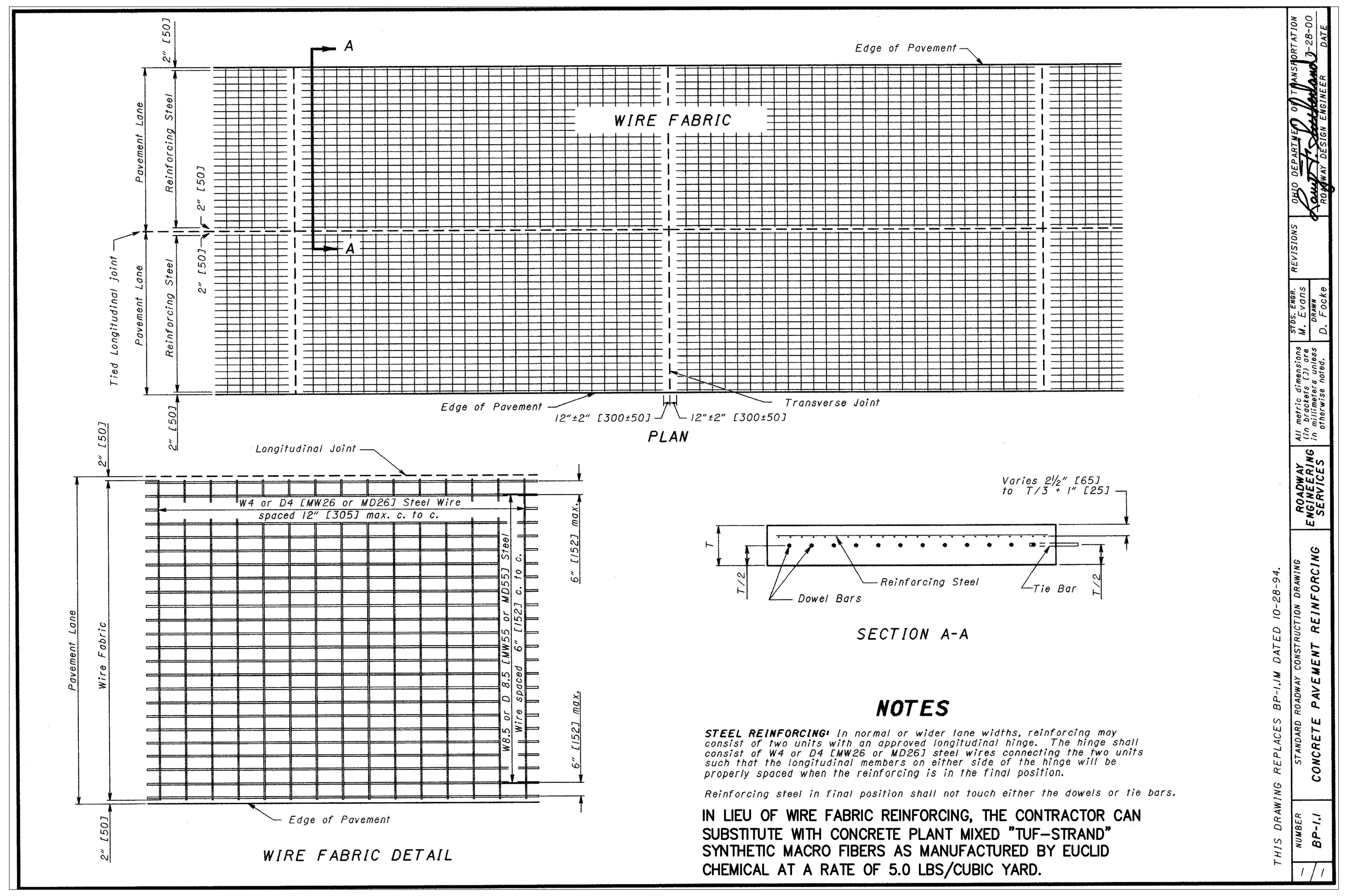
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

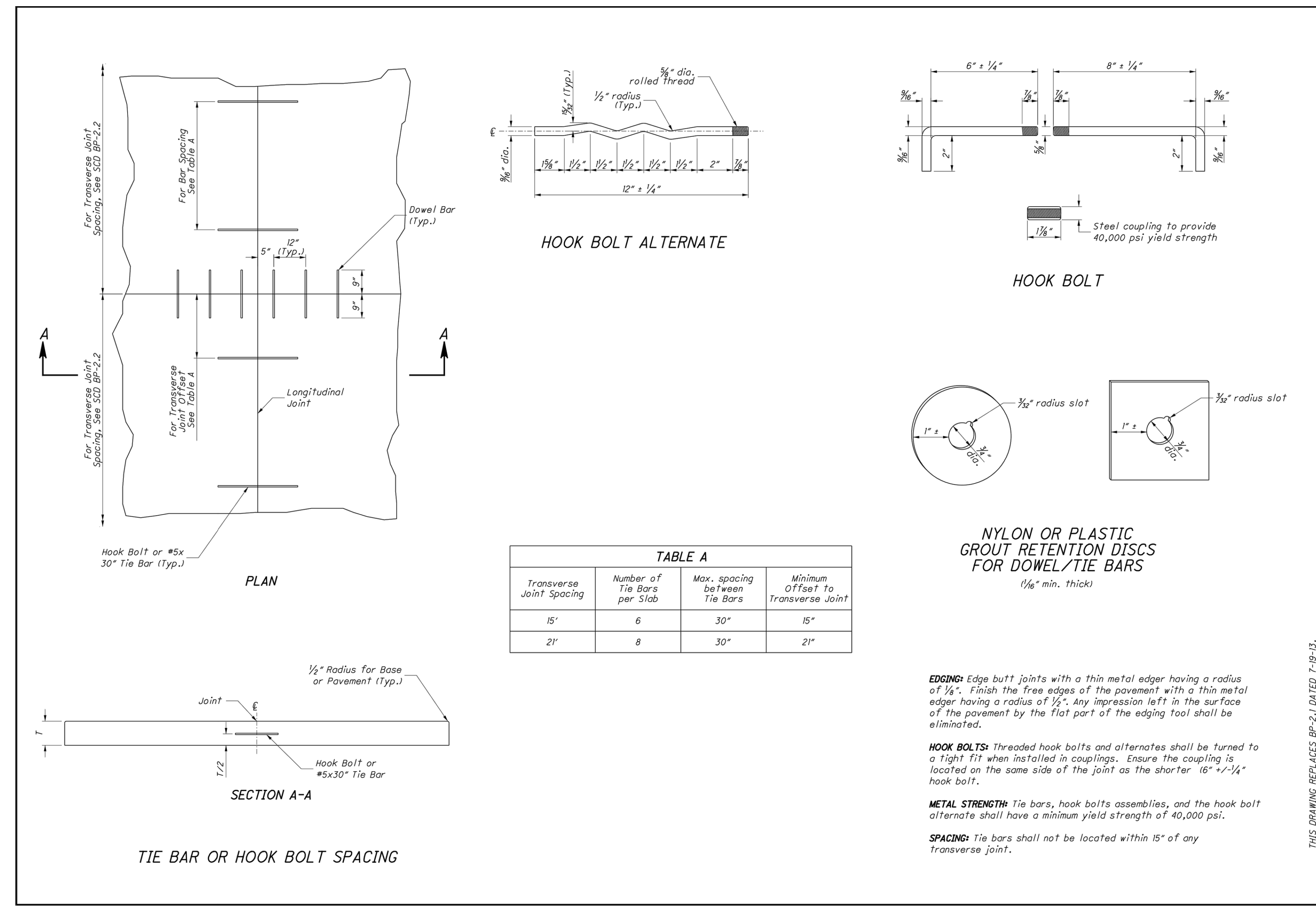
SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
SITE DETAILS

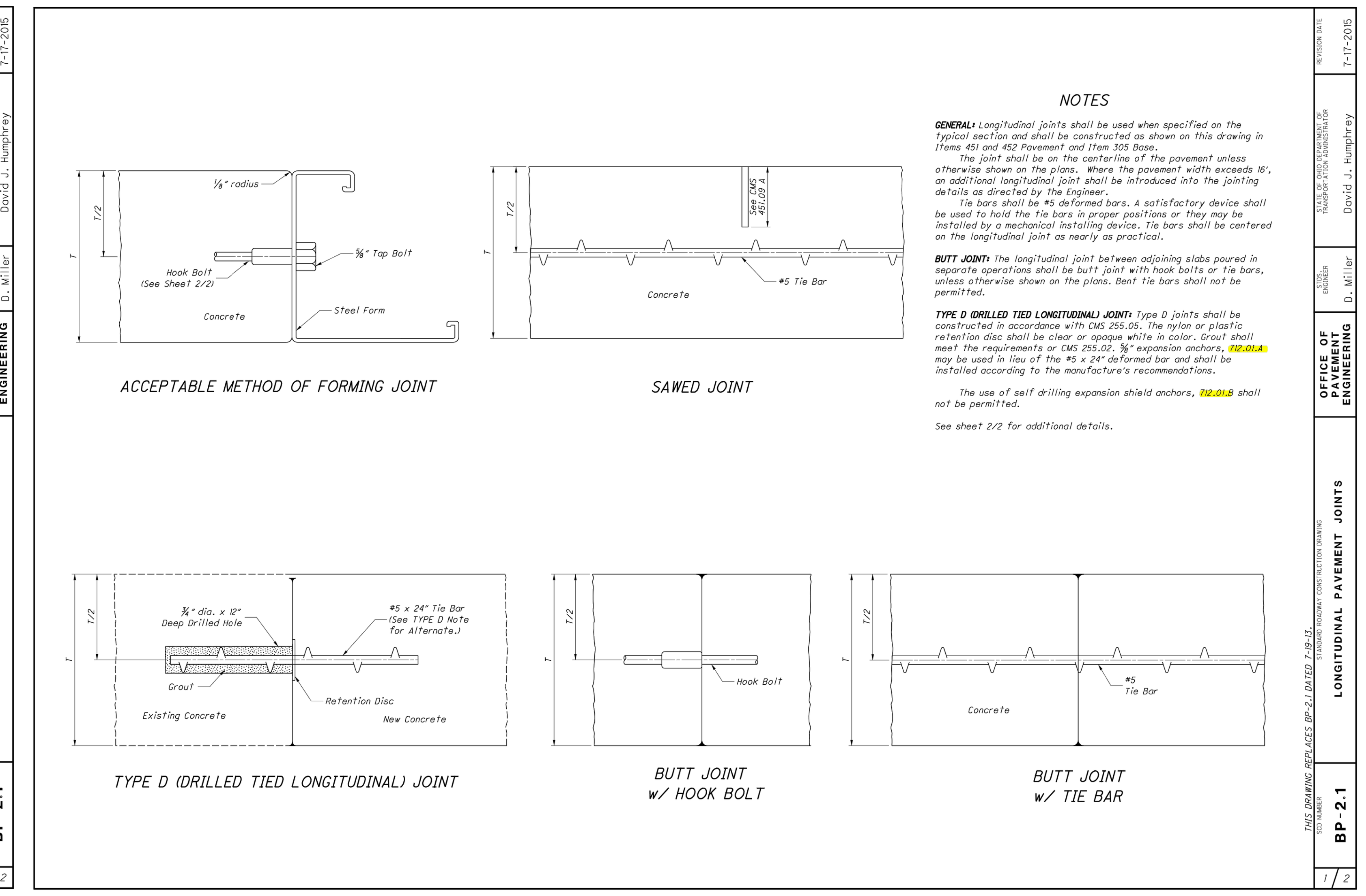
DRAWN BY:	JDR	SCALE	DWG NO: C-006	SHEET	07 / 13
DESIGN BY:	JDR				
CHECKED BY:	GDC	DATE:		RECORD NO:	

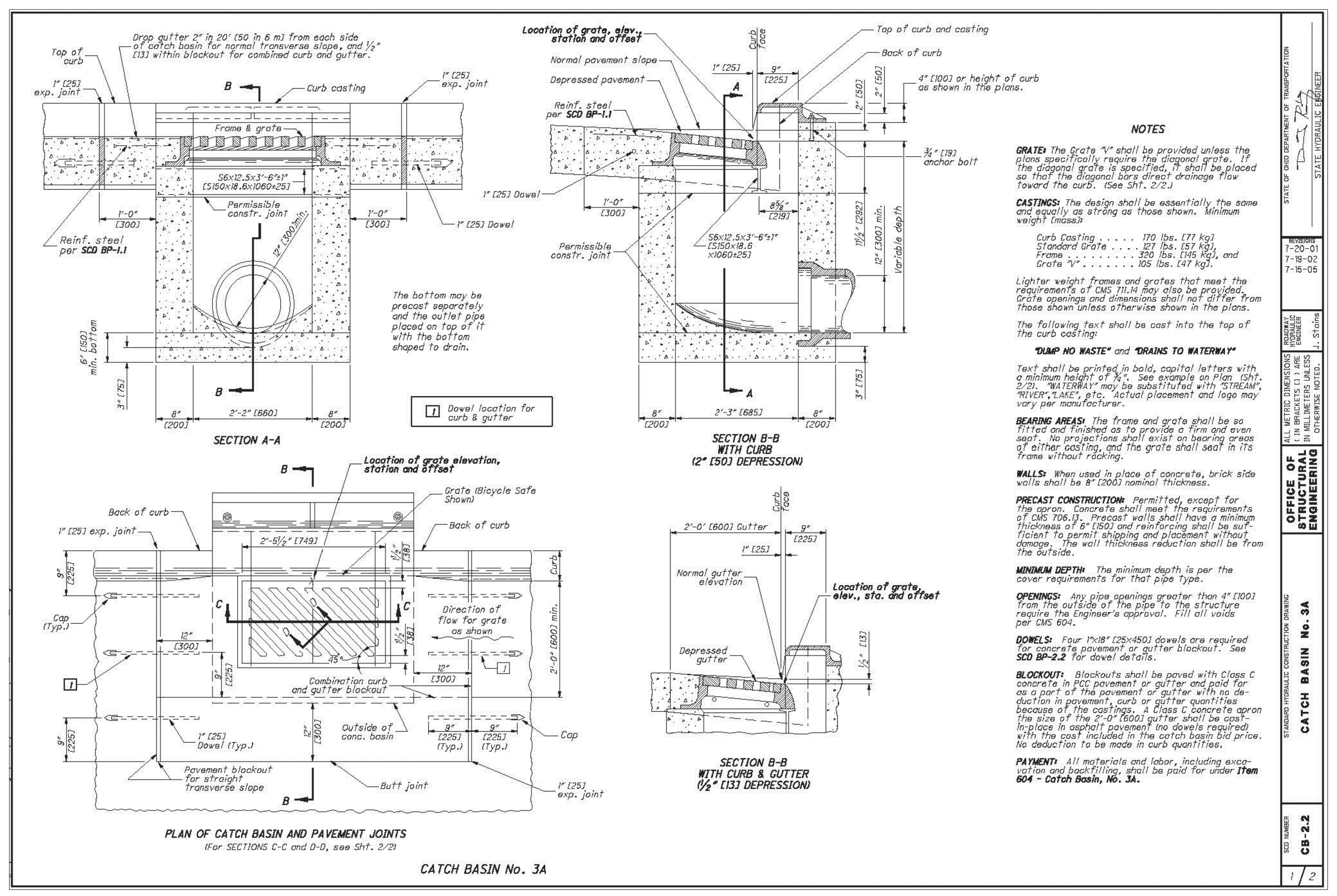
FOR BID / PERMIT

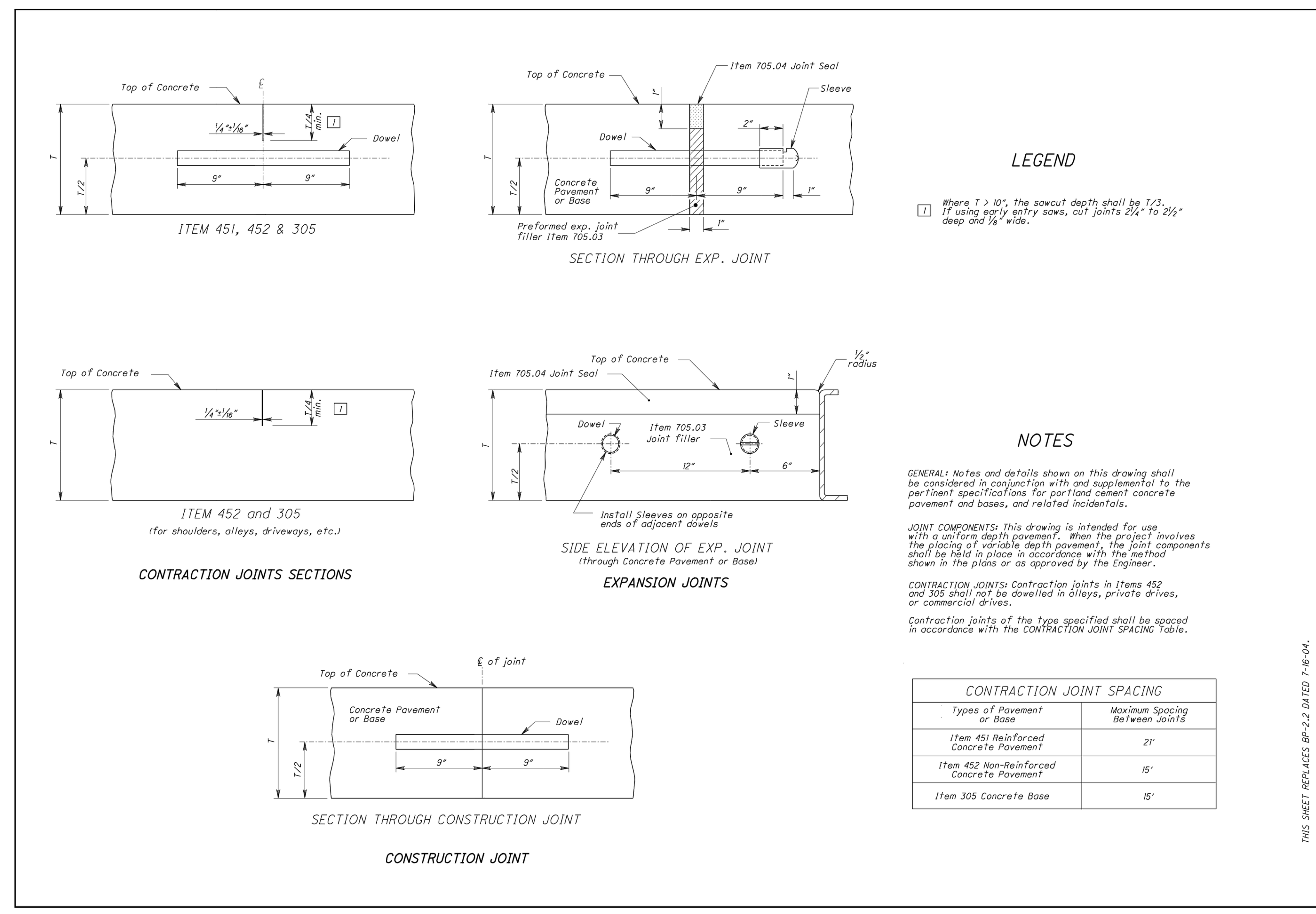
FILE ID:

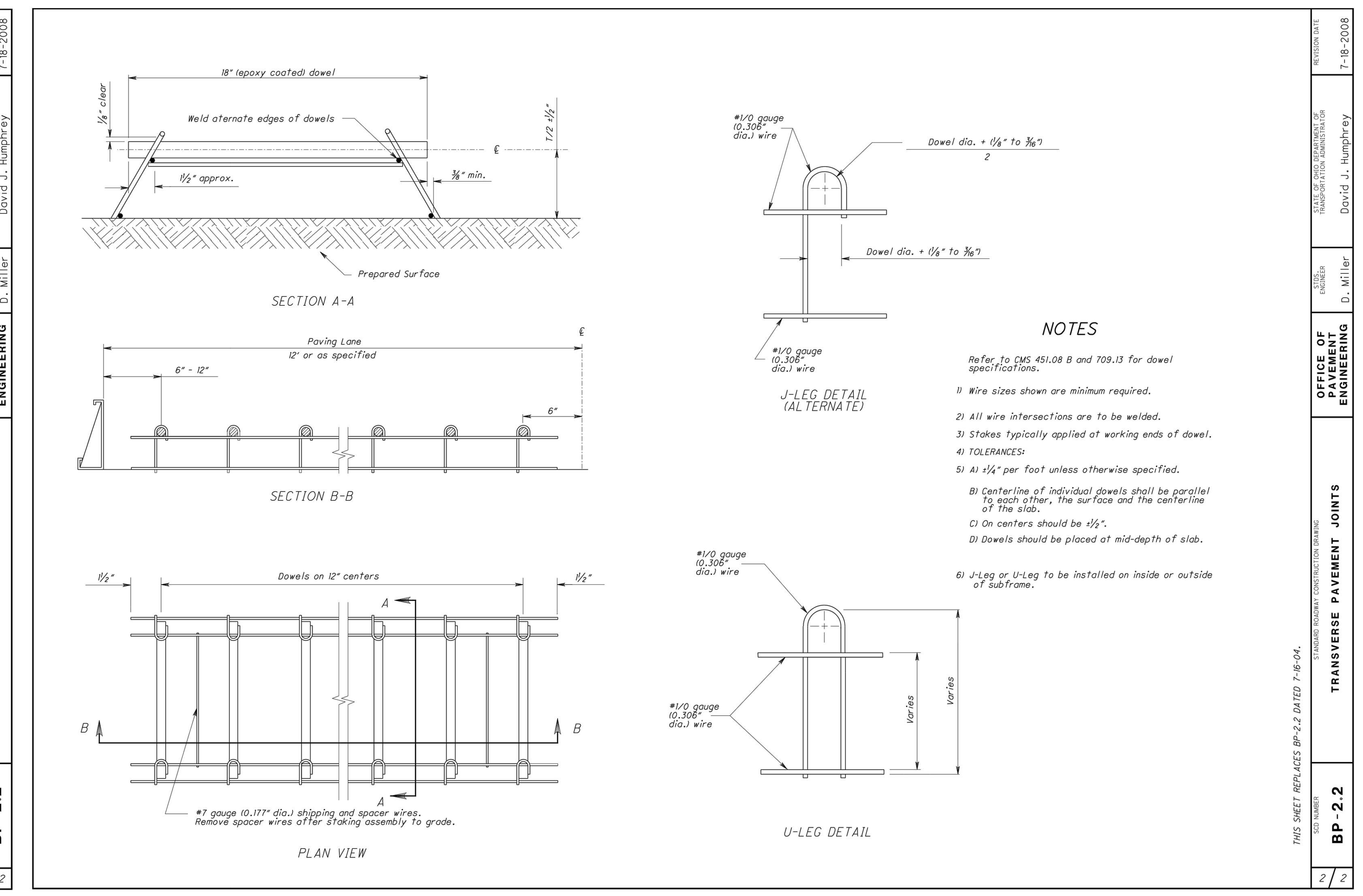












FOR BID / PERMIT

GENERAL NOTES

1. CONCRETE PAVEMENT SHALL BE 8" (AS SHOWN ON SHEET C-002) THICK WITH A 6" AGGREGATE BASE PER DETAIL ON SHEET C-006.
2. PAVEMENT SHALL BE REINFORCED WITH WIRE FABRIC OR WITH MACRO-FIBERS AS NOTED ON ODOT DETAIL BP-1.1.
3. SPACING OF THE JOINTS SHALL BE 21' MAXIMUM SPACING.
4. ALL JOINTS SHALL BE SAWCUT (¼" WIDE) PER DETAIL BP-2.2 SHEET 1 - "CONTRACTION JOINT SECTIONS", AND THEN SEALED, USING A BACKER ROD AND GREY SILICONE JOINT SEALANT, APPLIED AS NEATLY AS POSSIBLE.
5. LONGITUDINAL PAVEMENT JOINTS SHALL BE INSTALLED WHERE SHOWN ON THE PLANS PER ODOT DETAIL BP-2.1.
6. DOWEL BARS SHALL NOT BE INSTALLED AT PAVEMENT JOINTS EXCEPT WHERE A COLD JOINT IS FORMED, CREATING A CONSTRUCTION JOINT, SEE DETAIL BP-2.2 SHEET 1 "CONSTRUCTION JOINT".
7. 3/4" EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN THE BUILDING PAD AND THE EXTERIOR CONCRETE PAVEMENT WITH NO DOWEL BAR CONNECTIONS BETWEEN THE TWO. SEAL THE TOP OF THE EXPANSION MATERIAL WITH SILICONE JOINT SEALANT.
8. THE MAXIMUM ASPECT RATIO OF ANY PANEL SHALL BE 2:1, THE LONGER PANEL DIMENSION SHALL BE NO MORE THAN TWICE THE SHORTER PANEL DIMENSION.
9. PAVEMENT JOINTS AS SHOWN ARE ONLY A MINIMUM SUGGESTED LAYOUT. CONTRACTOR SHALL MODIFY / ADD ADDITION JOINTS AS THEY DEEM NECESSARY TO ELIMINATE CRACKING.
10. CURBING ADJACENT TO CONCRETE PAVEMENT SHALL BE INTEGRAL PER DETAILS.

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
E-68267
REGISTERED
PROFESSIONAL ENGINEER
Gregory Cifra P.E.
01/08/19

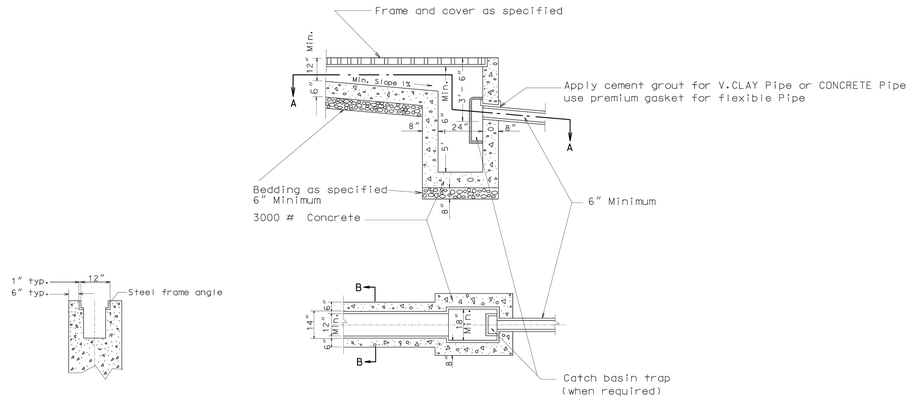
AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL
WPC

REVISIONS			CITY OF CLEVELAND
NO	DATE	BY	CLEVELAND DIVISION OF WATER POLLUTION CONTROL DEPARTMENT OF PUBLIC UTILITIES CLEVELAND, OHIO
			SUBJECT: PAVEMENT AND DRAINAGE IMPROVEMENT CIVIL - PHASE II CONCRETE PAVEMENT DETAILS

DRAWN BY: JDR
DESIGN BY: JDR
CHECKED BY: GDC
SCALE
DATE:
DWG NO: C-007
RECORD NO:
SHEET 08 13

FILE ID:



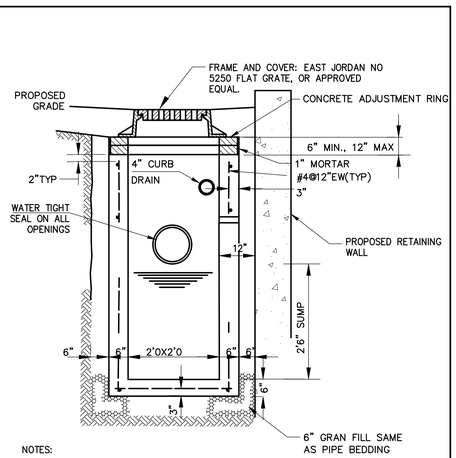
SECTION B – B

SECTION A – A

TRENCH DRAIN

REVISIONS:	SCALE NO SCALE	DATE : DEC. 1998	PHASE 2 ONLY
UNIFORM STANDARDS: CLEVELAND --- CUYAHOGA COUNTY --- NORTHEAST OHIO REGIONAL SEWER DISTRICT			

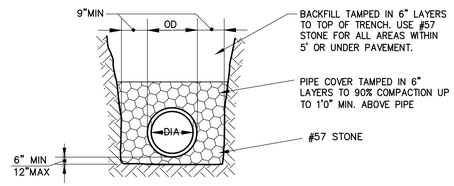
Sheet No.16/27



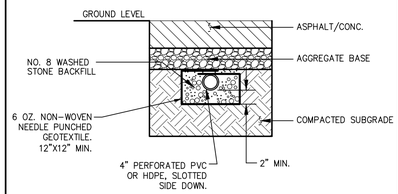
NOTES:

1. CATCHBASIN SHALL CONFORM TO ODOT CB TYPE 2–2B
2. CATCHBASINS SHALL ALSO FOLLOW ALL GENERAL NOTES AS LISTED UNDER THE "PRECAST CONCRETE MANHOLE" DETAIL
3. BACKFILL WITH #57 STONE

Details - Civil
2'X2' Precast
Concrete Inlet
with Sump



Details - Civil
Typical Sewer
Trench



NOTE: INSTALL WITH CONSTANT POSITIVE SLOPE TO DRAIN TO NEAREST STORM STRUCTURE

DETAILS - CIVIL
PAVEMENT
UNDERDRAIN

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED PROFESSIONAL ENGINEER
Gregory D. Cifra, P.E.
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND · WPC · WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
UTILITY DETAILS

DRAWN BY:	JDR	SCALE		SHEET 09 13
DESIGN BY:	JDR			
CHECKED BY:	GDC	DATE:	DWG NO: C-008	RECORD NO:

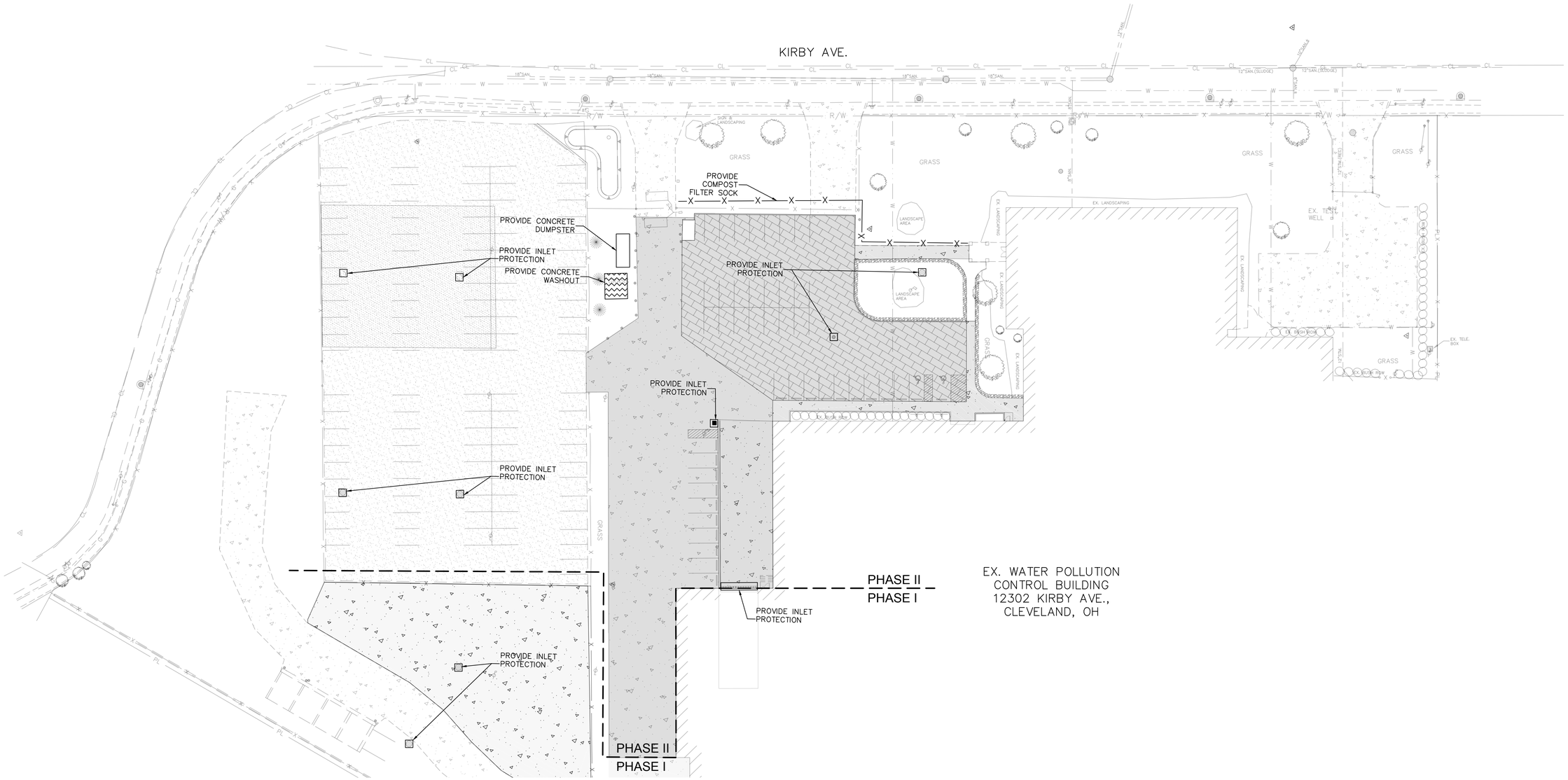
FOR BID / PERMIT

FILE ID:

NORTH

0 15 30 60

1" = 30'



GENERAL NOTES

THE CONTRACTOR SHALL CLEAR ONLY THE LAND NECESSARY FOR THE INSTALLATION OF THE CONSTRUCTION EXIT AND THE PERIMETER SILT FENCE. ONCE THESE EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE, DEMOLITION, CLEARING, GRUBBING, AND GRADING MAY COMMENCE. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL MEASURES AS REQUIRED AND MAINTAIN ALL BEST MANAGEMENT PRACTICES ONCE INSTALLED.

1. PRIOR TO INITIATION OF LAND DISTURBANCE ACTIVITY, ALL SITE PERIMETER CONTROL MEDIA AND CONSTRUCTION ENTRANCE MUST BE IN PLACE.
2. ESTABLISH THE SITE PERIMETER CONTROL BY INSTALLING SILT FENCE AS SHOWN ON THE PLAN. REFER TO SWPPP SHEETS FOR SILT FENCE DETAIL.
3. ALL SEDIMENT CONTROLS SHALL BE INSTALLED WITHIN 7 DAYS FROM THE START OF CLEARING AND GRUBBING.
4. INLET PROTECTION SHALL BE PROVIDED AT ALL EXISTING INLETS THAT RECEIVE FLOWS FROM THE DISTURBED AREAS.
5. SEED AND FERTILIZE ALL DISTURBED AREAS WITHIN 14 DAYS OF DISTURBANCE.
6. ALL VEHICLES LEAVING THE SITE SHALL BE CLEANED OF MUD AND WASTE. CITY ROADS MUST BE KEPT CLEAN DURING CONSTRUCTION ACTIVITIES.
7. IN AREAS OF PAVEMENT SAWING, ALL SAWCUTTING SLURRY MUST BE CLEANED UP AS SOON AS THE CUTTING IS COMPLETED. THE CONTRACTOR SHALL PROVIDE A STREET SWEEPER BEHIND THE SAWCUTTING OPERATION.
8. PROVIDE INLET PROTECTION FOR THE PROPOSED INLETS ON SITE ONCE INSTALLED.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING ALL SWPPP FEATURES FOR THE DURATION OF THE PROJECT, MAKE THE REQUIRED SWPPP INSPECTIONS PER THE SWPPP NOTES AND DETAILS & FILL OUT THE SWPPP INSPECTION FORMS, KEEPING A RECORD ON-SITE AT ALL TIMES.. THE CONTRACTOR SHALL USE QUALIFIED PERSONNEL TO PERFORM THE SWPPP INSPECTIONS.

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
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Gregory Cifra P.E.
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND

CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
SWPPP PLAN

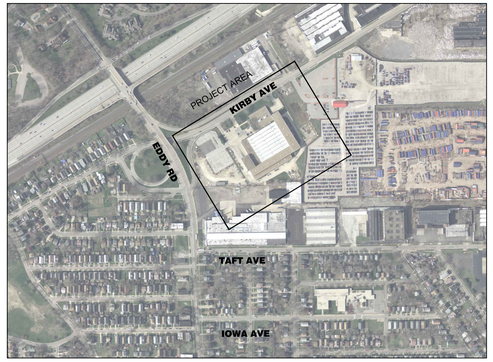
DRAWN BY: JDR	SCALE	C-009	SHEET	10 / 13
DESIGN BY: JDR				
CHECKED BY: GDC	DATE:	DWG NO:	RECORD NO:	

FOR BID / PERMIT

FILE ID:

VICINITY MAP

1"=500'



DISTURBED PROJECT AREA WITHIN OWNER'S PROPERTY = 0.420 ACRES
LATITUDE: 41.549915
LONGITUDE: -81.599522

SITE DESCRIPTION

Project Name and Location:

Cleveland Water Pollution Control
12302 Kirby Ave
Cleveland, Cuyahoga County, Ohio 44108

Owner Name and Address:
Cleveland Water Pollution Control
12302 Kirby Ave
Cleveland, Cuyahoga County, Ohio 44108

Project Description: (Purpose and Types of Soil Disturbing Activities)

This project shall consist of the replacement of existing concrete and asphalt pavements with new concrete pavement and permeable pavers. The intent in general is to replace existing pavement with new pavement with as little disturbance to the sub-grade as possible. Removal and replacement of existing storm sewers with new storm inlets and piping is also included as an improvement to the storm sewer system. Soil disturbing activities to include all necessary pavement and utility removal, installation of erosion control devices, minimal disturbance below the pavement base course and finally installation of the new pavement and sewer improvements. Erosion control for the site includes filter sock along the perimeter, inlet protection and general erosion and sediment control best management practices.

Site Area:

The site parcel owned by the Cleveland Department of Water Pollution Control is 8.9 acres. Total project disturbance equals 0.431 acres, which includes installing pavement in areas that are currently gravel and the installation of new VCP storm pipes. The remainder of the concrete pavement installation is replacement of existing pavement and it is considered maintenance.
Disturbed area for Phase II equals 0.316 acres.

Runoff Coefficient:

All new impervious area is replacing existing impervious area. Runoff coefficient will not change.

Soil Types and Classifications:

Urban Land

Name of Receiving Waters / Surface Water Locations:

The site drain into the City of Cleveland Municipal Combined Sewer System.

Prior Land Uses:

The land is on an existing City of Cleveland Water Pollution Control facility.

ADDITIONAL POST CONSTRUCTION STRUCTURAL BMP(s)

The construction manager shall be responsible to coordinate the location(s) during all phases of construction for concrete truck wash out per detail located within the SWPPP sheet. Any sanitary or toxic waste unearthed or created on the site shall be directly loaded into an appropriate disposal truck designed for removal of the specific waste material. The construction manager shall be responsible to insure that the contractor is disposing of normal construction waste materials in approved containers and taken off site. The construction manager shall also be responsible to ensure that the contractor's equipment is fueled off-site. The construction manager shall be responsible to enforce the notes on "Spill Control Practices" located under the "Product Specific Practices" within the SWPPP sheets.

All cast iron catch basins, grates and inlet covers shall be forged with the wording "Dump no waste, drains to waterways" or an equivalent message.

The last for sheets of this plan set have been developed as the SWPPP.

Erosion and sediment control practices not already specified on these plans may be necessary due to unforeseen environmental conditions and/or changes in drainage patterns caused by earth-moving activity.

There shall be no sediment-laden discharges to surface waters of the state resulting from dewatering activities. If a trench or ground water contains sediment, it must pass through a sediment settling pond or other equally effective sediment control device prior to being discharged from the construction site.

The disturbed ground area for this project is less than 1.0 acres as such an NOI or WQv treatment is not required. Per Ohio EPA Phase II requirements a small construction activities is classified as between 1 to 5 acres.

However; this site has been previously retro-fitted to treat WQv by incorporating Bio-Retention Cells along the east side of the building which treat building roof run-off. In addition a rainwater harvesting system was previously installed within the building to reduce impervious area run-off.

CONTROLS

Erosion and Sediment Controls:

Stabilization Practices

Temporary Stabilization – Stockpiled topsoil and disturbed areas of the site where construction activity is to cease for more than 14 days shall be stabilized with temporary seed and/or mulching no later than 7 days after the last construction activity in that area. The temporary seeding shall be applied per the temporary seeding specifications as shown on the following stormwater pollution prevention plans. Areas of the site to be paved will be temporarily stabilized by applying geotextile and stone subbase until pavement is applied.

Permanent Stabilization – Disturbed areas of the site where construction activities have been permanently ceased shall be stabilized with permanent seeding no later than 7 days after the last construction activity. The permanent seed mix shall conform with the permanent seeding specifications, as shown on the SWPPP sheets.

Stormwater Management – Stormwater drainage to be provided by surface swales, catch basins, and storm sewers for developed areas. The areas which are not developed will be graded at less than 4:1 and have permanent seeding or plantings.

Dust Control
Watering – This is the most commonly used control practice. The site is sprinkled with water until the surface is wet before and during grading and is repeated as needed. It offers fast protection for haul roads and other heavy traffic routes. Watering should be done at a rate that prevents dust but does not cause soil erosion. Wetting agents are also available to increase effectiveness of watering and must follow manufacture's instructions.
Stone – Stone can be used to stabilize roads or other areas during construction using crushed stone or coarse gravel. Research has shown the addition of bentonite to limestone roads (not igneous gravel) has shown benefits in reducing dust.

OTHER CONTROLS:

Waste Disposal:

Solid, sanitary and toxic waste must be disposed of in a proper manner in accordance with local, and federal regulations. It is prohibited to burn, bury or pour out onto the ground or into the storm sewers any solvents, paints, stains, gasoline, diesel fuel, used motor oil, hydraulic fluid, antifreeze, cement curing compounds and other such toxic or hazardous wastes. Wash out of cement trucks should occur in a diked, designated area where the washings can collect and be disposed of properly when they harden (see concrete washout area on plan and detail on sheet C804). Fuel storage tanks must be self contained spill proof tanks.

Solid Waste Materials:

All solid waste materials is be collected and stored in a secure metal dumpster with lid. Dumpster is to be rented from a licensed solid waste management company. The dumpster shall meet all local, state, and federal regulations pertaining to solid waste management. All trash and construction debris from the site shall be deposited in the dumpster or transported from site by licensed waste management company in a legal manner. The dumpster is be emptied a minimum of twice per week or as necessary, and the trash is be hauled to a permitted landfill. No construction waste materials are be buried onsite. All personnel need be instructed on proper procedure for waste disposal. Notices stating proper practices shall be posted in the field office trailer. The individual managing the site construction operations will be responsible for overseeing that proper procedures are followed.

Hazardous Waste:

All hazardous waste materials shall be disposed of in a manner as specified by the manufacturer and by local, state, and federal regulations. Site construction personnel are be instructed in these procedures. The individual in charge of managing site construction operations shall be responsible for overseeing that all required hazardous waste handling procedures are followed.

Sanitary Waste:

All sanitary waste is be collected from all portable units a minimum of three times per week by a licensed sanitary waste management contractor, or as required by the local department of health.

Handling of Toxic Waste:

No Toxic or hazardous waste shall be disposed into storm drains, septic tanks, or by burying, burning, or mixing wastes.

Waste Disposal:

All waste disposal containers must be covered and leak-proff. All construction & demolition debris (C&DD) waste will be disposed of in an Ohio EPA approved C&DD landfill as required by Ohio Revised Code (ORC) 3714.
Note: Construction debris may be disposed of on-site, but demolition debris must be disposed in an Ohio EPA approved landfill.

Note: Materials which contain asbestos must comply with air pollution regulation (see Ohio Administrative Code (OAC) 3745-20).

Trench and Groundwater Dewatering:

All sediment laden pumped water must pass through a sediment basin, filter bag, or sump pit prior to discharge. For this project all trench and groundwater shall be pumped to the sediment basin.

Offsite Vehicle / Sediment Tracking:

A stabilized construction entrance shall be provided to help reduce vehicle tracking of sediments. All paved streets adjacent to the site are be swept daily to remove any excess material tracked from the site. A tire wash is to be installed at no additional cost to the project if deemed necessary by local officials. Dump trucks hauling material from the construction site need to be covered with a tarpaulin.

TIMING OF CONTROLS / MEASURES

As indicated in the Schedule of Construction Activities, stabilized construction entrance, silt fence, and sediment basin will be constructed prior to clearing or grading of any other portions of the site. Areas where construction activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and mulch within 7 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch. After the entire site is stabilized, the accumulated sediment will be removed from the basin.

SOIL PROTECTION CHART

STABILIZATION TYPE	J	F	M	A	M	J	J	A	S	O	N	D
PERMANENT SEEDING			●	●	●	*	*	*	●	●		
DORMANT SEEDING	●	●	●							●	●	●
TEMPORARY SEEDING			●	●	●	*	*	*	●	●		
SODDING			**	**	**	**	**	**	**			
MULCHING	●	●	●	●	●	●	●	●	●	●	●	●

* – IRRIGATION NEEDED

** – IRRIGATION NEEDED FOR 2-3 WEEKS AFTER SOD IS APPLIED

SCHEDULE OF CONSTRUCTION ACTIVITY AS (IT RELATES TO SOIL PROTECTION)

The following is a general construction schedule as estimated by the engineer and by no means dictates the contractor's means and methods for construction or the allowable timeframe as dictated during bidding.

–Install perimeter controls	May 2019	------	May 2019
–Site clearing and grubbing start:	May 2019		
–Install perimeter erosion control barriers within 7 days of the start of clearing and grubbing	May 2019		
–Pavement removal	May 2019	------	Jun 2019
–Temporary and permanent seeding	Jun 2019	------	Aug 2019
–Construction of pavement	Jun 2019	------	Aug 2019
–Completion of site construction	Aug 2019		
–Site stabilized	Aug 2019		
–Erosion protection removed from site	Aug 2019		
–Project Completion	Aug 2019		

MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Practices:

The contractor shall be responsible to perform and maintain a permanent record of maintenance and inspections which must be kept throughout the construction period. Inspections must be made a minimum of once every 7 days and immediately after storm events greater than 0.5 inches of rain in a 24 hour period. Provided for the record shall be a written log which shall contain the following:

- Name of the inspector
- Date of inspection
- Weather conditions
- Major observations
- Inspection of silt fencing to determine sediment depth (built up sediment shall be removed from silt fence when it has reached one-third the height of the fence), tears, noting if fabric securely attached to the posts, and posts are firmly in the ground.
- Temporary/permanent seeding and planting are to be inspected for bare spots, washouts, and healthy growth.
- Corrective measures to be performed
- Date the corrective measures were performed

Note: Deficiencies shall be corrected within 3 days.

Non-Stormwater Discharges:

It is expected that the following non-storm discharges are likely to occur during construction:

1. Water from water line flushings.
2. Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
3. Uncontaminated groundwater (from dewatering excavation).

SPILL PREVENTION:

Material Management Practices: The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping:

The following good housekeeping practices will be followed onsite during the construction project. An effort will be made to store only enough product required to do the job. All materials stored onsite shall be stored in a neat, orderly manner in appropriate containers and, if possible, under a roof or other secure enclosure. Products shall also be kept in their original containers with the original manufacturer's label. Substances are not be mixed with one another unless recommended by the manufacturer. Whenever possible, all of a product will be used up before disposing of the container. Manufacturers' recommendations for proper use and disposal shall be followed. The site superintendent will inspect daily to ensure proper use and disposal of materials onsite.

Hazardous Products:

The following practices are used to reduce the risks associated with hazardous materials. All products are to be kept in original containers unless they are not resealable. Original labels and material safety data must be retained as they contain important product information. If surplus product must be disposed of, manufacturers' or local, state, and federal recommended procedures for proper disposal shall be followed.

GENERAL NOTES:

1. All construction activities must comply with the City of Cleveland regulations.

2. All erosion and sediment control practices must meet the standards and specifications of the Ohio Rainwater and Land Development Handbook. Other erosion control items may be necessary due to environmental conditions.

3. All storm inlets/catch basins that are made operational during construction shall be protected so that sediment-laden water will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.

PRODUCT SPECIFIC PRACTICES

The following product specific practices shall be followed while onsite:

Petroleum Products – All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products must be stored in approved sealed containers which are clearly labeled. Any asphalt substances used onsite are to be applied according to the manufacturer's recommendations.

Fertilizers – Fertilizers used shall be applied in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage of all material shall be in a covered shed. The contents of any partially used bags of fertilizer must be transferred to a sealable container, made of a suitable material to prevent spills.

Paints – All containers shall be tightly sealed and properly stored when not in use. Excess paint is not be discharged to the storm sewer system, but properly disposed of according to manufacturers' instructions or state, local, or federal regulations.

Concrete Trucks – Concrete trucks will not be permitted to wash out or discharge surplus concrete or drum wash water on the site.

Spill Control Practices:

In addition to the good housekeeping and material management practices discussed in previous sections of this plan, the following practices shall be followed for spill prevention and cleanup.

1. The manufacturers' recommended methods for spill cleanup must posted at all times and site personnel shall be aware of the procedures and location of information and cleanup supplies.

2. The materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials shall include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, industrial spill absorption material, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

3. All spills will are to be cleaned up immediately after discovery. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing and equipment to prevent injury from contact with a hazardous substance.

4. Toxic or hazardous material spills or exposures must be reported to the appropriate authorities immediately, regardless of size. The spill prevention plan shall be updated to include procedures for preventing any reoccurrence along with proven successful clean-up procedures.

5. The names of all personnel given the responsibility of hazardous material cleanups shall be posted in the material storage area and in the construction office.

Spill Reporting Requirement:

For larger spill releases (25 or more gallons) of petroleum waste, the contractor / owner must contact the Ohio EPA (at 1-800-282-9378), the local fire department, and the local emergency planning committee (LEPC) within 30 minutes of a spill of 25 or more gallons).

Process Wastewater/Leachate Management:

The NPDES construction storm water general permit only authorizes the discharge of storm water and certain uncontaminated non-storm waters. The discharge of non-storm waters to waters of the state my be in violation of local, state, and federal laws or regulations.

INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present onsite during construction:

1. Concrete
2. Fertilizers
3. Detergents
4. Petroleum based products
5. Paints and varnishes
6. Cleaning solvents
7. Metal studs
8. Lumber and timber
9. Asphalt
10. Masonry block
11. Tar
12. Roofing materials
13. Other potential materials not listed

NOTES ABOUT FINAL STABILIZATION

A site is considered stabilized when all of the following criteria are met:

- A perennial, vegetated cover (or other permanent stabilization practice) has grown to a 75% density throughout the entire disturbed area.
- All temporary erosion and sediment controls have been removed and disposed of properly.
- All trapped sediment has been permanently stabilized to prevent further erosion or re-suspension.
- All construction activities have ceased.

Seeding and mulching of all disturbed areas whether permanent or temporary must follow the following schedule as applicable:

TABLE 1: PERMANENT SEEDING

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
Any area that will lie dormant for one year or more.	Within 7 days of the most recent disturbance.
Any area within 50 feet of a stream and at final grade.	Within 2 days of reaching final grade.
Any area at final grade.	Within 7 days of reaching final grade within that area.

TABLE 2: TEMPORARY SEEDING

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
Any disturbed area within 50 feet of a stream and not at final grade.	Within 2 days of the most recent disturbance, if that area will remain idle for more than 14 days.
For all construction activities, any disturbed area, including stockpiles, that will be dormant for more than 14 days but less than one year, and not within 50 feet of a stream.	Within 7 days of the most recent disturbance within the area.
Disturbed areas that will be idle over the winter.	Prior to November 1.

NOTE: Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. These techniques may include mulching, erosion matting, or placement of stone.

TEMPORARY SEEDING

Description

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./1,000 ft.^{2}	Per Ac.
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	4 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 lb. 40 lb. 40 lb.
August 16 to November 1	Rye Tall Fescue Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Wheat Tall Fescue Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 lb. 40 lb. 40 lb.
November 1 to Spring Seeding	Use mulch only, sodding practices or dormant seeding.		
Note: Other approved seed 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 more. These idle areas should be seeded as soon as possible after grading or shall be seeded within 7 days. Several applications of temporary seeding are necessary on typical construction projects.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. However, temporary seeding shall not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments--Applications of temporary vegetation shall establish adequate stands of vegetation which may require the use of soil amendments. Soil tests should be taken on the site to predict the need for lime and fertilizer.
5. Seeding Method--Seed shall be applied uniformly with a cyclone seeder, 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 seeding shall include mulch which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization.
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 lb. per 1,000 square feet (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square foot sections and spread two 45 lb. bales of straw in each section.
   - Hydroseeders--If wood-cellulose fiber is used, it shall be used at 2,000 lb. per acre or 46 lb. per 1,000 square feet.
   - Other--Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
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, generally, be left longer than 6 inches.

- Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentration runoff and on critical slopes.
- Asphalt Emulsion--Asphalt shall be applied as recommended by the manufacturer 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 equal may be used at rates recommended by the manufacturer.

Wood-Cellulose Fiber--Wood-cellulose fiber binder shall be applied at a net dry weight of 750 lb. per acre. The wood-cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lb. per 100 gallons.

100% DESIGN SUBMITTAL - NOT FOR CONSTRUCTION

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED PROFESSIONAL ENGINEER
08/24/17

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL WPC

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
SWPPP NOTES

DRAWN BY: JDR	SCALE	C-010	SHEET 11 / 13
DESIGN BY: JDR	DATE:	DWG NO:	RECORD NO:
CHECKED BY: GDC			

FILE ID:

PERMANENT SEEDING

Description

Permanent seeding includes the seedbed preparation, seeding, and the establishment of perennial vegetation used to permanently stabilize soil, prevent sediment pollution, reduce runoff by promoting infiltration, and provide stormwater quality benefits offered by dense vegetation.

Permanent Seed mix shall conform to the University of Akron lawn seeding mix. Copies of the seed mix shall be submitted to the owner for approval.

Specifications for Permanent Seeding

Site Preparation

1. A 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. Resoil 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 lb. per 1,000 square feet or 2 tons per acre.
2. Fertilizer--Fertilizer shall be applied as recommended by a soil test. In lieu of a soil test, fertilizer shall be applied at a rate of 12 lb. per 1,000 square feet or 500 lb. per acre of 10-10-10 or 12-12-12 analysis.
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. These seeding dates are ideal but, with the use of additional mulch and irrigation, seedings may be made any time throughout the growing season. Tillage/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 shall not be planted 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 fertilizer, 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-seeded (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. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization. Dormant seeding shall be mulched.
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 lb. per 1,000 square feet (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and spread two 45 lb. bales of straw in each section.
   - Hydroseeders--If wood-cellulose fiber is used, it shall be used at 2,000 lb. per acre or 46 lb. per 1,000 square feet.
   - Other--Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
3. Straw 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 Nettings--Nettings 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 manufacturer 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 equal may be used at rates recommended by the manufacturer.
- Wood-Cellulose Fiber--Wood-cellulose fiber binder shall be applied at a net dry weight of 750 lb. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lb. per 100 gallons of wood cellulose fiber.

Irrigation

1. Permanent seeding shall include irrigation to establish vegetation during dry or hot weather or on adverse site conditions as needed for adequate moisture for seed germination and plant growth.
2. Excessive irrigation rates shall be avoided and irrigation monitored to prevent erosion and damage from runoff.

Specifications for Maintenance of Permanent Seeding

1. Permanent seeding shall not be considered established for at least 1 full year from the time of planting. Seeded areas shall be inspected for failure and vegetation reestablished as needed. Depending on site conditions, it may be necessary to irrigate, fertilize, overseed, or reestablish plantings in order to provide permanent vegetation for adequate erosion control.
2. Maintenance fertilization rates shall be established by soil test recommendations or by using the rates shown in the following table.

Maintenance for Permanent Seedings
Fertilization and Mowing

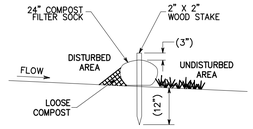
Mixture	Formula	lb./ac.	lb./1,000 ft²	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12	Fall, yearly or as needed.	Not closer than 3"
Tall Fescue	10-10-10	500	12		Not closer than 4"
Dwarf Fescue	10-10-10	500	12		Not closer than 2"
Crown Vetch Fescue	0-20-20	400	10	Spring, yearly following establishment and every 4-7 yr. thereafter	Do not mow
Flat Pea Fescue	0-20-20	400	10		Do not mow

Note: Following soil test recommendations is preferred to fertilizer rates shown above.

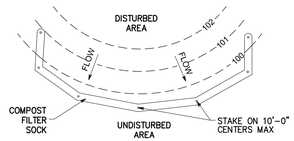
COMPOST FILTER SOCK

Description

Compost Filter Sock is a sediment-trapping practice utilizing a geotextile sock, topography and vegetation to cause sediment deposition. Filter socks reduces runoff's ability to transport sediment by ponding runoff and dissipating small rills of concentrated flow into uniform sheet flow.



SECTION VIEW



PLAN VIEW

SOCK FABRIC SHALL MEET THE GUIDELINES OF THE ODNR BEST MANAGEMENT PRACTICES.

COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	80%-100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5-8.0
MOISTURE CONTENT	35%-55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONTENT	5.0 dS MAXIMUM

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (SEE ABOVE). SEE TABLE BELOW FOR MAXIMUM SLOPE LENGTH ABOVE SEDIMENT BARRIERS.

% SLOPE	DISTANCE BETWEEN BARRIERS IN FEET
2-8	110-92
8-12	92-75
12-18	80-60
18-24	60-52

TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES ½ THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

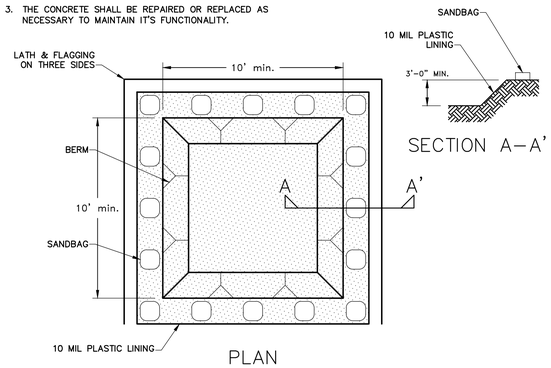
CONCRETE WASHOUT AREA

Description

A concrete wash out area is a stabilized lined collection area where trucks, pans and tools can be washed off after working with concrete.

NOTES:

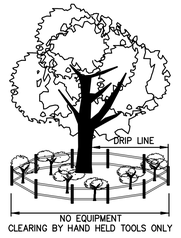
1. FINAL LOCATION AND SIZE TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY. THE SIGN SHALL BE A MIN. OF 24"X24" WITH 4" MIN. LETTER HEIGHT MOUNTED 72" MIN. ABOVE GRADE.
3. THE CONCRETE SHALL BE REPAIRED OR REPLACED AS NECESSARY TO MAINTAIN IT'S FUNCTIONALITY.

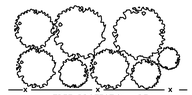


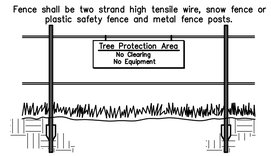
TREE PRESERVATION AREA

Description

Trees that exist on-site prior to development may be protected so that will continue to survive after construction. Tree preservation may be used to protect areas of forest such as buffers strips along streams or to protect individual specimen trees.







Specifications for Tree Preservation Area

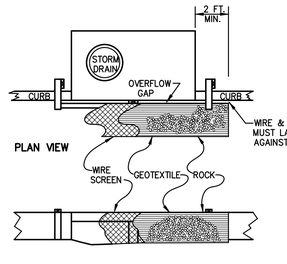
1. Tree preservation areas shall be fenced prior to beginning clearing operations.
2. Fence materials shall be metal fence posts with two stands of high tensile wire, plastic fence or snow fence.
3. Signage shall clearly identify the tree protection area and state that no clearing or equipment is allowed within it.
4. Fence shall remain around tree protection areas until after final grading has been completed.
5. Fence shall be placed as shown on plans and beyond the drip line or canopy of trees to be protected.
6. If any clearing is done around specimen trees it shall be done by cutting at ground level with hand held tools and shall not be grubbed or pulled out. No clearing shall be done in buffer strips or other preserved forested areas.

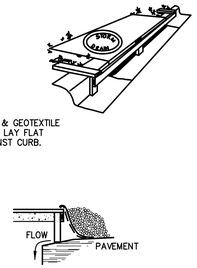
STORM DRAIN INLET PROTECTION

Description

Storm drain inlet protection consists of a geotextile barrier supported around or across a storm drain inlet. It is used to prevent sediment-laden water from entering a storm drain system. It reduces the rate at which sediment-laden water may enter an inlet, thereby causing ponding and settling of sediment.

Specifications for Curb Inlet Protection

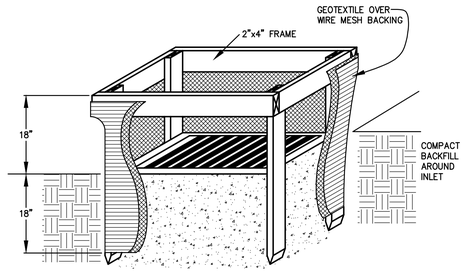




Specifications for Curb Inlet Protection

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the storm drain becomes operational.
2. The wooden frame is to be constructed of 2-by-4 inch construction-grade lumber. The end spacers shall be a minimum of 1 foot beyond both ends of the throat opening. The anchors shall be nailed to 2-by-4 inch 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 inches and 4 feet longer than the throat length of the inlet, 2 feet 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 inch 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.

Specifications for Inlet Protection in Swales, Ditch Lines or Yard Inlets



Specifications for Inlet Protection in Swales, Ditch Lines or Yard Inlets

1. Inlet protection shall be constructed either before upslope land disturbance begins or before the storm drain becomes operational.
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-by-4-inch construction-grade lumber. The 2-by-4-inch posts shall be driven 1 foot into the ground at four corners of the inlet and the top portion of 2-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 would 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 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 and if runoff bypassing the inlet will not flow to a settling pond. The top of earth dikes shall be at least 6 inches higher than the top of the frame.

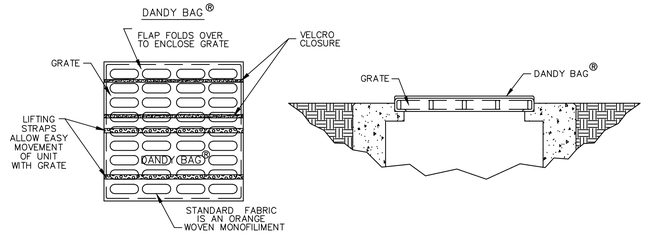
DANDY BAG®

Installation and Maintenance Guidelines

LOCATION: TO BE USED ON ALL INLETS OR CATCHBASINS IN PAVED AREAS.

Installation: The empty Dandy Bag® should be placed over the grate as the grate stands on end. If using optional oil absorbents; place absorbent pillow in pouch, on the bottom (below-grade side) of the unit. Attach absorbent pillow to tether loop. Tuck the enclosure flap inside to completely enclose the grate. Holding the lifting devices (do not rely on lifting devices to support the entire weight of the grate), place the grate into its frame.

Maintenance: Remove all accumulated sediment and debris from surface and vicinity of Dandy Bag® after each storm event. Remove sediment that has accumulated within the containment area of the Dandy Bag® as needed. If using optional oil absorbents; remove and replace absorbent pillow when near saturation.



PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED PROFESSIONAL ENGINEER
Gregory D. Cifra, P.E.
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND WATER POLLUTION CONTROL WPC

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT: **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
SWPPP NOTES

DRAWN BY:	JDR	SCALE	
DESIGN BY:	JDR	DATE:	DWG NO: C-011
CHECKED BY:	GDC		RECORD NO:

SHEET 12 13

FOR BID / PERMIT

FILE ID:

Appendix F –Corrective Action Log

Project Name:
SWPPP Contact:

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible person

Appendix G – SWPPP Amendment Log

Project Name:
SWPPP Contact:

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Appendix I – Grading and Stabilization Activities Log

Project Name:
SWPPP Contact:

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measure and Location

Appendix H – Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

Appendix J – SWPPP Training Log

Stormwater Pollution Prevention Training Log

Project Name:

Project Location:

Instructor's Name(s):

Instructor's Title(s):

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- ❑ **Erosion Control BMPs**
- ❑ **Emergency Procedures**
- ❑ **Sediment Control BMPs**
- ❑ **Good Housekeeping BMPs**
- ❑ **Non-Stormwater BMPs**

Specific Training Objective:_____

_____

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Appendix K – Delegation of Authority Form

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in _____ (Reference State Permit), and that the designee above meets the definition of a "duly authorized representative" as set forth in _____ (Reference State Permit).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

FOR BID / PERMIT

PROJECT ADDRESS:
12302 KIRBY AVE
CLEVELAND, OH 44108

STATE OF OHIO
GREGORY D. CIFRA
#E-68267
REGISTERED
PROFESSIONAL ENGINEER
Gregory D. Cifra, P.E.
01/08/19

AECOM
1300 E. 9TH ST, SUITE 500
CLEVELAND, OH 44114

CITY OF CLEVELAND
WPC
WATER POLLUTION CONTROL

REVISIONS		
NO	DATE	BY

CITY OF CLEVELAND
CLEVELAND DIVISION OF WATER POLLUTION CONTROL
DEPARTMENT OF PUBLIC UTILITIES
CLEVELAND, OHIO

SUBJECT **PAVEMENT AND DRAINAGE IMPROVEMENT**
CIVIL - PHASE II
SWPPP INSPECTION FORMS

DRAWN BY: JDR
DESIGN BY: JDR
CHECKED BY: GDC
SCALE
DATE:
DWG NO: **C-012**
RECORD NO:
SHEET 13 13

FILE ID: