

# MULTI-LOCATION STORM WATER INFRASTRUCTURE

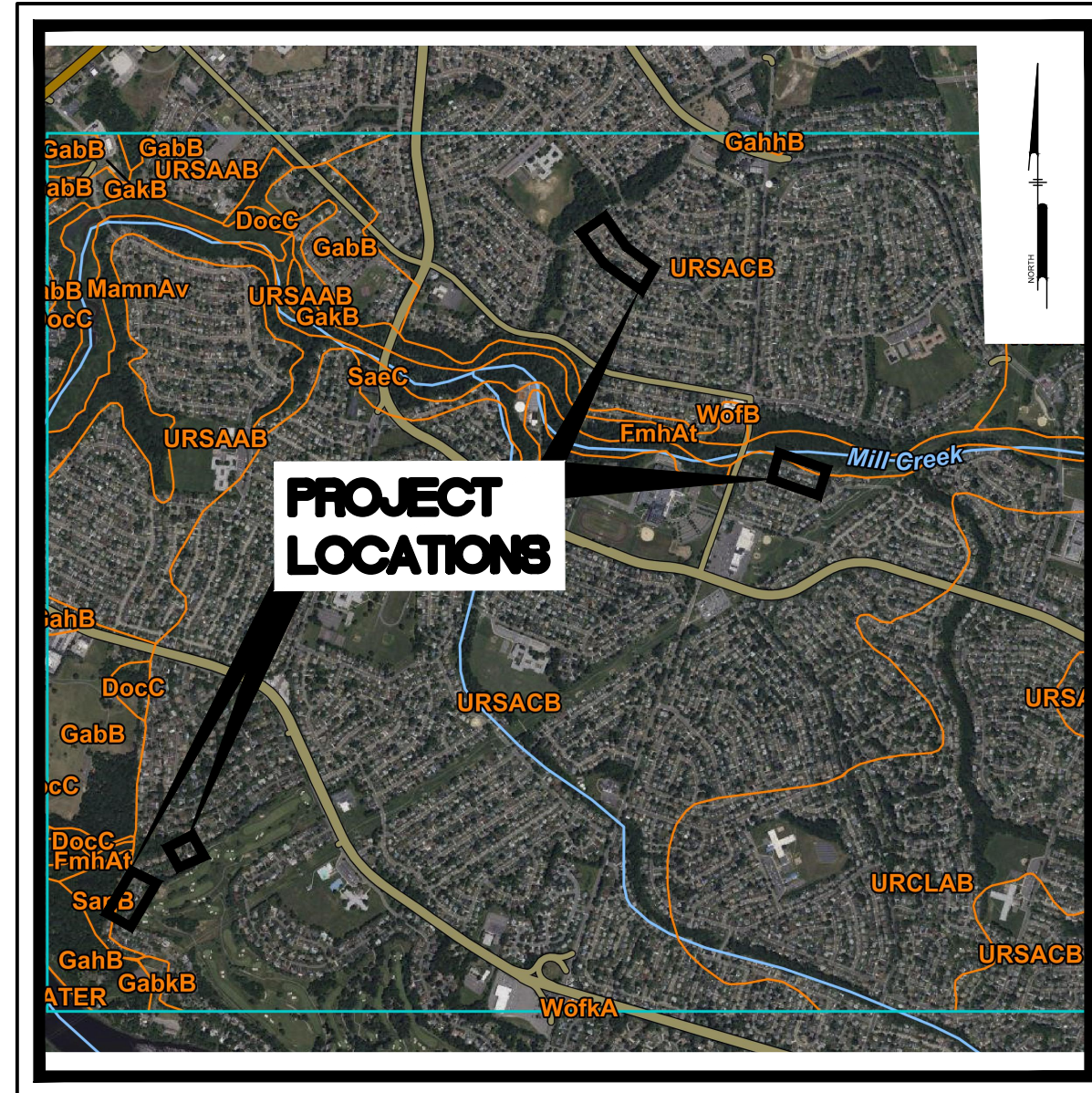
TOWNSHIP OF WILLINGBORO, BURLINGTON COUNTY, NEW JERSEY

## BERKSHIRE LANE, CLUBHOUSE DRIVE, HOLSTONE LANE

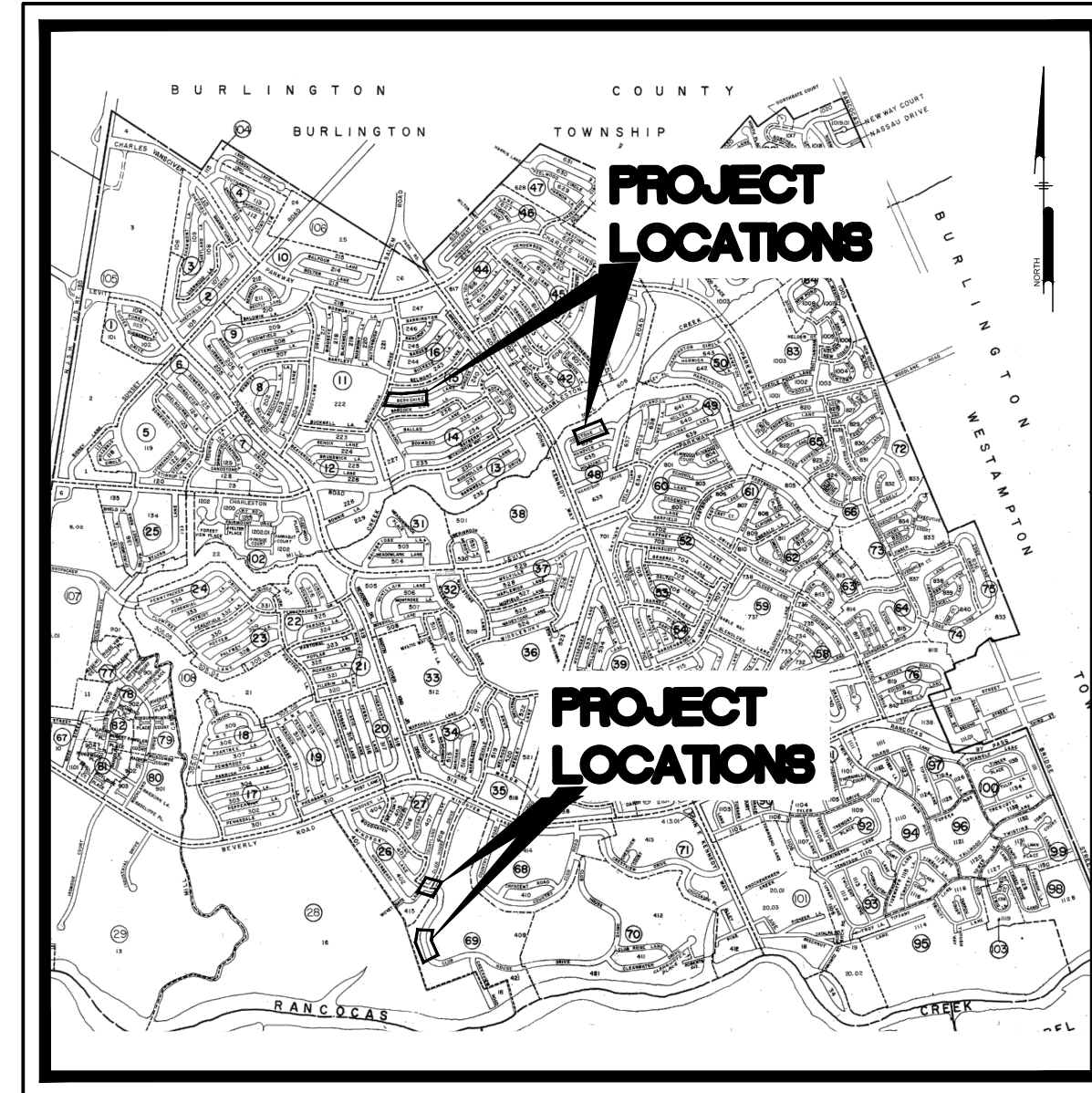
PREPARED FOR:  
OWNER

### TOWNSHIP OF WILLINGBORO

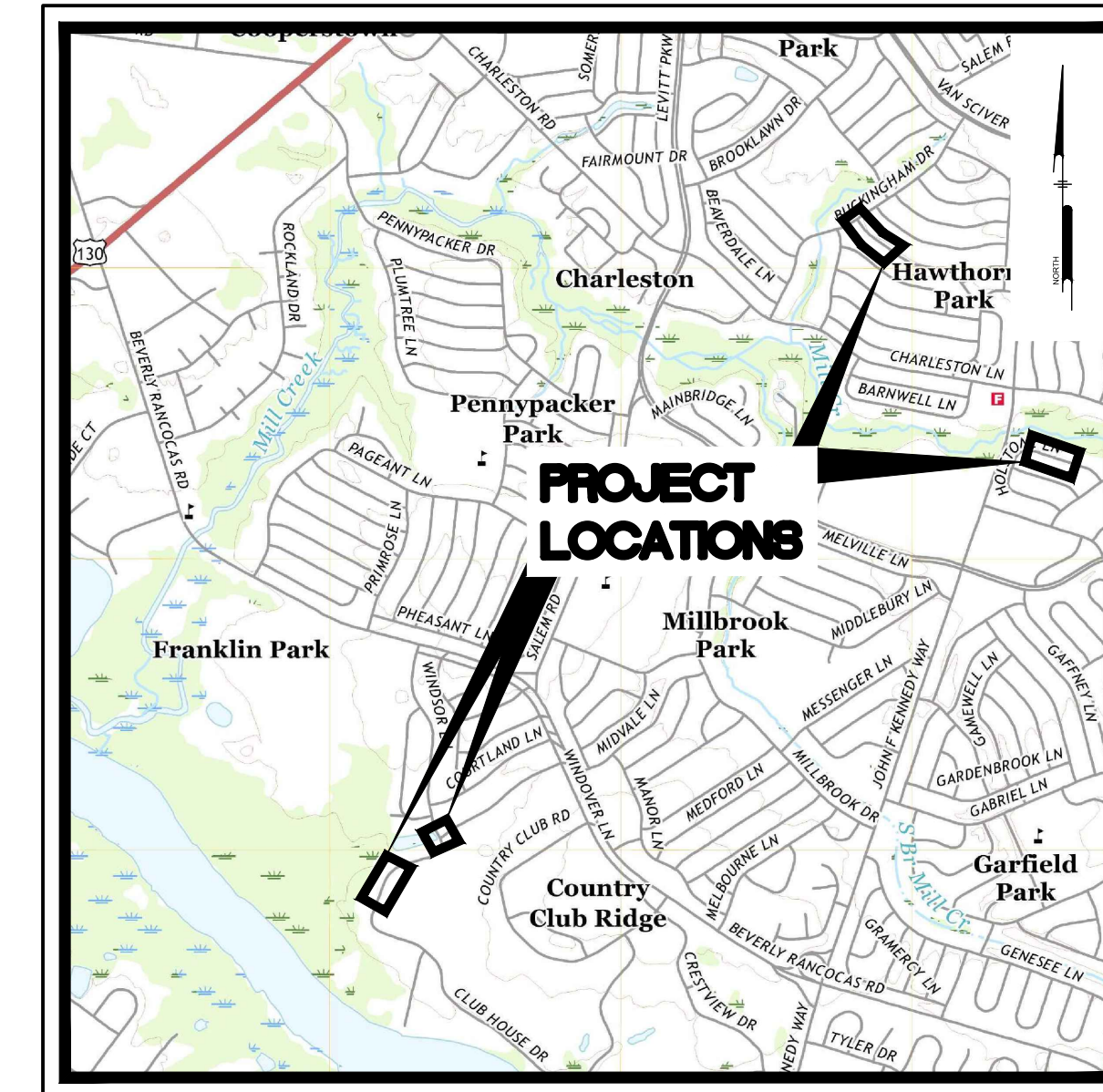
1 REV DR MARTIN LUTHER KING JR DRIVE  
WILLINGBORO, NJ 08046



SOILS MAP  
Scale: NTS



LOCATION MAP  
Scale: NTS



USGS MAP  
Scale: 1" = 2000'

U:\Admin\WTC\WTC22025 - 2023 Multi-Location Storm Water Infrastructure\DWG\_SHEETS\C0M001.dwg PLOTTED: 11/16/2023 12:15 PM BY: Kevin Shih PROJECT STATUS: PROJECT STATUS

PREPARED BY:  
**PENNONI ASSOCIATES INC.**



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NEW JERSEY



CALL BEFORE YOU DIG  
1-800-272-1000

CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH THE REQUIREMENTS OF THE NEW JERSEY ONE-CALL DAMAGE PREVENTION SYSTEM AS STATED IN THE "UNDERGROUND FACILITY PROTECTION ACT."

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK

HUGH J. DOUGHERTY  
PROFESSIONAL ENGINEER  
NEW JERSEY LICENSE NO. GE34634

*Hugh Dougherty*  
06/01/2023

MULTI-LOCATION STORM WATER INFRASTRUCTURE  
WILLINGBORO TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY

COVER SHEET

WILLINGBORO TOWNSHIP  
1 REV DR MARTIN LUTHER KING JR RD  
WILLINGBORO, NJ 08046

NO.	DATE	REVISIONS	BY

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PROJECT WTCX22025  
DATE JUNE 01, 2023  
DRAWING SCALE AS NOTED  
DRAWN BY GP  
APPROVED BY HJD

**CM001**  
SHEET 1 OF 5



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NJ COA. NO. GA28033300

U:\Information\TC\W\2202205 - 2023 Multi Location Storm Water Infrastructure.dwg PLOT DATE: 11/16/2023 10:15 PM BY: Kevin Shih PLOT STYLE: PROJECT STYLES

**GENERAL NOTES:**

- CURB RAMPS AND SIDEWALKS THAT ARE CONSTRUCTED NOT IN COMPLIANCE WITH ADA ACCESSIBILITY REQUIREMENTS INCLUDING MAXIMUM RUNNING SLOPES, MAXIMUM CROSS SLOPES, LANDING AREA LOCATION AND SIZE, DIVERGING SIDEWALK DROP OFF PROTECTION, BLENDED TRANSITIONS, BLENDED TRANSITION RUNNING SLOPES AND CROSS SLOPES, FLARE WIDTHS, GRADE BREAKS AND GRADE BREAK DIRECTIONS, CLEAR SPACE SIZE AND LOCATION, WILL NOT BE ACCEPTED.
- NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2019 AND CURRENT AND SUPPLEMENTARY SPECIFICATIONS THERETO GOVERN.
- SUPPLEMENTARY SPECIFICATIONS FOR STATE AID PROJECTS APPLY.
- REFER TO CURRENT "NJDOT STANDARD ROADWAY CONSTRUCTION--TRAFFIC CONTROL--BRIDGE CONSTRUCTION DETAILS 2019" FOR ADDITIONAL GUIDANCE.
- ALL DIMENSIONS, QUANTITIES AND EXISTING PHYSICAL CHARACTERISTICS OF THE WORK AREA SHALL BE REVIEWED AND FIELD VERIFIED BY THE CONTRACTOR PRIOR TO SUBMITTING A BID, MATERIAL ORDERING OR FABRICATION OF ANY PART OF THE WORK. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- PRIOR TO THE START OF ANY OF THE CONSTRUCTION THE CONTRACTOR SHALL CALL THE "ONE CALL" NUMBER (1-800-272-1000) FOR UTILITY MARKOUT LOCATION AND NOTIFICATION. THE CONFIRMATION NUMBER SHALL BE GIVEN TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION.
- IT IS THE OBLIGATION AND COST OF THE CONTRACTOR TO CONDUCT HIS OWN SUBSURFACE INVESTIGATIONS AS HE MAY DEEM NECESSARY. THIS INVESTIGATION SHALL BE COMPLETED PRIOR TO BID SUBMITTAL TO DETERMINE ANY UNIQUE CONDITIONS OR MATERIALS THAT MAY EXIST WHICH COULD EFFECT THE CONSTRUCTION OR COST. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY SUCH FINDINGS.
- EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK PREMOLDED BITUMINOUS IMPREGNATED MATERIAL FOR THE FULL DEPTH OF THE THINNER MATERIAL. COST FOR THIS ITEM SHALL BE INCLUDED IN THE UNIT COST OF EITHER SIDEWALK, CURB, OR APRON, WHICHEVER APPROPRIATE, IN THE BID PROPOSAL.
- WHERE NEW SIDEWALK IS TO BE INSTALLED ADJACENT TO EXISTING SIDEWALK, DRIVEWAY, POLE, ETC., AN EXPANSION JOINT SHALL BE PLACED BETWEEN EACH AND THE NEW SIDEWALK ELEVATION SHALL MATCH THAT OF THE EXISTING IMPROVEMENT.
- EXISTING ITEMS NOTED ON THE PLANS FOR REMOVAL ARE INTENDED TO BEGIN AND TERMINATE AT EXISTING JOINTS HOWEVER, WHERE A JOINT DOES NOT EXIST THEN THE CONTRACTOR WILL BE REQUIRED TO "SAW CUT" TO MAKE AN EVEN, STRAIGHT LINE SEPARATION. THE COST OF THIS ITEM SHALL BE INCLUDED IN THE COST FOR EACH UNIT LISTED IN THE APPROPRIATE BID PROPOSAL ITEM.
- EXTREME CARE SHALL BE EXERCISED BY THE CONTRACTOR WHEN REMOVING EXISTING SIDEWALK, CURB OR DRIVEWAY MATERIAL SO AS NOT TO DISTURB ADJACENT IMPROVEMENTS. ADJACENT IMPROVEMENTS DISTURBED DURING REMOVAL OF THE NOTED ITEMS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.
- ALL CONCRETE SHALL BE 28 DAY AIR ENTRAINED (3% TO 5%) CONCRETE. CONCRETE COMPRESSIVE STRENGTH OF (F'C) 4000 PSI MINIMUM SHALL BE DEVELOPED UNLESS NOTED OTHERWISE.
- ALL EDGES (VERTICAL/HORIZONTAL) BETWEEN EXISTING PAVEMENT OR NEW/EXISTING CURB AND NEW PAVEMENT SHALL HAVE TACKCOAT APPLIED. COST FOR THIS ITEM SHALL BE INCLUDED IN THE UNIT COST FOR HMA SURFACE COURSE LISTED IN THE BID PROPOSAL.
- MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) AS DEFINED AND DESCRIBED IN THE SPECIFICATION'S SHALL BE STRICTLY FOLLOWED. A DETOUR PLAN SHALL NOT BE PERMITTED. COST FOR THIS ITEM SHALL BE INCLUDED IN THE COST FOR EACH UNIT LISTED IN THE BID PROPOSAL.
- SANITARY SEWER CLEANOUTS IN CONCRETE REPLACEMENT/INSTALLATION AREAS SHALL RECEIVE A CAST IRON STREET BOX WITH "SEWER" LETTERED IN THE LID.
- EXISTING UTILITIES INCLUDING PRIVATE LAWN SPRINKLER HEADS, WATER METER(S), VALVE BOXES, CLEAN OUTS, CURB STOPS, ETC. SHALL BE ADJUSTED TO MATCH THE FINISHED GRADE BY THE CONTRACTOR; COST FOR THIS ITEM SHALL BE INCLUDED IN AND DISTRIBUTED AMONG THE ITEMS IN THE BID PROPOSAL. WHERE UTILITIES OCCUR IN THE CONCRETE AREAS, THE ITEM SHALL BE EITHER "BOXED OUT" AND GROUTED WITH NON-SHRINK GROUT OR RAISED TO FINISHED GRADE THEN THE CONCRETE POURED. THE END RESULT REQUIRED IS THAT NO CHANGE IN ELEVATION SHALL REMAIN AFTER THE CONSTRUCTION IS COMPLETED.
- SIDEWALK AREAS THAT SHALL BE REMOVED AND REPLACED ARE GENERALLY NOTED PHYSICALLY WITH A PAINT SPLOTCH. PRIOR TO THE REMOVAL OF ANY SIDEWALK THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER OR HIS REPRESENTATIVE THE EXACT EXTENT AND QUANTITY.
- CONCRETE SIDEWALK ADJACENT TO PROPOSED HANDICAP RAMPS SHALL BE REPLACED AS NEEDED TO PROVIDE AN ADA-COMPLIANT RAMP.
- ALL MONUMENTS TO BE RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN NEW JERSEY.
- CONTRACTOR IS RESPONSIBLE FOR SAW CUTTING ANY EXISTING CONCRETE (EX: FACE FORM POURS) THAT PROTRUDES INTO NEW ROADWAY.
- CONTRACTOR SHALL ENSURE THAT STORMWATER WILL NOT BECOME TRAPPED AT EXISTING DRIVEWAY APRONS.
- STANDARD CONSTRUCTION DETAILS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE DEPARTMENT OF TRANSPORTATION
- CONTRACTOR SHALL POST AND MAINTAIN ALL EEO AND LABOR NOTICES IN A PROMINENT AND ACCESSIBLE LOCATION WITHIN THE PROJECT LIMITS WHERE THE NOTICES CAN BE EASILY VISIBLE BY THOSE STAFFING THE PROJECT (ATT. 2 D.2.A., STATE AID SPECIFICATIONS). ALL POSTED INFORMATION SHALL BE PRESENTED IN A CLEAR MANNER AND PROTECTED FROM THE WEATHER

Item #	Description	Quantity	
<b>Base Bid</b>			
1	Mobilization	1	LS
2	Excavation, Unclassified (If & Where Directed)	100	SY
3	HMA 9.5M64 Surface Course, 2" Thick	96	SY
4	HMA 19M64 Base Course, 4" Thick	96	SY
5	DGA 6" Thick	96	SY
6	Concrete Rolled Curb (If & Where Directed)	120	LF
7	Concrete Vertical Curb (If & Where Directed)	40	LF
8	Concrete Sidewalk, 4" Thick (If & Where Directed)	50	SY
9	Jet Clean and TV 18" RCP	455	LF
10	Jet Clean and TV 24" RCP	719	LF
11	Heavy Root Clearing, 18" RCP	430	LF
12	Install 18" CIPP Liner (If & Where Directed)	455	LF
13	Install 24" CIPP Liner (If & Where Directed)	719	LF
14	Install 18" HDPE	85	LF
15	Install 48" HDPE	61	LF
16	Install End Cap, 18" CMP	1	UN
17	Repair & Parge Existing Inlet, 2' Depth	3	UN
18	Manhole Modifications for 48" HDPE	1	UN
19	Install New Type-B Inlet with New Frame, "ECO" Head, and Bicycle-Safe Grate	3	UN
20	Install Type-B Inlet Frame, "ECO" Head, and Bicycle-Safe Grate	5	UN
21	Install New Flared End Section	1	UN
22	Rip Rap Stone, 4" Thick	10	SY
23	Tree Removal - 6" to 24" Dia	4	UN

<p><b>EXISTING</b></p>	<p><b>LEGEND</b></p> <p>BUILDING</p> <p>FENCE</p> <p>CURB</p> <p>DEPRESSED CURB</p> <p>SIDEWALK</p> <p>CONCRETE</p> <p>MILLOVERLAY PAVEMENT</p> <p>FULL DEPTH PAVEMENT REPLACEMENT/BASE REPAIR</p> <p>GRASS INFILL AREA</p> <p>INLET PROTECTION/REPAIR</p> <p>LIMIT OF WORK AREA</p> <p>SPOT ELEVATION</p> <p>IRRIGATION HEAD</p> <p>LIGHT</p> <p>BOLLARD</p> <p>SIGN</p> <p>SIGN POST AND BOARD</p> <p>CABLE TV JUNCTION BOX</p> <p>CABLE TV MANHOLE</p> <p>COMMUNICATIONS MANHOLE</p> <p>COMMUNICATIONS HANDHOLE</p> <p>FIBER HANDHOLE</p> <p>FIBER JUNCTION BOX</p> <p>FIBER MANHOLE</p> <p>GAS MANHOLE</p> <p>GAS METER</p> <p>GAS STUB OUT</p> <p>GAS VALVE</p> <p>ELECTRICAL HANDHOLE</p> <p>ELECTRICAL METER</p> <p>ELECTRICAL MANHOLE</p> <p>ELECTRICAL PANEL BOX</p> <p>ELECTRICAL PEDESTAL</p> <p>ELECTRICAL STUB OUT</p> <p>ELECTRICAL STUB OUT</p> <p>MONITORING WELL</p> <p>SANITARY SEWER CLEANOUT</p> <p>SANITARY SEWER CLEANOUT</p> <p>SANITARY MANHOLE</p> <p>STEAM MANHOLE</p> <p>STORM DRAIN CLEANOUT</p> <p>STORM DRAIN MANHOLE</p> <p>STORM DRAIN FLARED END SECTION</p> <p>STORM DRAIN HEADWALL</p> <p>STORM DRAIN ID</p> <p>STORM DRAIN INLET</p> <p>STORM ROOF DRAIN</p> <p>STORM STAND PIPE</p> <p>STORM DRAIN WING WALL</p>	<p><b>EXISTING</b></p>	<p><b>LEGEND</b></p> <p>TELEPHONE HANDHOLE</p> <p>TELEPHONE JUNCTION BOX</p> <p>TELEPHONE MANHOLE</p> <p>TELEPHONE PANEL BOX</p> <p>TELEPHONE PEDESTAL</p> <p>EMERGENCY CALL STATION</p> <p>SEPTIC TANK</p> <p>UTILITY POLE</p> <p>BUSH</p> <p>CONIFEROUS TREE</p> <p>DECIDUOUS TREE</p> <p>STUMP</p> <p>FIRE HYDRANT</p> <p>WATER MANHOLE</p> <p>WATER POST INDICATOR VALVE</p> <p>SIAMESE / FIRE DEPARTMENT CONNECTION</p> <p>WATER STUB OUT</p> <p>WATER VALVE</p> <p>WATER METER</p> <p>CURB BOX</p> <p>UNIDENTIFIED HANDHOLE</p> <p>UNIDENTIFIED JUNCTION BOX</p> <p>UNIDENTIFIED MANHOLE</p> <p>UNIDENTIFIED PANEL BOX</p> <p>UNIDENTIFIED PEDESTAL</p> <p>UNIDENTIFIED VALVE</p>
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SHEET #	CM	TITLE	DATE	LAST REVISED
1	CM0001	COVER SHEET	6/1/2023	
2	CM0002	GENERAL NOTES	6/1/2023	
3	CM1001	BERKSHIRE LANE- SITE PLAN 1	6/1/2023	
4	CM1002	HOLDSTONE, WINDSOR, AND CLUB HOUSE - SITE PLAN 2	6/1/2023	
5	CM1003	DETAILS SHEET	6/1/2023	

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**HUGH J. DOUGHERTY**  
PROFESSIONAL ENGINEER  
NEW JERSEY LICENSE NO. GE34634

06/01/2023

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**MULTI-LOCATION STORM WATER INFRASTRUCTURE**  
WILLINGBORO TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY

**GENERAL NOTES**

WILLINGBORO TOWNSHIP  
1 REV DR MARTIN LUTHER KING JR RD  
WILLINGBORO, NJ 08046

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NO.	DATE	REVISIONS	BY

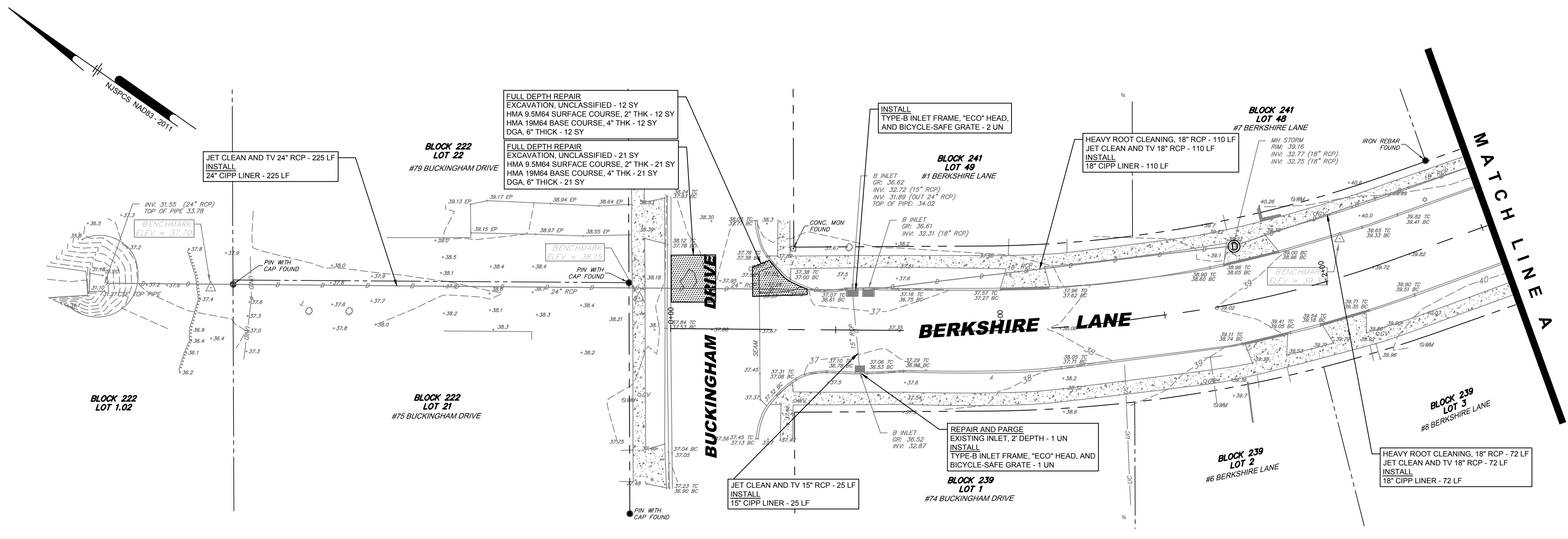
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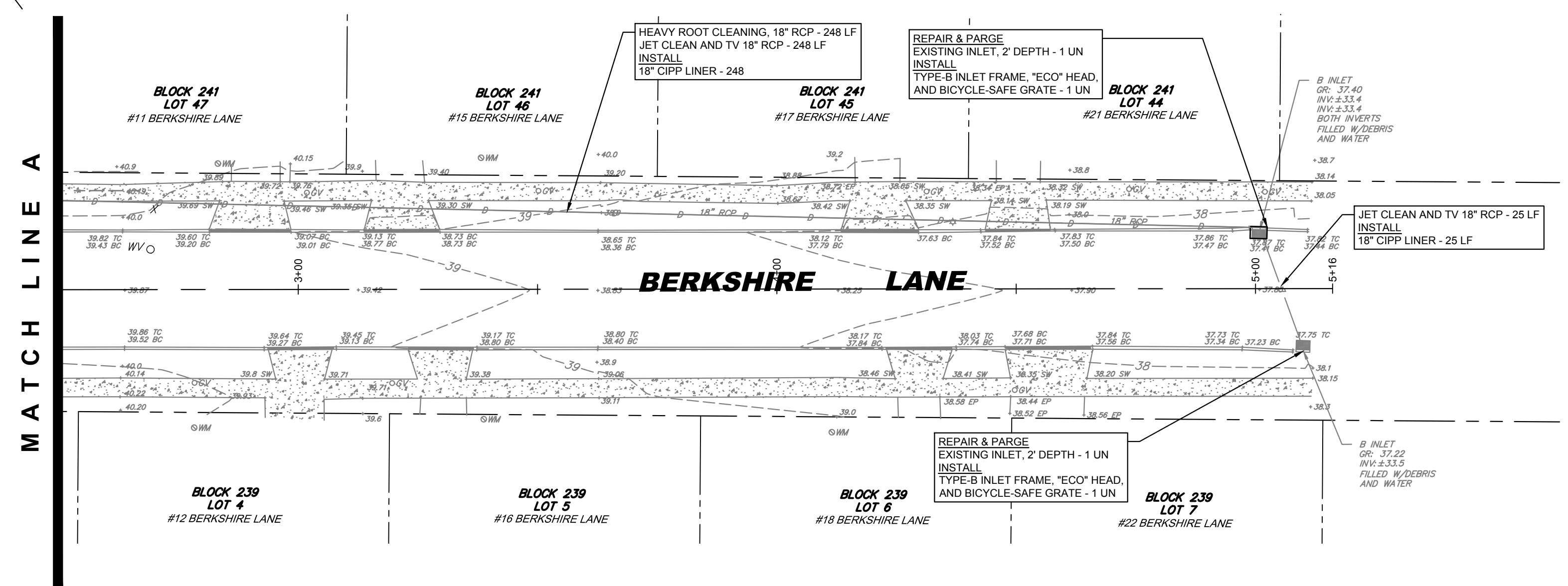
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DATE: JUNE 01, 2023  
DRAWING SCALE: AS NOTED  
DRAWN BY: GP  
APPROVED BY: HUD

CM0002

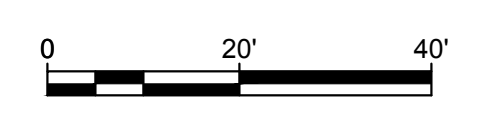
SHEET 2 OF 5



BERKSHIRE LANE STA 0+00 TO STA 2+51  
SCALE: 1" = 20'



BERKSHIRE LANE STA 2+51 TO STA 5+16  
SCALE: 1" = 20'



**Pennoni**  
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 NEW JERSEY LICENSE NO. GE34634

*Hugh Dougherty*  
 06/01/2023

**MULTI-LOCATION STORM WATER INFRASTRUCTURE**  
 WILLINGBORO TOWNSHIP, BURLINGTON COUNTY, NEW JERSEY

**SITE PLANS - BERKSHIRE LANE**

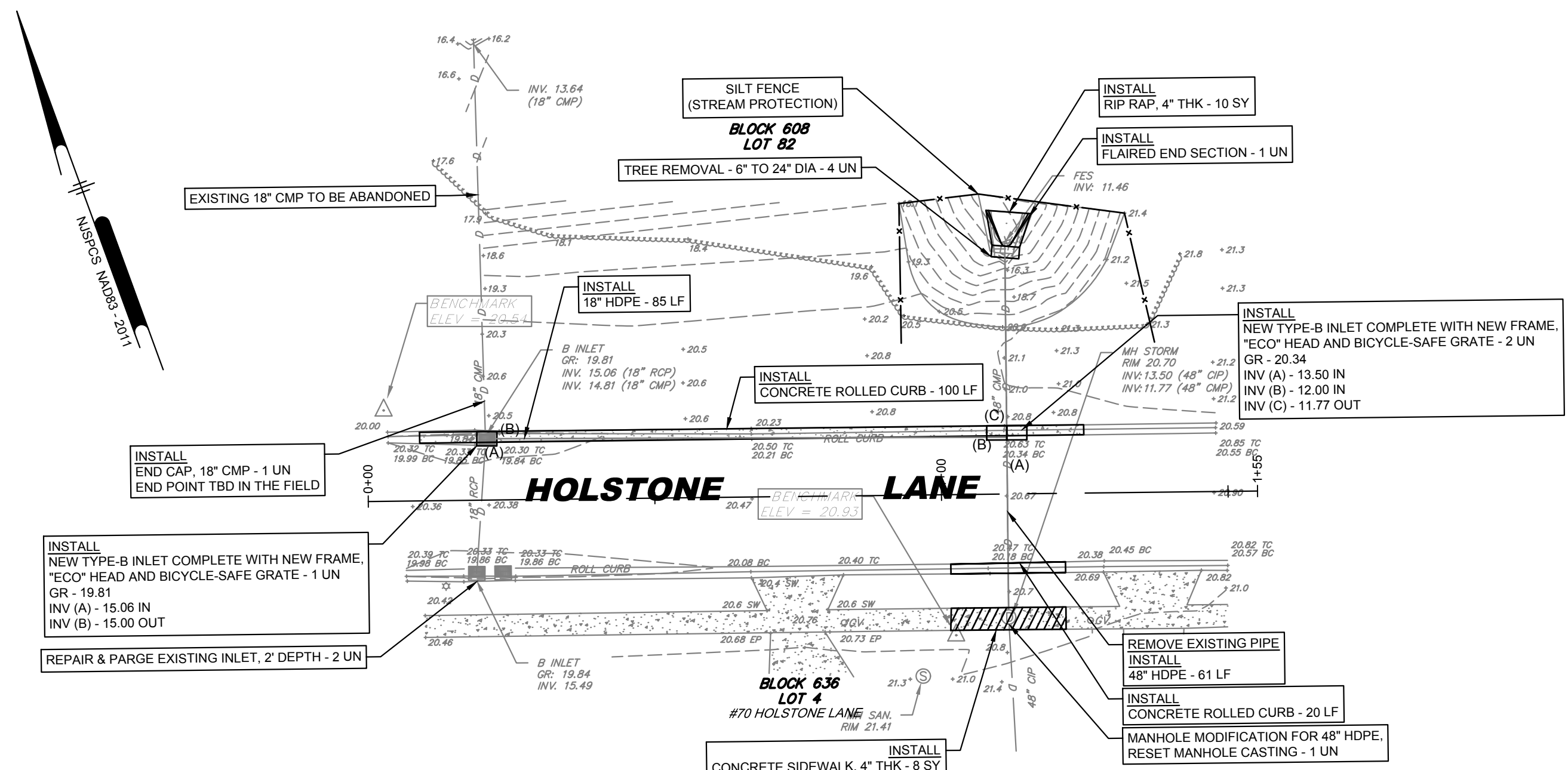
WILLINGBORO TOWNSHIP  
 1 REV DR MARTIN LUTHER KING JR RD  
 WILLINGBORO, NJ 08046

NO.	DATE	REVISIONS	BY

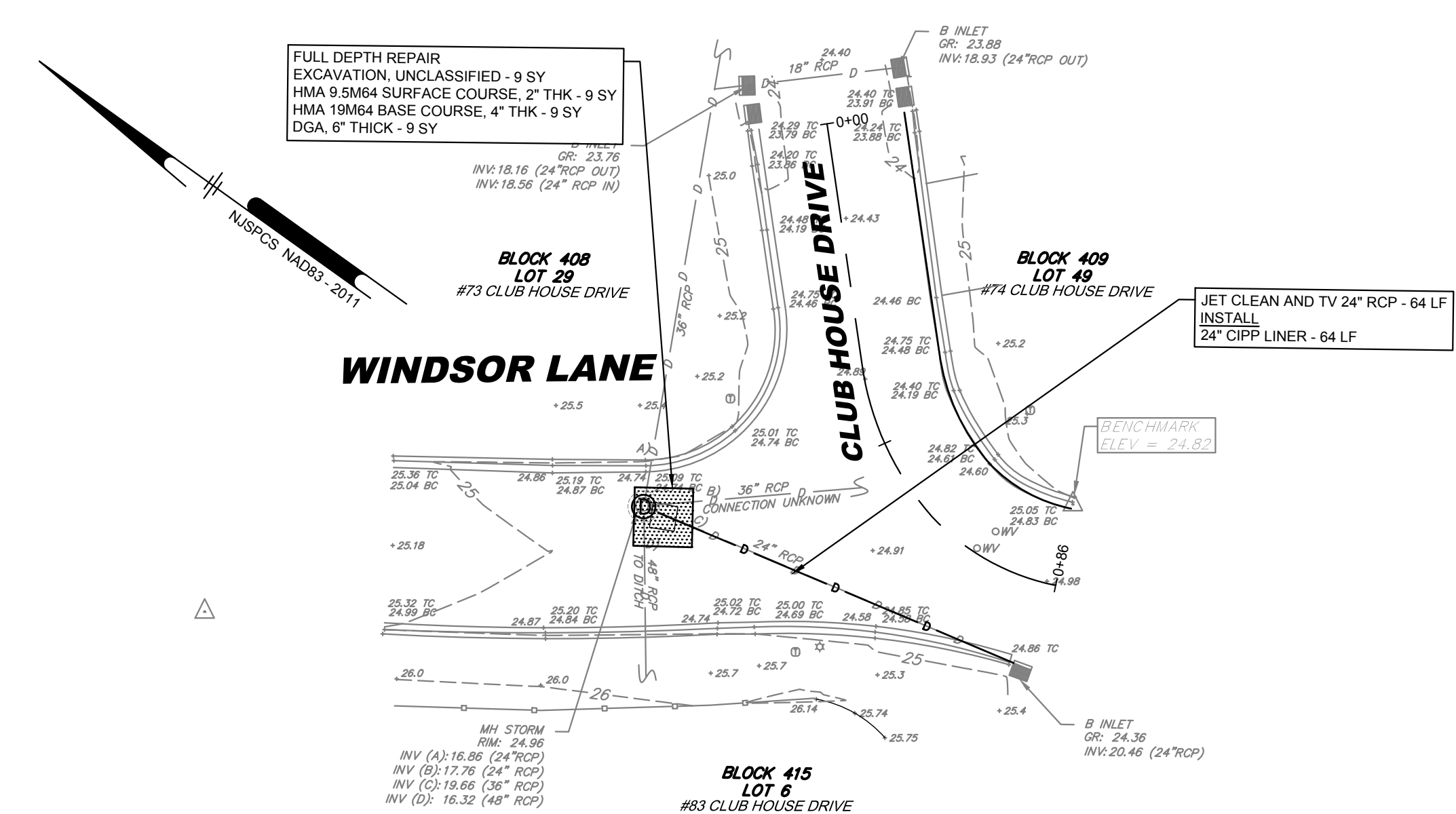
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 DATE: JUNE 01, 2023  
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 DRAWN BY: GP  
 APPROVED BY: HJD

**CM1001**  
 SHEET 3 OF 5

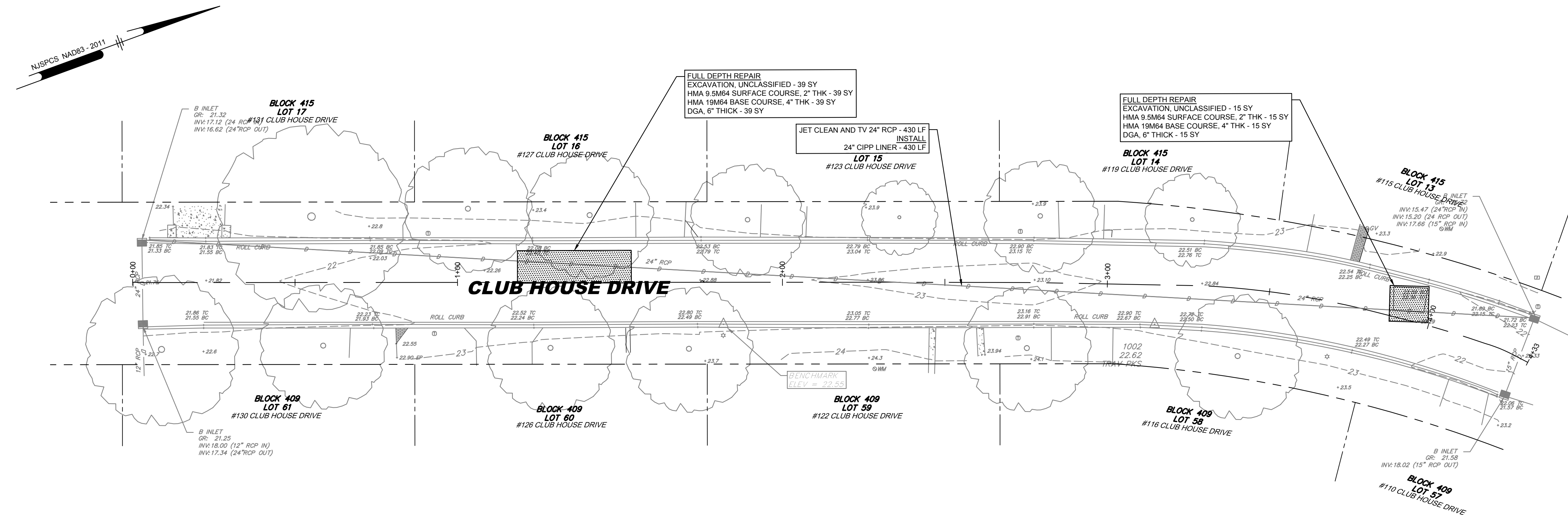
PLOTTED: 11/16/2023 12:18 PM BY: Kevin Sheu PROJECT: WTCEX22025 - 2023 Multi-Location Storm Water Infrastructure\_Site Plans.dwg



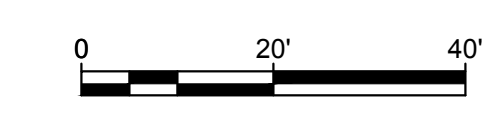
**HOLSTONE LANE STA 0+00 TO STA 1+15**  
SCALE: 1" = 20'



**CLUB HOUSE DRIVE STA 0+00 TO STA 0+86**  
SCALE: 1" = 20'



**CLUB HOUSE DRIVE STA 0+00 TO STA 4+33**  
SCALE: 1" = 20'

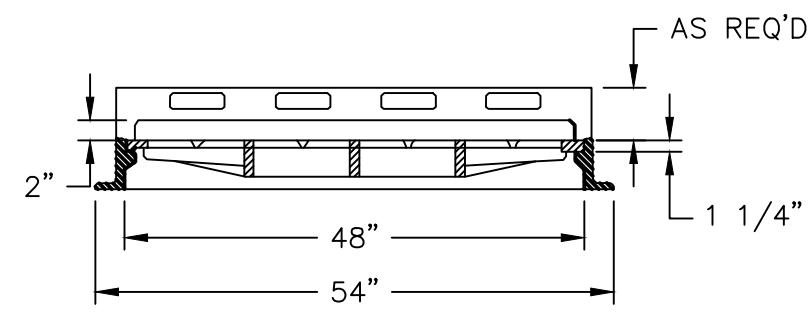
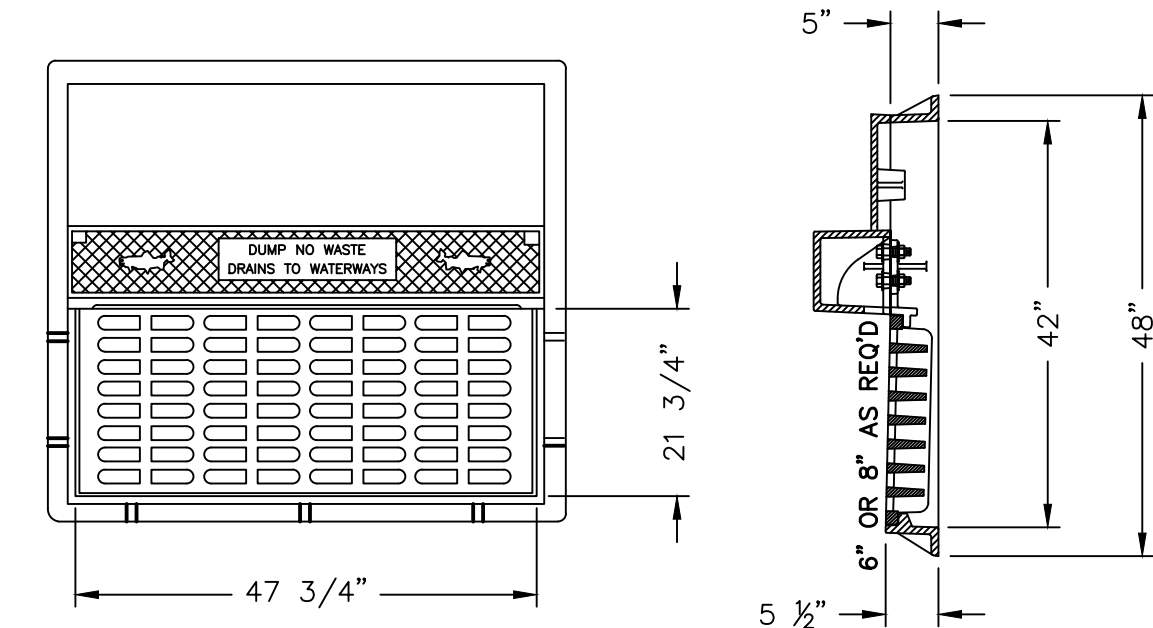


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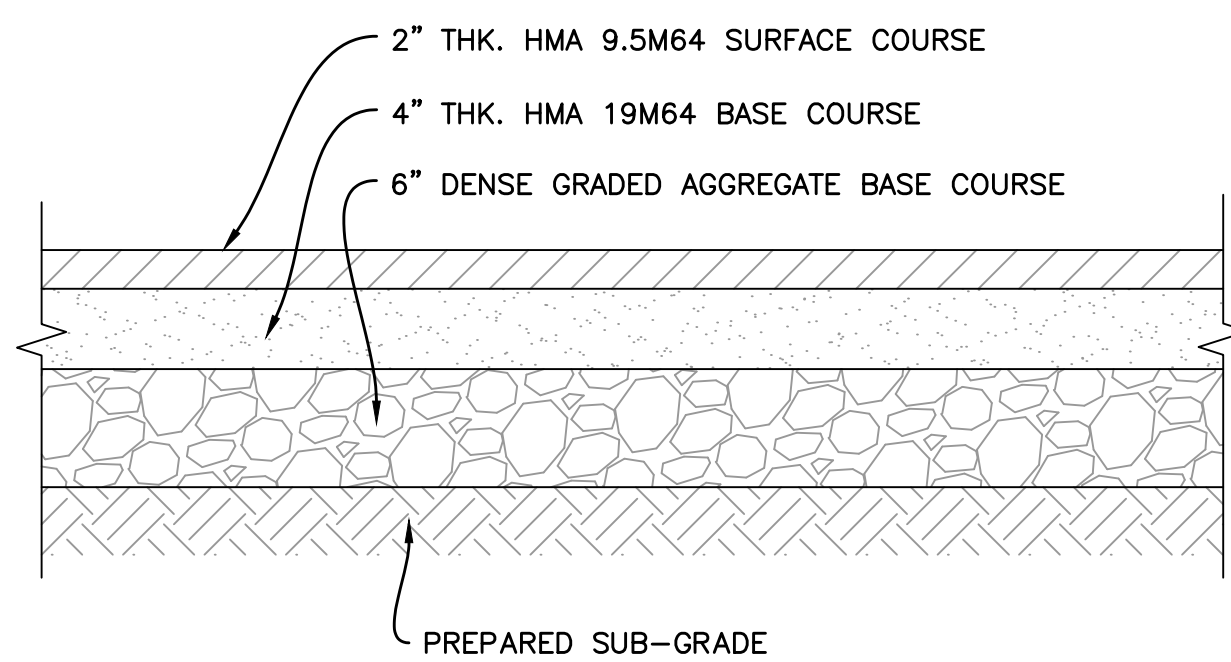
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DATE	JUNE 01, 2023
DRAWING SCALE	1"=20'
DRAWN BY	GP
APPROVED BY	HJD

PLOTTED: 11/16/2023 12:10 PM BY: Kevin Shea PROJECT: WTCEX22025 - Site Plans.dwg  
 U:\Admin\WTCEX\WTCEX22025 - 2023 Multi Location Storm Water Infrastructure\DWG\CM1002.dwg

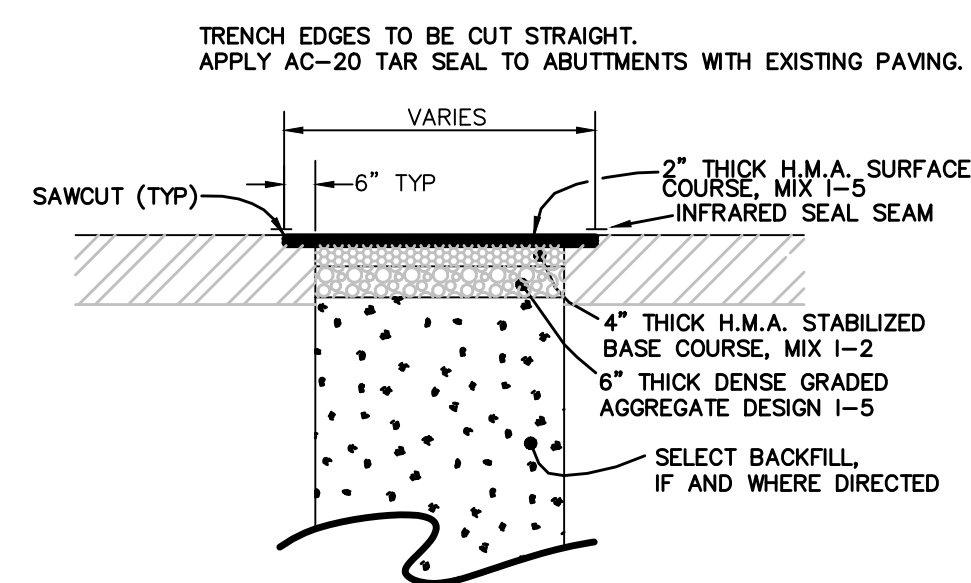


PATTERN No. 2618 AS MANUFACTURED BY CAMPBELL BRIDGESTATE FOUNDRY COMPANY (TYPE "N" - ECO CURB PIECE)

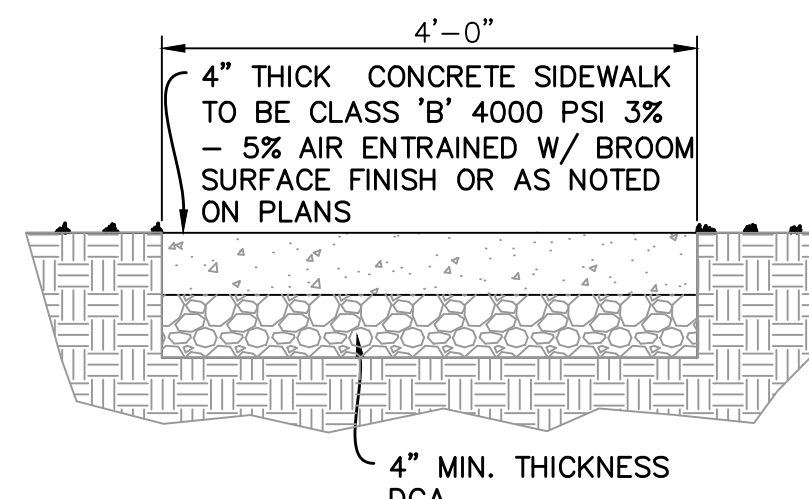
**TYPE "B" CURB INLET WITH BICYCLE SAFE GRATE**  
N.T.S.



**FULL DEPTH PAVEMENT DETAIL**  
N.T.S.

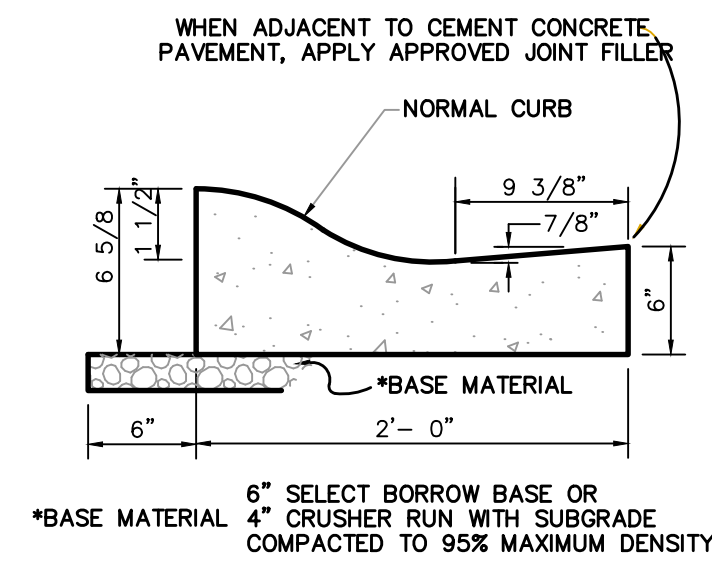


**PAVED TRENCH RESTORATION**  
N.T.S.

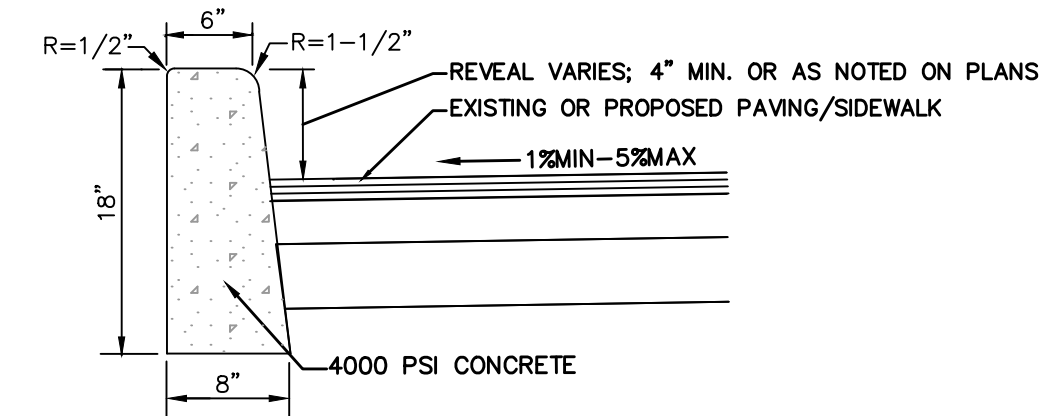


NOTE: EXPANSION JOINTS TO BE AT 20 FT C.C. CONTROL JOINTS TO BE AT 4 FT C.C. EXPANSION JOINT MATERIAL TO BE PREFORMED BITUMINOUS CELLULAR TYPE OR APPROVED EQUAL.

**CONCRETE SIDEWALK DETAIL**  
N.T.S.

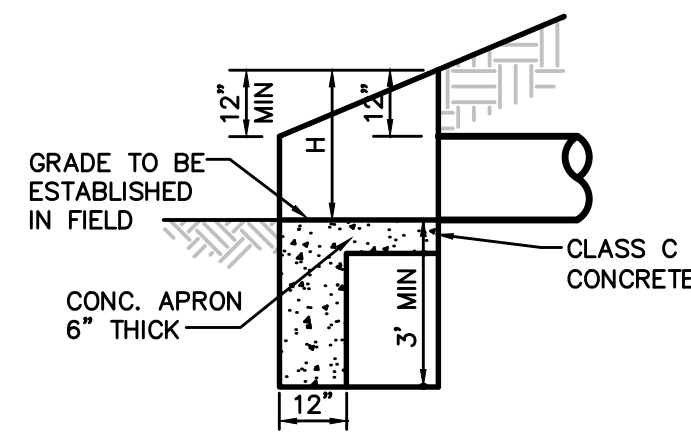


**ROLLED CURB DETAIL**  
N.T.S.



EXPANSION JOINTS TO BE AT 20' MAX. O.C. EXPANSION JOINT MATERIAL TO BE PREFORMED BITUMINOUS CELLULAR TYPE OR APPROVED EQUAL. CONTROL JOINTS AT 10' O.C.

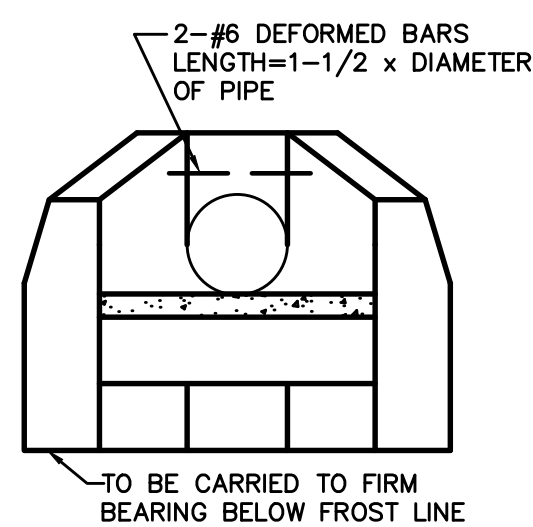
**VERTICAL CURB DETAIL**  
N.T.S.



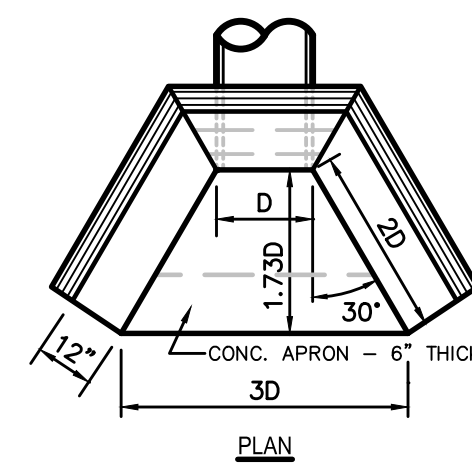
OUTLET END

- NOTE:
1. ALL EDGES TO BE CHAMFERED 1".
  2. FOR MORE THAN ONE PIPE, SET THE PIPES A MIN. OF ONE FOOT APART (OUTSIDE BARREL TO OUTSIDE BARREL). THERE SHALL BE 12" ABOVE THE TOP OF A PIPE IN A WINGWALL, WHERE PIPE IS THROUGH THE WINGWALL THE END OF THE WING WALL. THE END OF THE WINGWALL SHALL BE 2x0 FROM THE C OF THE PIPE IN THE WINGWALL.
  3. THE GRADE FOR THE END OF THE APRON SHALL BE SET BY EXTENDING THE PIPE GRADE.
  4. FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR D.

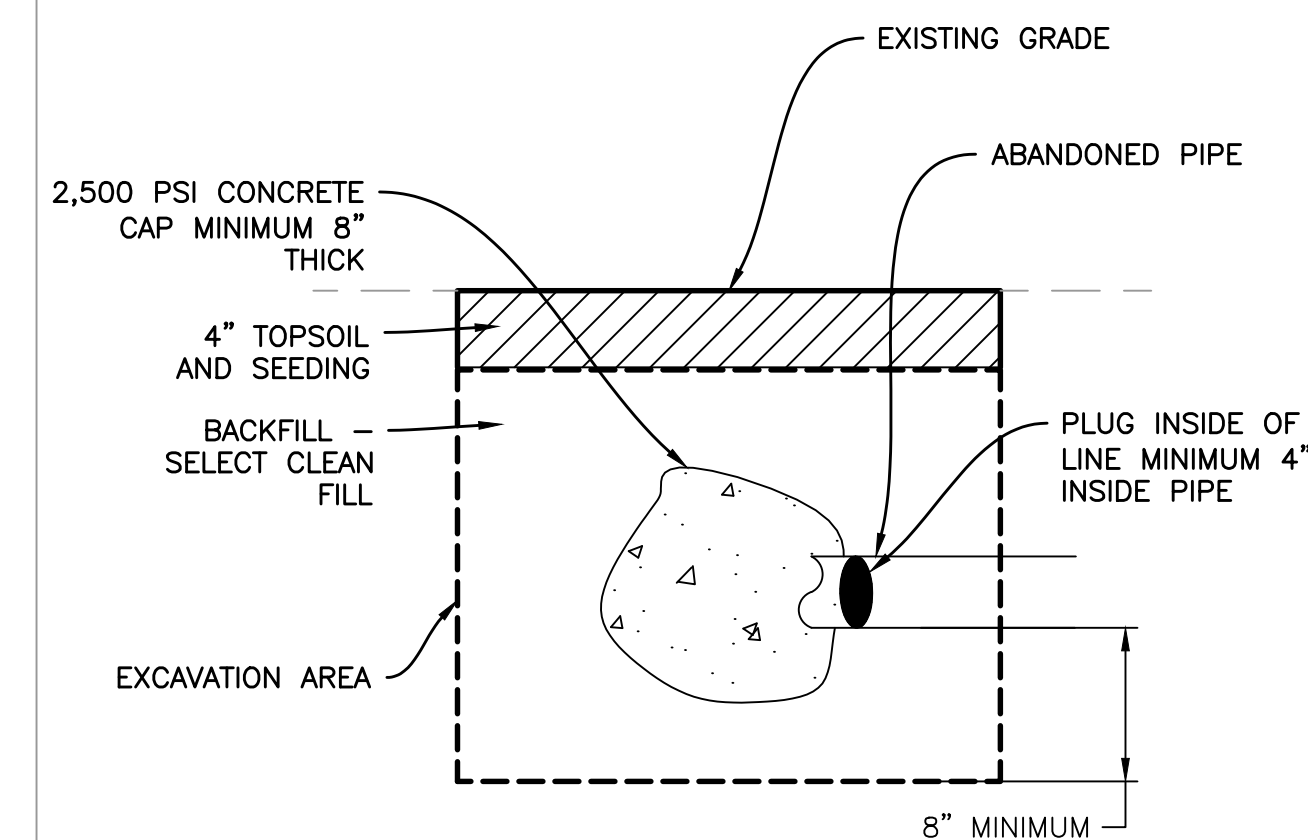
**CONCRETE HEADWALL DETAIL**  
N.T.S.



INLET END ONLY

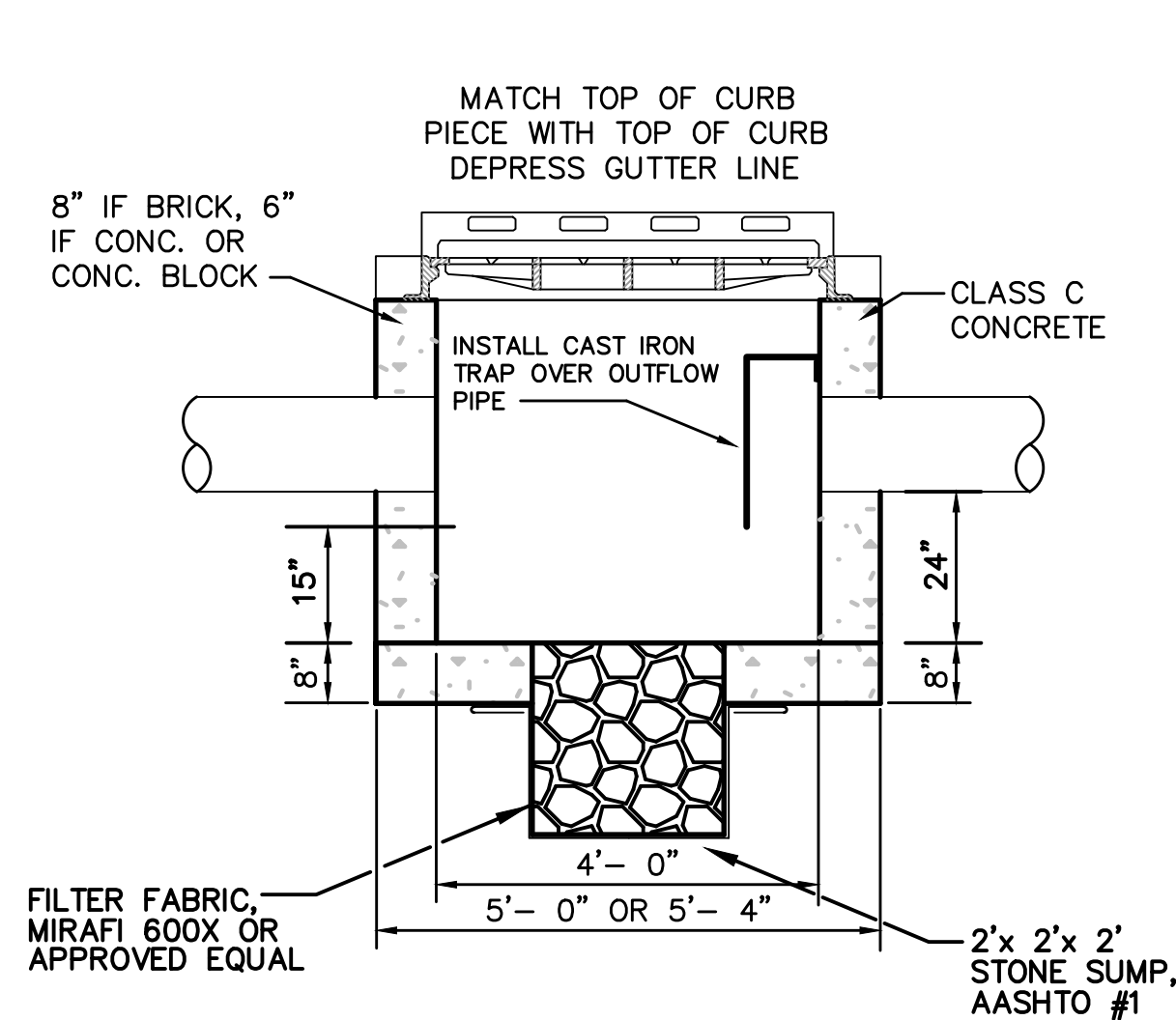
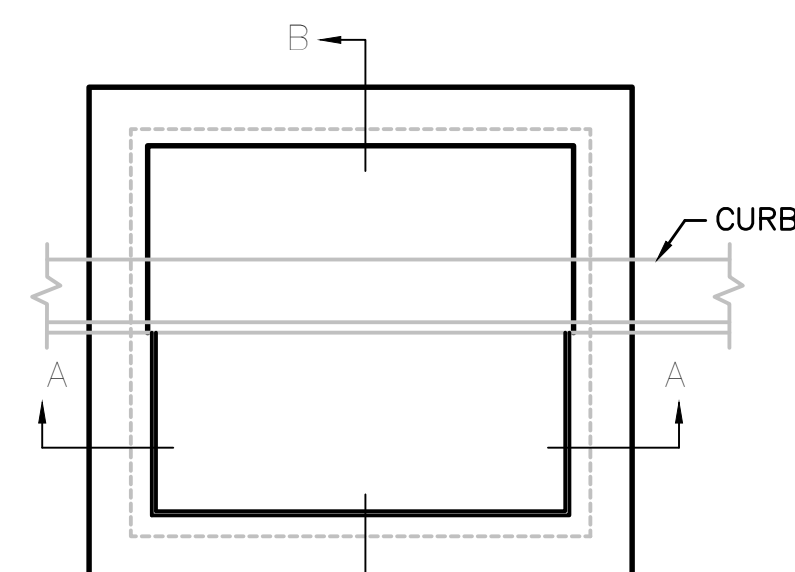


PIPE SIZE	CORR. METAL PIPE	REIN. CONC. PIPE	APRONS IN CUBIC YARDS
12"	1.4	1.4	0.2
15"	1.7	1.7	0.2
18"	2.1	2.1	0.3
21"	2.5	2.5	0.4
24"	2.9	2.9	0.5
27"	3.3	3.4	0.6
30"	3.7	3.8	0.7
36"	4.7	4.8	0.9
42"	5.8	6.3	1.2
48"	7.6	8.4	1.5
54"	9.7	10.7	1.8
60"	12.2	13.4	2.1
66"	15.0	16.4	2.5
72"	18.1	19.9	3.0

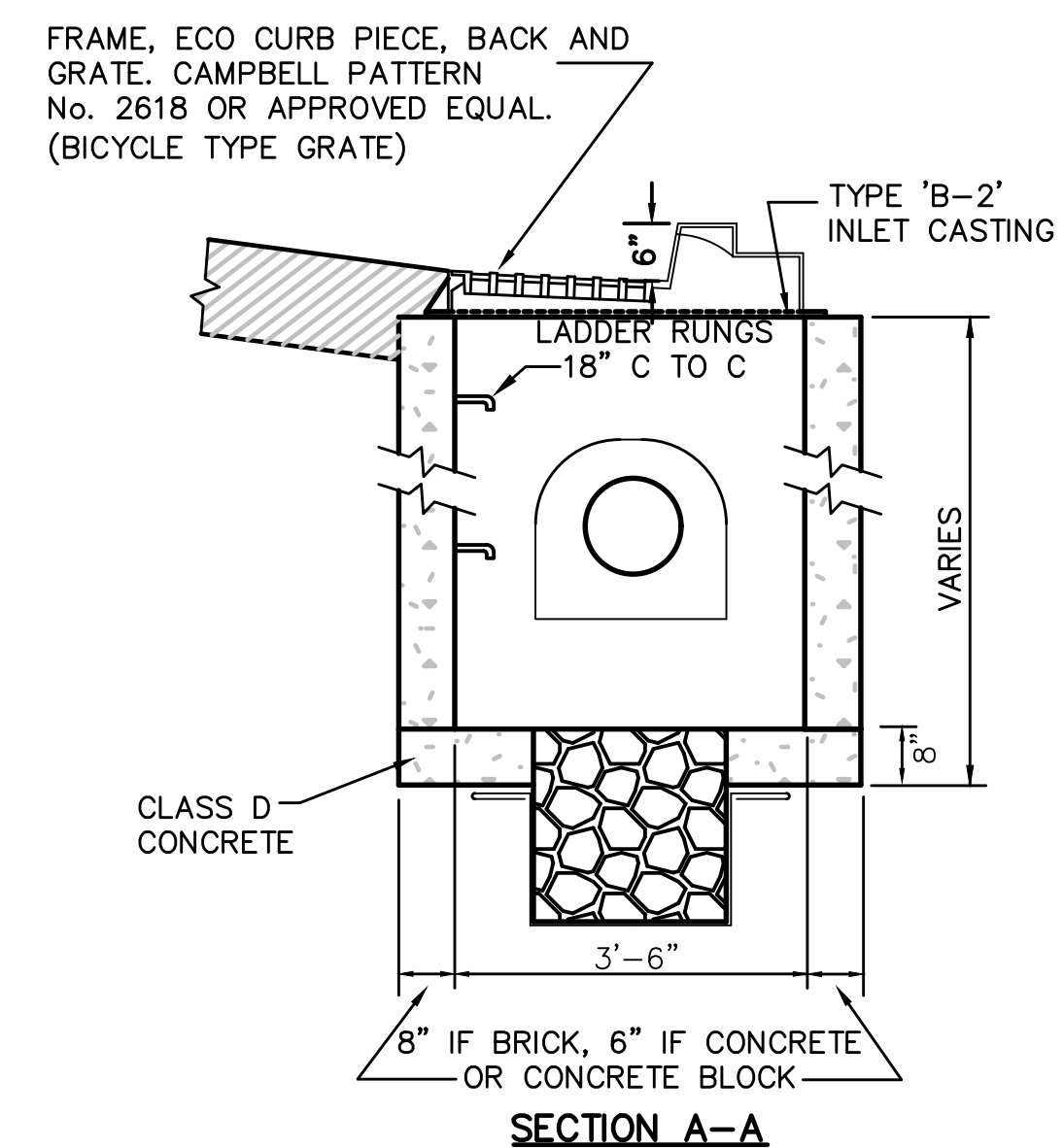


**ABANDONED PIPE END CAP DETAIL**  
N.T.S.

NOTE: THE CURB PIECE SHALL BE 6" UNLESS SPECIFIED OTHERWISE.



**SECTION A-A**  
**TYPE "B" CATCH BASIN W/ SUMP**  
N.T.S.



**SECTION A-A**

NO.	DATE	REVISIONS	BY

PROJECT STATUS: PLOTTED: 11/16/2023 12:16 PM BY: Kevin Shih PLT/STL/PE: Pennoni NCS, Inc. U:\Admin\HW\TC\W\220205 - 2023 Multi Location Storm Water Infrastructure\_SHEET040001.dwg