

NOTE:  
HIGH WATER TABLES ARE APPARENT  
IN THIS AREA. IF BASEMENTS ARE  
CONSTRUCTED, IT IS THE RESPONSIBILITY  
OF THE BUILDER TO TAKE SPECIAL  
PRECAUTION TO ENSURE THE  
BASEMENTS STAY DRY.

NO DRIVEWAY MAY BE PLACED OVER WATER SERVICE.  
NO DRIVEWAY MAY BE PLACED OVER SANITARY SEWER MANHOLE.

LENGTH OF PIPE TO BE RESTRAINED IN EACH DIRECTION FROM CENTERLINE OF BEND, EXCEPT AS NOTED BELOW	
DESCRIPTION	8"
90° BEND	59'
45° BEND	24'
22 1/2° BEND	12'
11 1/4° BEND	6'
8" x 6" TEE	41' BRANCH

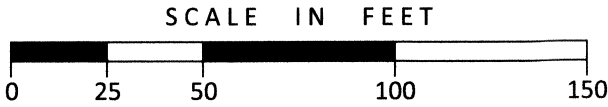
**HORIZONTAL**  
**PIPE RESTRAINTS**  
**SCHEDULE FOR JOINTS**

LENGTH OF PIPE TO BE RESTRAINED IN EACH DIRECTION FROM CENTERLINE OF BEND, EXCEPT AS NOTED BELOW	
DESCRIPTION	8"
11 1/4° UP BEND	6'
11 1/4° DOWN BEND	11'
22 1/2° UP BEND	12'
22 1/2° DOWN BEND	22'
45° UP BEND	24'
45° DOWN BEND	45'
DEAD END	54'

**VERTICAL**

R.J.P. = RESTRAINED JOINT PIPE

NOTE: CONSTRUCTION TRAFFIC FROM  
TROTTERS WAY IS PROHIBITED.



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

Project Manager RA  
Drawn By NAK  
DWG 04476064-IMP-SECTION 20  
X-Ref(s) 04476063-TOP-2014 MAY 14

Issue/Revision	No.	Date

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**WINDING CREEK**  
**SECTION 20**  
**AKA CARRIAGE HILL**  
**SECTION 20**  
**SECTION 2, TOWN 2, RANGE 3**  
**LIBERTY TOWNSHIP**  
**BUTLER COUNTY, OHIO**

Sheet Title

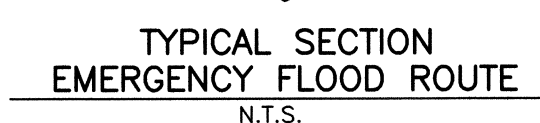
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1. PROJECT INVOLVES THE CONSTRUCTION AND ASSOCIATED INFRASTRUCTURE FOR A LOW DENSITY SINGLE FAMILY SUBDIVISION.
2. AREA TO BE DISTURBED IS APPROXIMATELY 12 ACRES.
3. APPROXIMATELY 4.5 OF IMPERVIOUS SURFACE IS PROPOSED RESULTING IN 37 PERCENT OF IMPERVIOUSNESS.
4. PRE-CONSTRUCTION RUNOFF COEFFICIENT IS 0.30.  
POST-CONSTRUCTION RUNOFF COEFFICIENT IS 0.55.
5. THE PRIMARY SOIL TYPE IS RUSSELL - MIAMIAN & XENIA SILT LOAM.
6. THE PRIOR LAND USE IS FARM CROPS.
7. STONY RUN IS THE FIRST NAMED STREAM RECEIVING RUNOFF FROM THIS SITE. RUNOFF IS ULTIMATELY RECEIVED BY GREGORY CREEK.
8. NPDES STORM WATER GENERAL PERMIT NUMBER: 16C05766\*BG.
9. PROJECT DURATION: THRU 2021
10. SITE OPERATOR: LIBERTY LAND COMPANY, LLC.  
5342 CARRIAGE HOUSE BOULEVARD  
LIBERTY TOWNSHIP, OH 45011  
(513) 894-4455
11. SWPPP CONTACT: LIBERTY LAND COMPANY, LLC.  
5342 CARRIAGE HOUSE BOULEVARD  
LIBERTY TOWNSHIP, OH 45011  
(513) 894-4455
12. UNLESS OTHERWISE NOTED, STANDARDS AND SPECIFICATIONS ESTABLISHED IN THE LATEST EDITION OF THE OHIO DEPARTMENT OF NATURAL RESOURCES "RAINWATER AND LAND DEVELOPMENT" MANUAL, CURRENT EDITION, SHALL GOVERN THE EROSION AND SEDIMENT CONTROL INSTALLATIONS SPECIFIED ON THIS PLAN.
13. THE DEVELOPER AND CONTRACTOR SHALL ABIDE BY THE RULES AND REGULATIONS SET FORTH IN THE OHIO EPA PERMIT NO. OH0000004- "AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY" UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES).
14. PRIOR TO COMMENCEMENT OF CONSTRUCTION OPERATIONS, ALL SEDIMENTATION EROSION CONTROL FEATURES SHALL BE IN PLACE.
15. SEDIMENT CONTROL STRUCTURES SHALL BE FUNCTIONAL THROUGHOUT THE COURSE OF EARTH DISTURBING ACTIVITY, AND SHALL CONTINUE TO FUNCTION UNTIL THE SLOPE DEVELOPMENT AREA IS REESTABLISHED. AS CONSTRUCTION PROGRESSES THE TOPOGRAPHY IS ALTERED, APPROPRIATE CONTROLS MUST BE CONSTRUCTED EXISTING CONTROLS ALTERED TO ADDRESS THE CHANGING DRAINAGE PATTERNS.
16. ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF DEMOLITION AND ARE TO FINAL GRADE AND TO REMAIN SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH STATE OF OHIO SPECIFICATION ITEM 659, AND IN ACCORDANCE WITH THE CONDITIONS OF NPDES, STORM WATER GENERAL PERMIT.

1. SILT FENCE AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND DAILY DURING A PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC ON A FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, AND PREPARED FOR SEEDING.

1. INSTALL EROSION AND SEDIMENT CONTROL MEASURES BEFORE UPSLOPE CLEARING AND GRADING.
2. GRADING AND STRIPPING OF THE REMAINING AREAS OF THE DEVELOPMENT SITE OR PROJECT AREA.
3. INSTALL STORMWATER MANAGEMENT SYSTEM.
4. TEMPORARY VEGETATIVE STABILIZATION OF EROSION AND SEDIMENT CONTROL MEASURES.
5. GRADING OF SUBDIVISION STREET.
6. INSTALLATION OF ALL UTILITIES.
7. SITE CONSTRUCTION.
8. FINAL GRADING, STABILIZATION, AND LANDSCAPING.
9. REMOVAL OF EROSION AND SEDIMENT CONTROLS MEASURES.

\* IF A TEMPORARY STOCKPILE IS CREATED, SILT FENCE SHALL BE PLACED AT THE TOE OF SLOPE



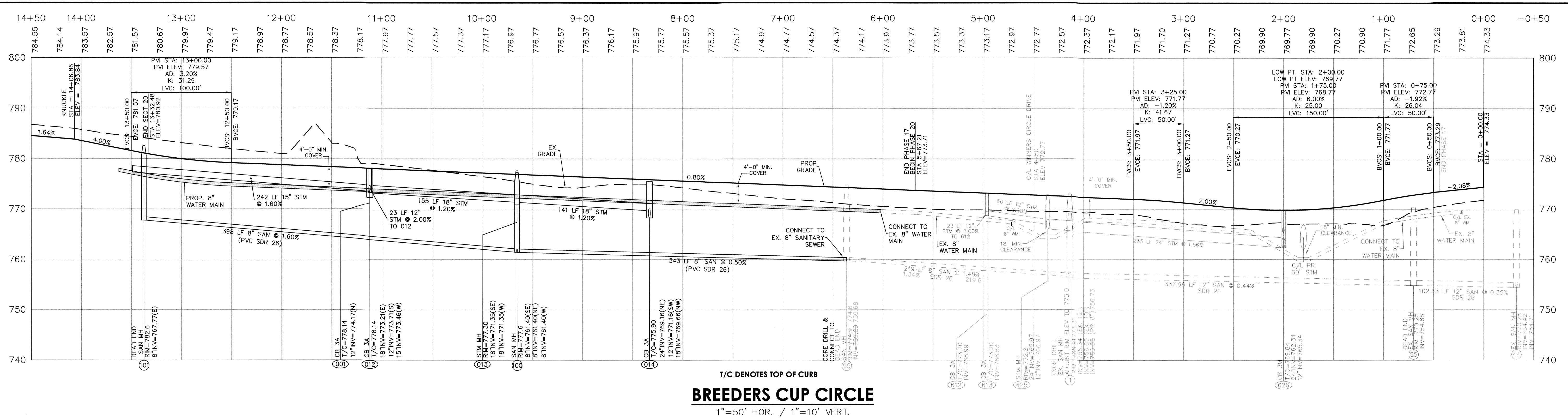
A DETAILED MAINTENANCE PLAN THAT DESCRIBES PROCEDURES (E.G. INSPECTIONS SEE SECTION 2.18 INSPECTION OF STORM WATER CONTROLS/INTERNAL INSPECTIONS) NEEDED TO ENSURE THE CONTINUED PERFORMANCE OF CONTROL PRACTICES SHALL BE LOCATED AT THE ENTRANCE OF THE DEVELOPMENT AREA AND AT THE JOB TRAILER IN A WELL MARKED CONSPICUOUSLY ACCESSIBLE AT ALL TIMES. SUCH PLANS MUST ENSURE THAT POLLUTANTS COLLECTED WITHIN STRUCTURAL POST-CONSTRUCTION PRACTICES, BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.



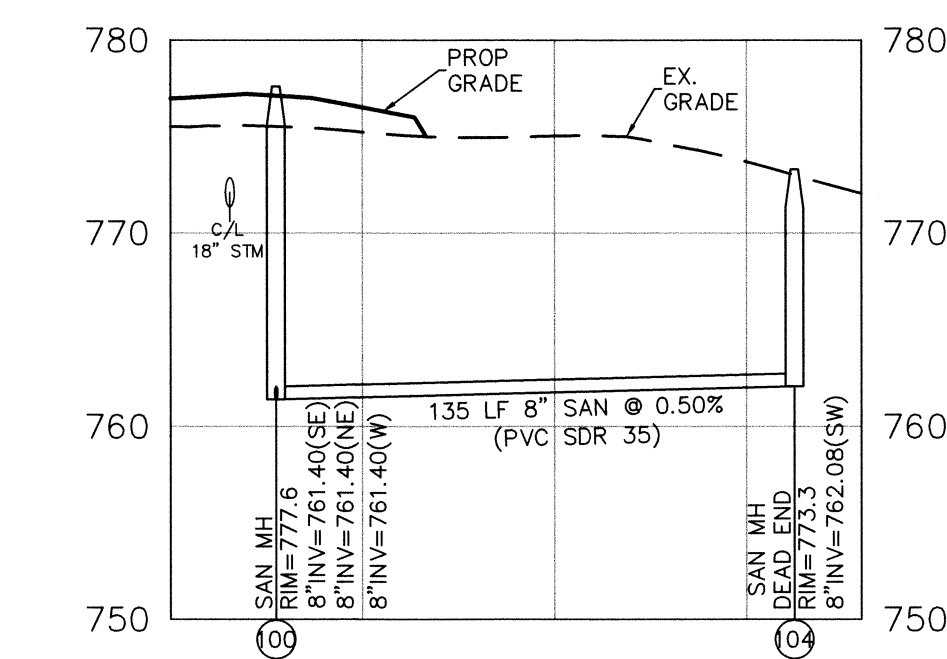
OHIO  
Utilities Protection  
SERVICE  
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Project Number 04476.06  
Drawing Scale 1"=50'  
Sheet Number 3/7  
File Number 04476

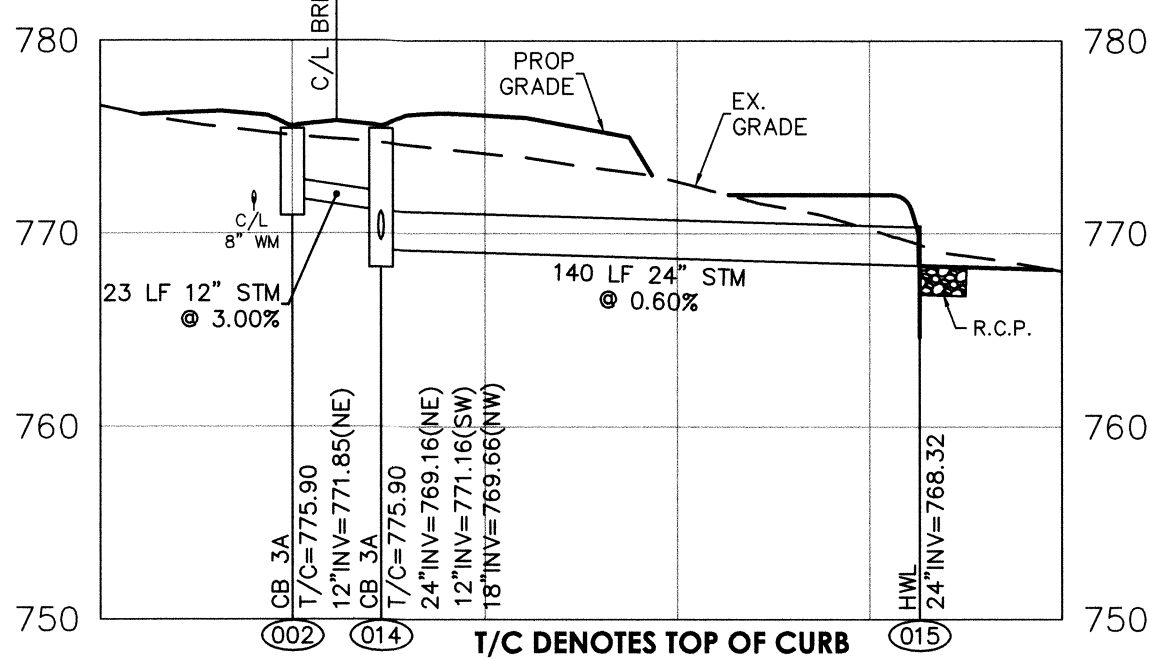
NOTE: 6" OF TOPSOIL MAY BE PLACED OVER CLEARED CUT AREAS OF THE LOTS. AFTER COMPACTION EARTHWORK HAS BEEN COMPLETED, THE TOP 18" OF FILL MAY BE TOPSOIL.



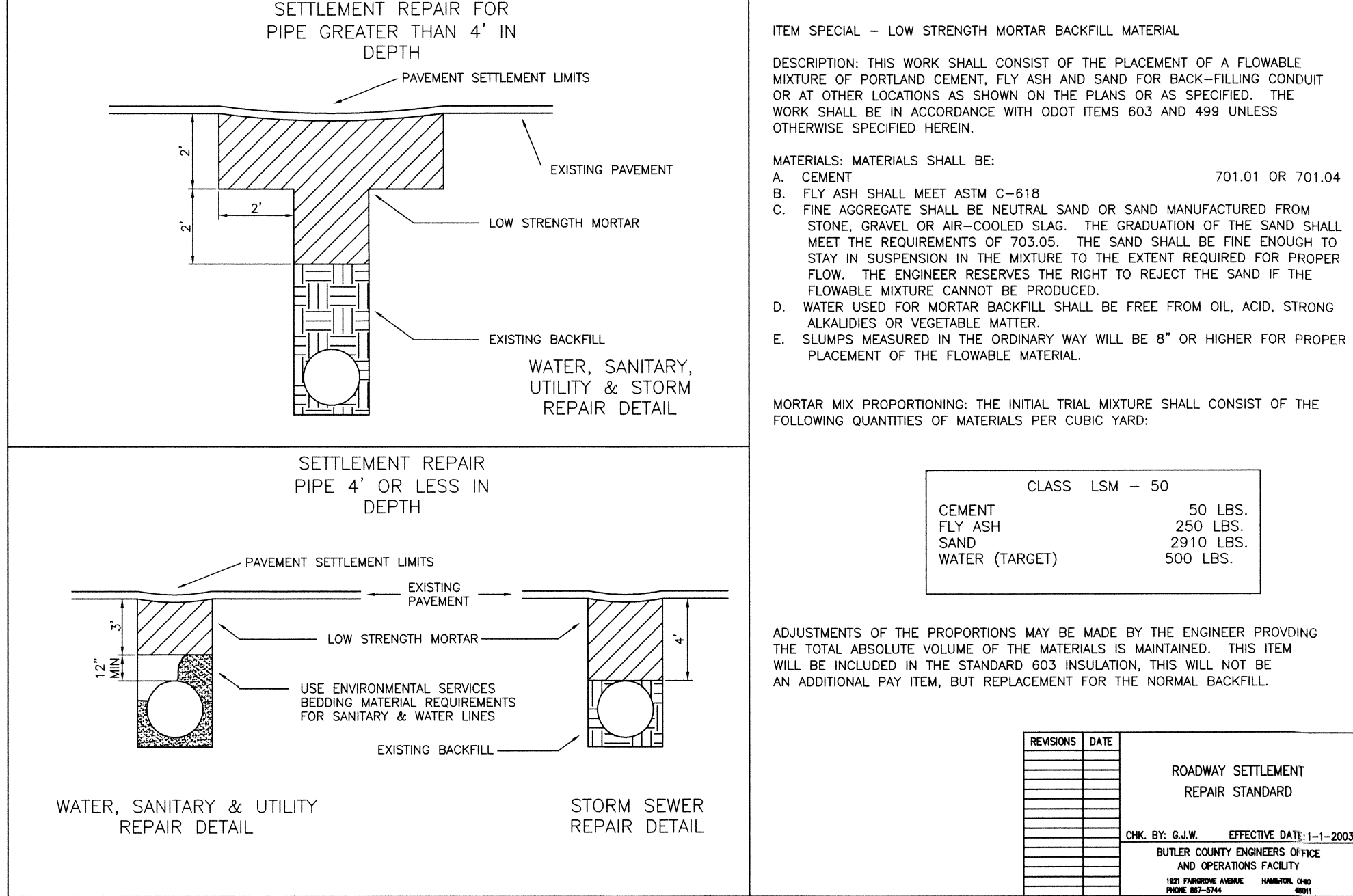
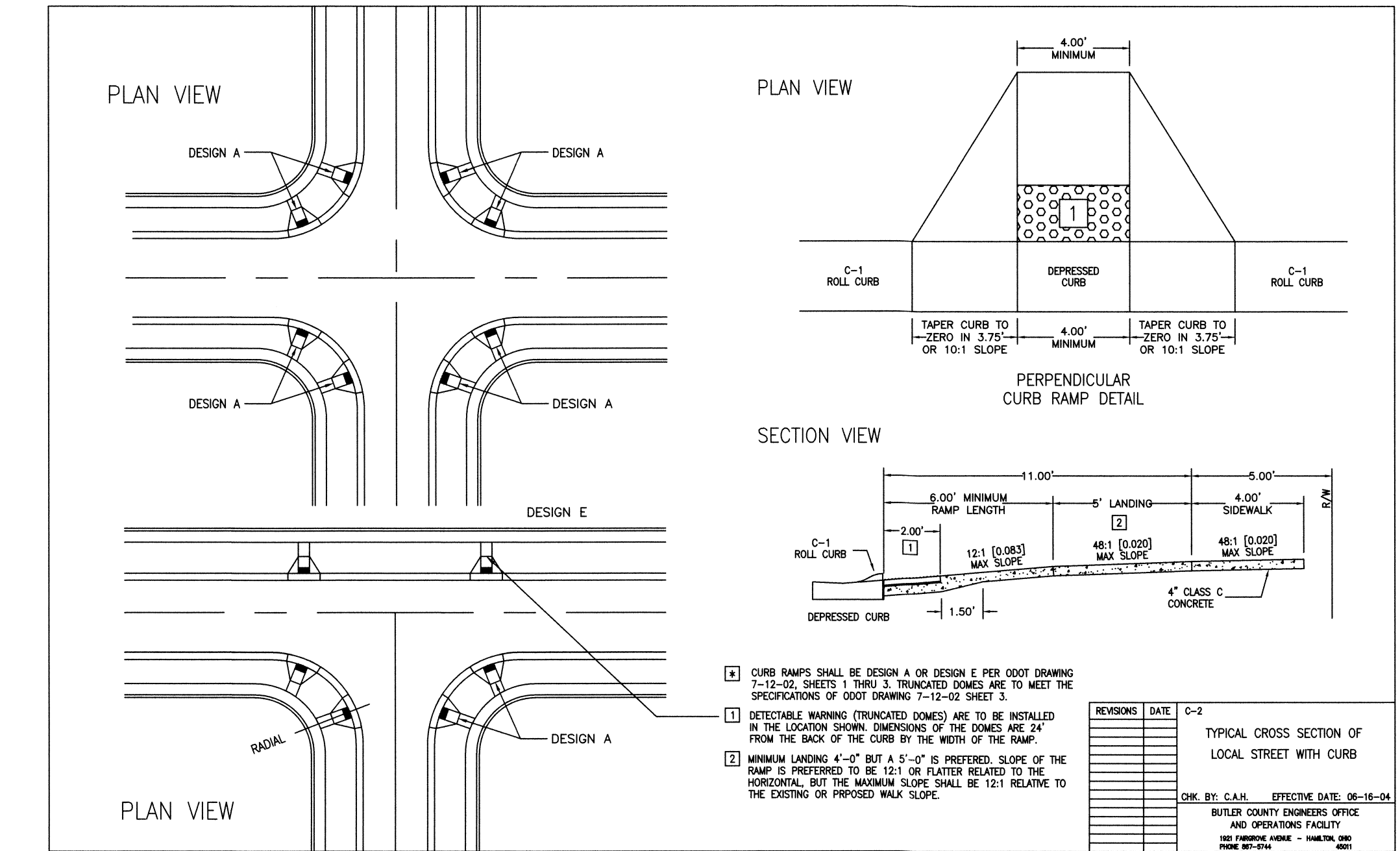
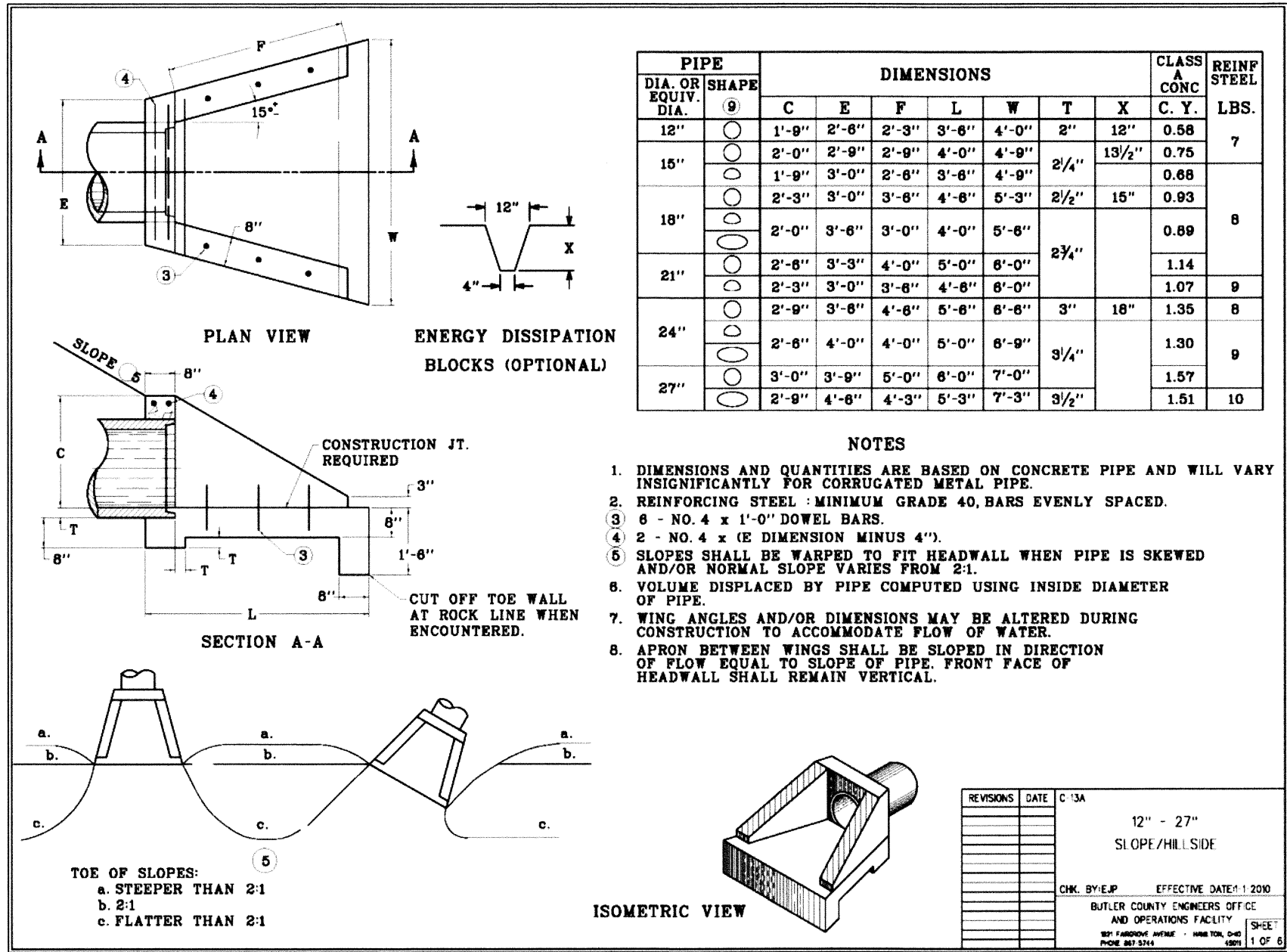
T/C DENOTES TOP OF CURB  
**BREEDERS CUP CIRCLE**  
1"=50' HOR. / 1"=10' VERT.



**SANITARY SEWER 100 & 104**  
1"=50' HOR. / 1"=10' VERT.



**STORM SEWER 014-015 & 002**  
1"=50' HOR. / 1"=10' VERT.



Project Manager RA  
Drawn By NAK  
DWG 04476064-IMP-SECTION 20  
X-Ref(s) N/A

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**WINDING CREEK**  
**SECTION 20**  
**AKA CARRIAGE HILL**  
**SECTION 20**  
**SECTION 2, TOWN 2, RANGE 3**  
**LIBERTY TOWNSHIP**  
**BUTLER COUNTY, OHIO**

Sheet Title

**PROFILES & DETAILS**

Project Number 04476.06  
Drawing Scale 1"=50' H. 1"=10' V.  
Sheet Number 4/7  
File Number 04476

[illegible]

GRADE

45° BEND

45° BEND

WYE POLE

30°

GRADE

VARIES

MIN. SLOPE 1/8" FT

PROVIDE GLUED WATER TIGHT CAP AT END OF HOUSE CONNECTION

SUPPORT PIPE ON STANDARD BEDDING ON ORIGINAL GROUND

WYE BRANCH

STANDARD BEDDING (PER SPECS)

**BUTLER COUNTY  
WATER AND SEWER**

130 HIGH STREET  
HAMILTON, OH 45011  
TELEPHONE: 513-667-3006  
FAX: 513-667-3777

**6280**

GRADE

WYE BRANCH

45° BEND

WYE POLE

3'-0"

GRADE

VARIES

MIN. SLOPE 1% FT

PROVIDE GLUED WATER TIGHT CAP AT END OF HOUSE CONNECTION

SUPPORT PIPE ON STANDARD BEDDING ON ORIGINAL GROUND

STANDARD BEDDING (PER SPECS)

**HOUSE CONNECTION  
FOR SHALLOW SEWER**

**BUTLER COUNTY  
WATER AND SEWER**

130 HIGH STREET  
HAMILTON, OH 45011  
TELEPHONE: 513-487-2068  
FAX: 513-487-0777

**6290**

[illegible]

DEAD END  
MANHOLE DETAIL

8" 24" 18"

GRADE

PRECAST CONC. GRADE RINGS  
MIN HEIGHT 8"  
MAX HEIGHT 18" TYP ALL MANHOLES

MANHOLE STEPS PER SPECIFICATION

BENCH AND FLOW CHANNEL  
TO BE POURED WHEN MAIN IS EXTENDED

CONNECTION FOR FUTURE MAIN EXTENSION WILL BE CORE DRILLED AND A GASKET INSTALLED.

PRECAST CONC. BARREL

CONTRACTOR SHALL POUR A GROUT BOTTOM UP TO THE INVERT OF THE OUTLET PIPE WHEN THE MAN IS INSTALLED TO PREVENT STANDING WATER.

A-A

BUTLER COUNTY  
WATER AND SEWER

130 HIGH STREET  
HAMILTON, OH 45011  
TELEPHONE: 513-867-3006  
FAX: 513-867-3777

6190

**SECTION A - A**

MANHOLE FRAME AND COVER  
PER SPECIFICATIONS

CON SEAL

18" MIN. EXCEPT WHEN  
SHOWN ON PLANS

COMPACTED EARTH BERM  
AROUND MANHOLE

EXISTING GROUND

7/8" DIA. x 9" L.G. STAINLESS  
STEEL ANCHOR BOLTS  
4 REQUIRED

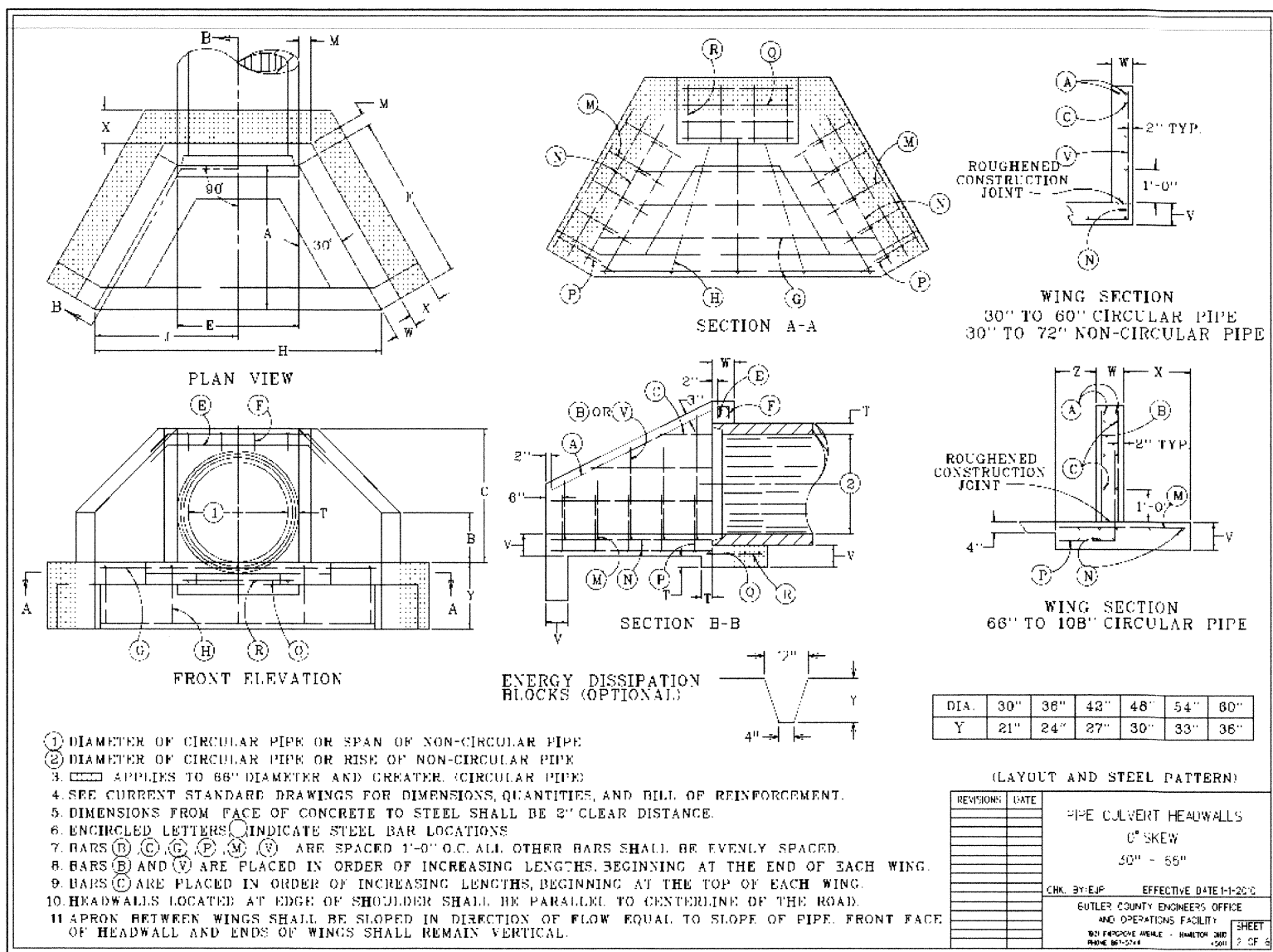
PRECAST CONCRETE  
MANHOLE

**ELEVATED  
MANHOLE DETAIL**

**BC**  
Butler County  
Engineering & Surveying  
INCORPORATED

BUTLER COUNTY  
WATER AND SEWER  
136 HIGH STREET  
HAMILTON, OH 45011  
TELEPHONE: 513-887-3069  
FAX: 513-887-3377

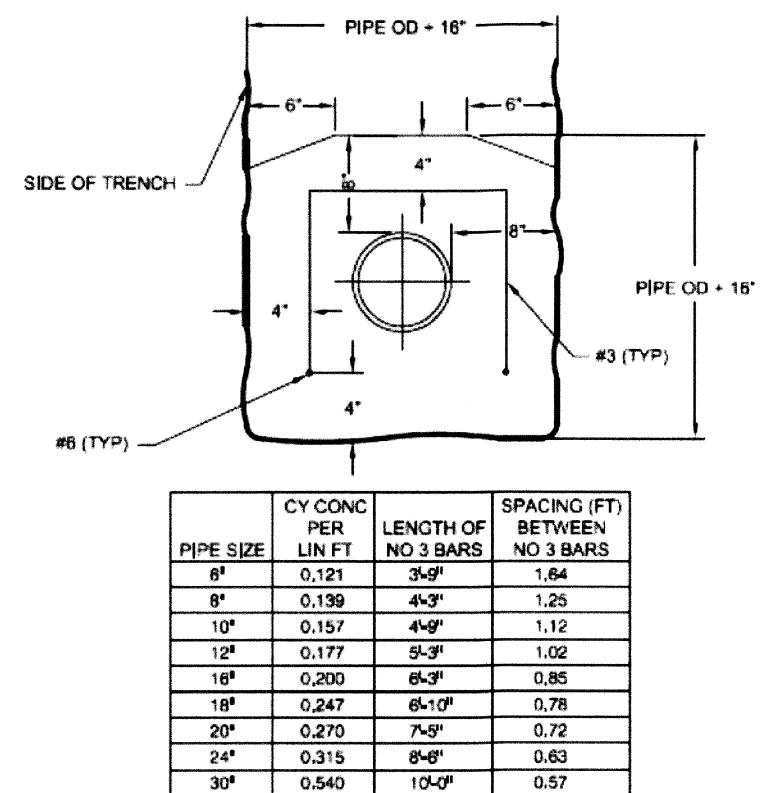
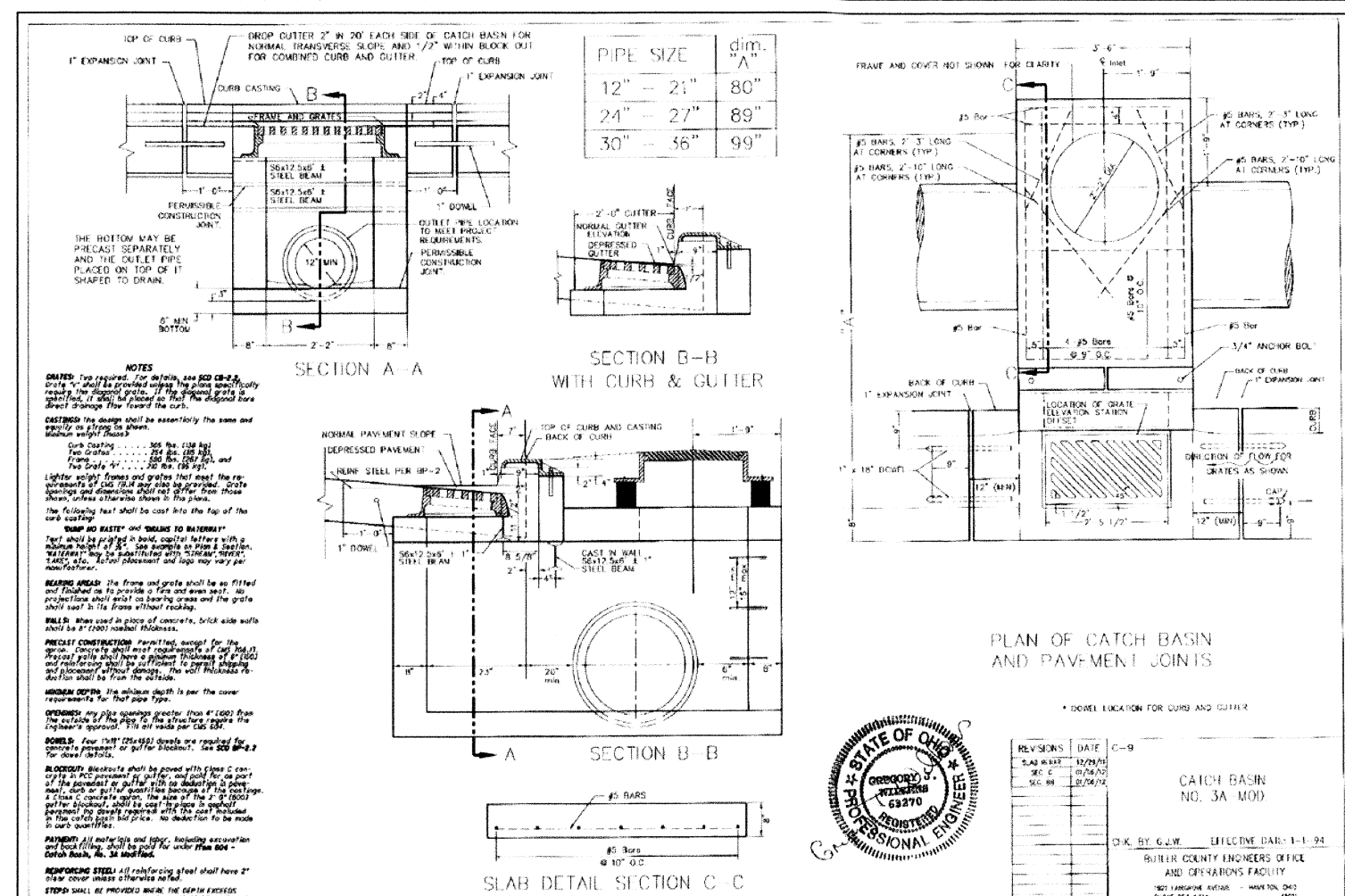
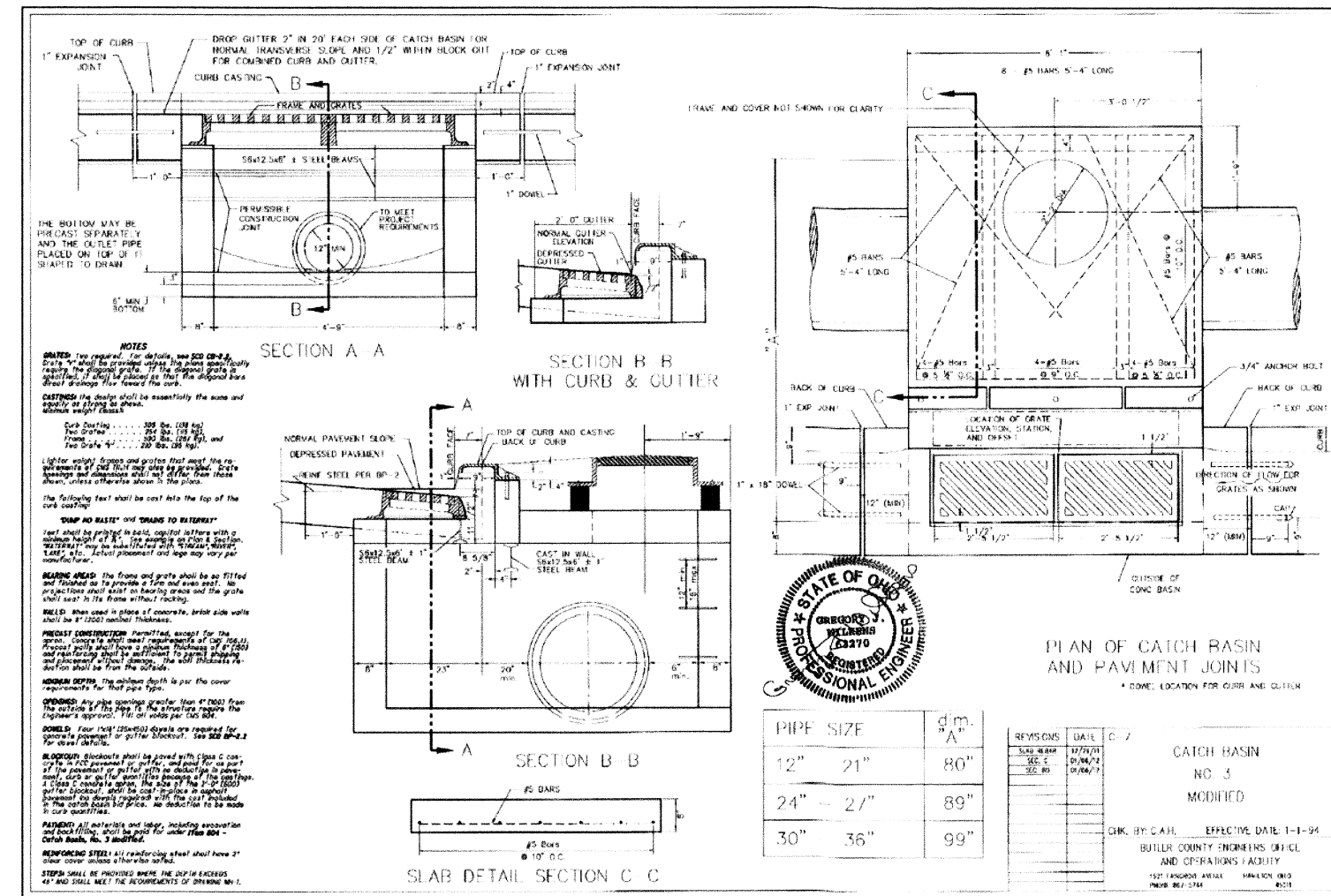
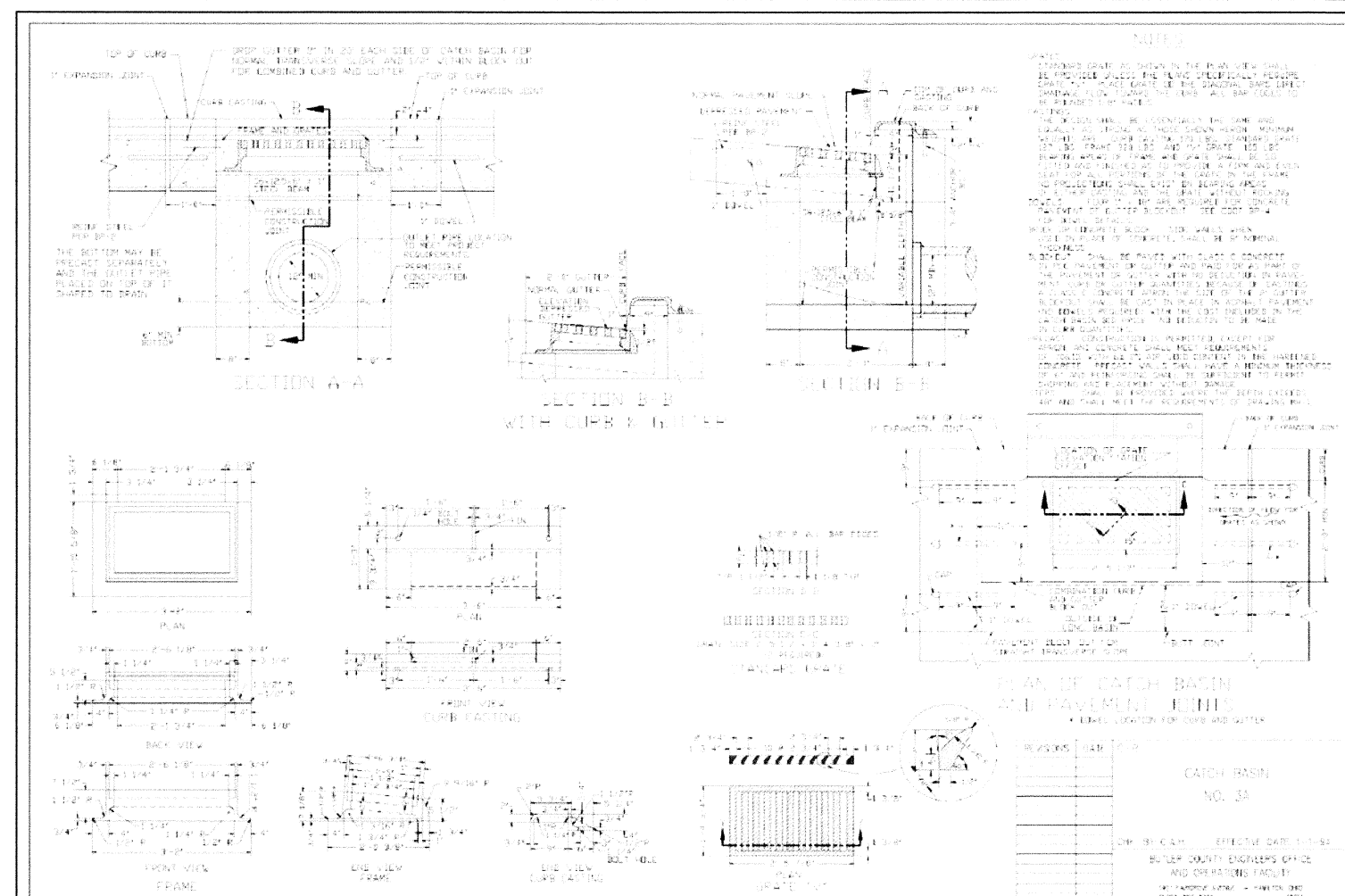
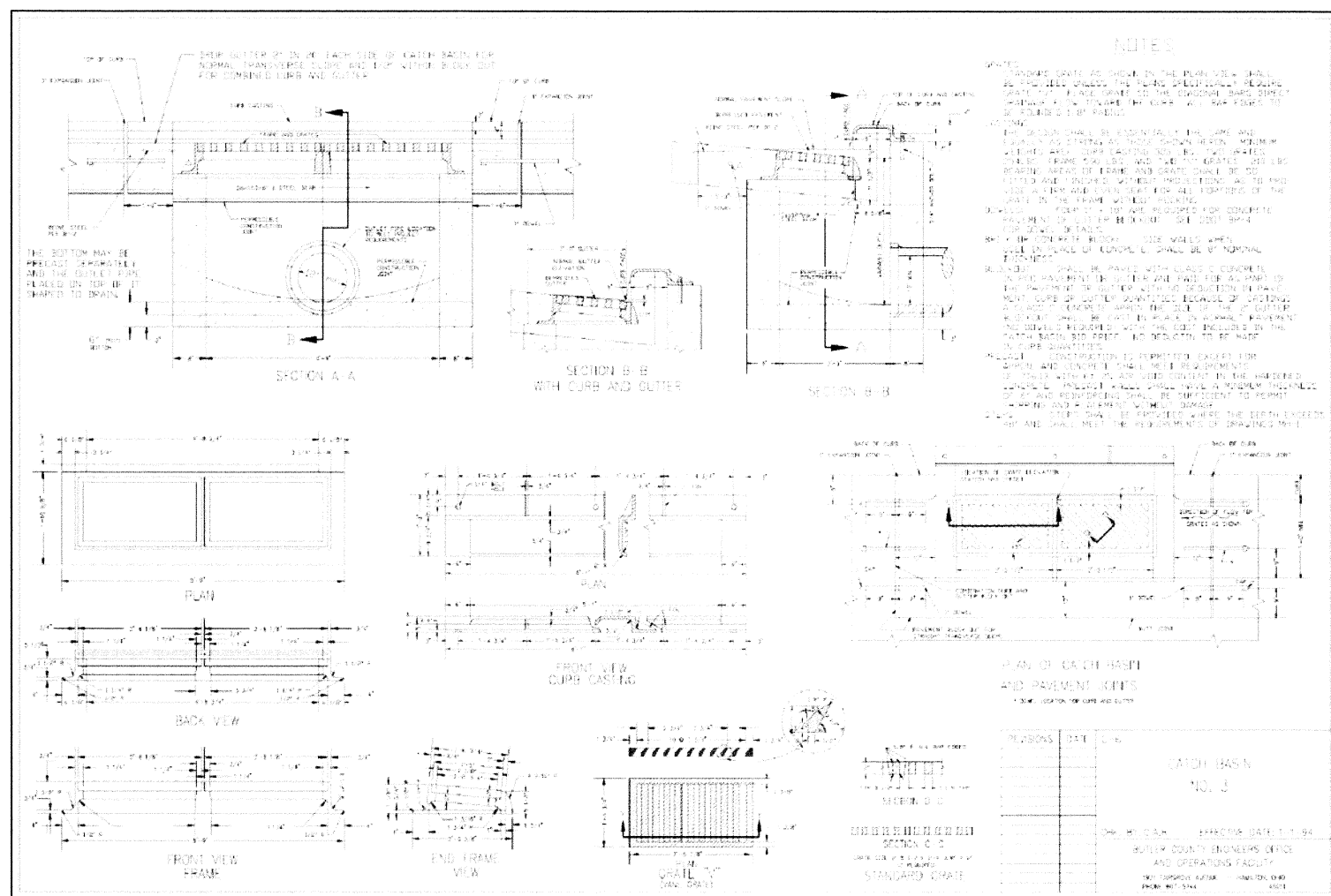
6170



DIAMETER OF PIPE								DIMENSION
DIMENSION	30"	36"	42"	48"	54"	60"	66"	DIMENSION
A	3'-9"	4'-4"	4'-11"	5'-6"	6'-1"	6'-8"	7'-5"	A
B	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	B
C	3'-6"	4'-0"	4'-7"	5'-1"	5'-8"	6'-2"	7'-0"	C
E	3'-1"	3'-8"	4'-3"	4'-10"	5'-5"	6'-0"	6'-7"	E
F	4'-4"	5'-0"	5'-8"	6'-4"	7'-0"	7'-8"	8'-7"	F
H	7'-6"	8'-8"	10'-0"	11'-2"	12'-6"	13'-8"	15'-2"	H
J	3'-9"	4'-4"	5'-0"	5'-7"	6'-3"	6'-10"	7'-7"	J
M			0'-5"				0'-6"	M
T	0'-3.5"	0'-4.0"	0'-4.5"	0'-5.0"	0'-5.5"	0'-6.0"	0'-6.5"	T
V			0'-8"				1'-0"	V
W			0'-8"				0'-10"	W
X			---				2'-0"	X
Y			2'-0"				2'-6"	Y
Z			---				1'-3"	Z
CU YDS CONC HEADWALLS	3.36	4.30	5.35	6.53	7.82	9.22	18.76	CU YDS CONC HEADWALLS
LBS STEEL HEADWALLS	281	363	430	496	583	687	1320	LBS STEEL HEADWALLS

DIMENSIONS AND QUANTITIES ARE BASED ON CONCRETE PIPE AND WILL VARY SLIGHTLY FOR CORRUGATED METAL PIPE.

USE WITH SHEET 2 OF 6  
 DIMENSIONS & QUANTITIES  
 30" NPS HEADWALLS  
 CIRCULAR TYPE PIPE NEW  
 BR. B-E-P      EPILENE MTL-NEW  
 ENTER COUNTY NUMBER OFFICE  
 NO. OPERATING POINT, PART  
 OF PROJECT      AREA IN  
 SQUARE FEET      1/3 F.



### CONCRETE ENCASEMENT DETAIL

**BUTLER COUNTY  
WATER AND SEWER**

130 HIGH STREET  
HAMILTON, OH 45011  
TELEPHONE: 513-887-3066  
FAX: 513-887-3777

**6240**

**WINDING CREEK  
SECTION 20  
AKA CARRIAGE HILL  
SECTION 20  
SECTION 2, TOWN 2, RANGE 3  
LIBERTY TOWNSHIP  
BUTLER COUNTY, OHIO**



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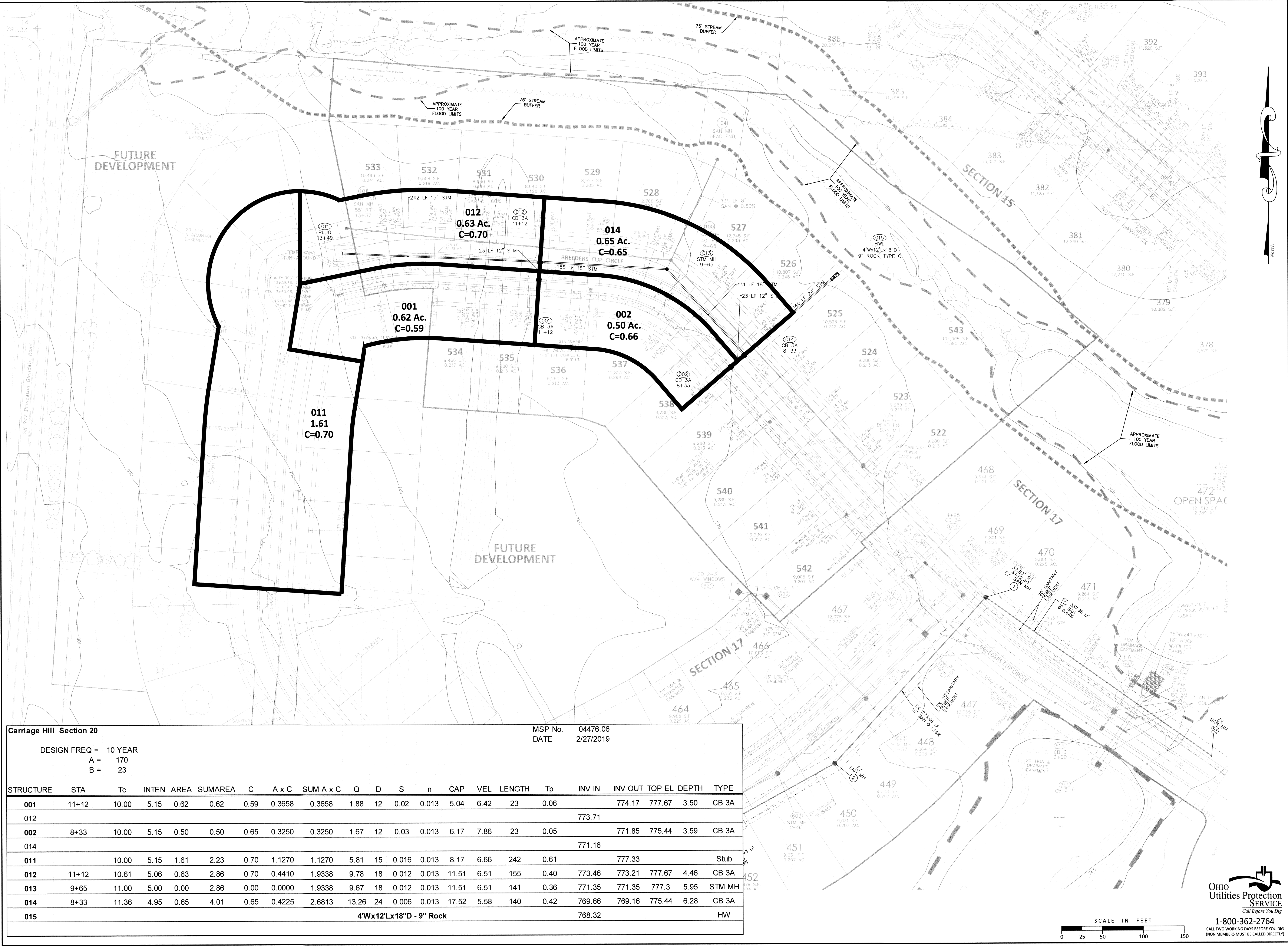
**BUTLER COUNTY  
WATER & SEWER  
STANDARD DETAILS**

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Project Number 04476.06  
 Drawing Scale AS NOTED  
 Sheet Number 5/7  
 File Number 04476







Carriage Hill Section 20															MSP No.	04476.06					
															DATE	2/27/2019					
DESIGN FREQ = 10 YEAR																					
A = 170																					
B = 23																					
STRUCTURE	STA	Tc	INTEN	AREA	SUMAREA	C	A x C	SUM A x C	Q	D	S	n	CAP	VEL	LENGTH	Tp	INV IN	INV OUT	TOP EL	DEPTH	TYPE
001	11+12	10.00	5.15	0.62	0.62	0.59	0.3658	0.3658	1.88	12	0.02	0.013	5.04	6.42	23	0.06		774.17	777.67	3.50	CB 3A
012																	773.71				
002	8+33	10.00	5.15	0.50	0.50	0.65	0.3250	0.3250	1.67	12	0.03	0.013	6.17	7.86	23	0.05		771.85	775.44	3.59	CB 3A
014																	771.16				
011		10.00	5.15	1.61	2.23	0.70	1.1270	1.1270	5.81	15	0.016	0.013	8.17	6.66	242	0.61		777.33			Stub
012	11+12	10.61	5.06	0.63	2.86	0.70	0.4410	1.9338	9.78	18	0.012	0.013	11.51	6.51	155	0.40	773.46	773.21	777.67	4.46	CB 3A
013	9+65	11.00	5.00	0.00	2.86	0.00	0.0000	1.9338	9.67	18	0.012	0.013	11.51	6.51	141	0.36	771.35	771.35	777.3	5.95	STM MH
014	8+33	11.36	4.95	0.65	4.01	0.65	0.4225	2.6813	13.26	24	0.006	0.013	17.52	5.58	140	0.42	769.66	769.16	775.44	6.28	CB 3A
015																	768.32				HW
4'Wx12'Lx18"D - 9" Rock																	768.32				

Project Manager RA  
Drawn By NAK  
DWG 04476064-IMP-SECTION 20  
X-Ref(s) 04476063-TOP-2014 MAY 14

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WINDING CREEK  
SECTION 20  
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SECTION 20  
SECTION 2, TOWN 2, RANGE 3  
LIBERTY TOWNSHIP  
BUTLER COUNTY, OHIO

Sheet Title

DRAINAGE MAP

Project Number 04476.06  
Drawing Scale 1"=50'  
Sheet Number 1/1  
File Number 04476



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