

SECTION 24 PROJECT AREA 6.792 ACRES AREA IN BUILDING LOTS 3.331 ACRES AREA IN OPEN SPACE LOTS 2.340 ACRES AREA IN OPEN SPACE STREETS 0.576 ACRES AREA IN R/W 0.545 ACRES SECTION LOTS

WINDING CREEK SECTION 24 AKA CARRIAGE HILL SECTION 24

SECTION 2, TOWN 2, RANGE 3
LIBERTY TOWNSHIP
BUTLER COUNTY, OHIO

SETBACKS

TYPICAL FRONT SIDE REAR
AREA

24 602-609, 612-617, 621-628 5,300 S.F. 15' 4' 10'

NOTE: A SINGLE FAMILY RESIDENCE EXISTS ON LOT 599.

THE TOTAL NUMBER OF LOTS IN SECTION 24 INCLUDING OPEN SPACE IS 31.

THE TOTAL NUMBER OF LOTS IN SECTION 24 INCLUDING OPEN SPACE IS 31. ECTION 21 SECTION 24 05 521 CURRENT ZONE: R-PUD ISECTION 20+ 554 8 3 3 5 3 8 8 GROUT TOP FULL -6'-0" PRECAST SERVICES PARKING BLOCK (2) 3/4" x15" LONG 18" STEEL GALVANIZED 24" - 30" FINISH OR CUT 24" - 30" REINFORCING STEEL FUTURE ` PER EACH BLOCK 48" - 54" DEVELOPMENT **PAVEMENT** 36" - 40" 36" - 40" Cable TV | 36" + 40" **FUTURE** R/W 10'UTILITY EASEMENT WHEEL STOP 1'-0"

DEVELOPMENT

2 8 8 8 2 8 354 354 345

S S S S S 615 614

LSECTION 24

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TWO STEEL DOWELS
AT EXPANSION
JOINTS

30"

10 1/2"

4 1/2"

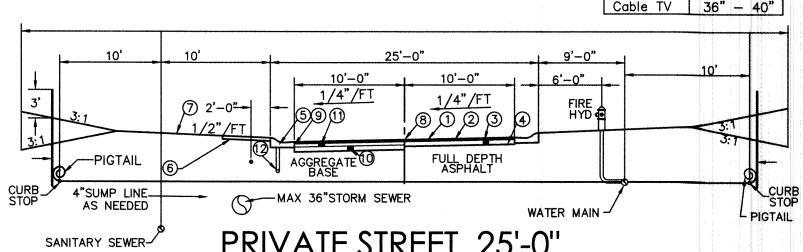
7 1/2"

8"

STD BUTLER COUNTY
CURB & GUTTER

GENERAL: THIS DRAWING SHOWS THE STANDARD TYPE OF CURB THAT SHOULD BE USED ON MOST TYPES OF PAVEMENT. TYPICAL SECTION OF PROJECT SHOWS THE TYPE TO BE USED. ALSO THE THICKNESS OF THE EDGE OF THE PAVEMENT OR THEDGE OF THE CURB AND GUTTER SECTION.

JOINTS: ONE INCH EXPANSION JOINTS SHALL EXTEND UP TO TOP OF THE CURB AND SHALL BE CONSTRUCTED IN THE CURB AND GUTTER SECTION IN SUCH A MANNER THAT THE JOINT SEAL WILL EXTEND THE FULL WIDTH OF THE GUTTER AND INTO THE CURB FACE A SUFFICIENT DISTANCE TO SEAL THE JOINT TO AN ELEVATION OF AT LEAST TWO (2) INCHES ABOVE THE FLOW LINE OF THE GUTTER SECTION AT EXPANSION JOINTS. ALL JOINTS SHALL BE CONSTRUCTED PERPENDICULAR TO THE EDGE OF THE CURB AND TO THE SURFACE OF THE PAVEMENT. TRANSVERSE EXPANSION JOINT MATERIAL SHALL MEET THE REQUIREMENTS OF 705.03. EXPANSION MATERIAL AND JOINT SEALER IS NOT REQUIRED WHEN CURB IS ADJACENT TO FLEXIBLE TYPE PAVEMENT.



9349 WATERSTONE BOULEVARD, SUITE 100

NOTES

1. ITEM NUMBERS REFER TO THE OHIO DEPARTMENT OF HIGHWAYS CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS OR BUTLER COUNTY REQUIREMENTS AND STANDARDS FOR SUBDIVISIONS. WHEN IN CONFLICT, THE COUNTY REQUIREMENTS SHALL PREVAIL.

DEVELOPER

MI HOMES OF CINCINNATI, LLC.

9349 WATERSTONE BOULEVARD, SUITE 100

CINCINNATI, OHIO 45249

OWNERS

LIBERTY LAND COMPANY, LLC.

5342 CARRIAGE HOUSE BOULEVARD

LIBERTY TOWNSHIP, OHIO 45011

MI HOMES OF CINCINNATI, LLC.

CINCINNATI, OHIO 45249

2. ITEMS THAT PERTAIN TO UNDERGROUND UTILITIES SUCH AS WATERMAIN PIPE, SANITARY SEWER PIPE, WATER VALVES AND MANHOLE FRAMES AND COVERS, ETC, WILL REMAIN UNDER SPECIFICATIONS OF THE UTILITY SERVING THE AREA. STORM SEWERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUTLER COUNTY ENGINEER.

3. ALL TRENCHES WITHIN THE RIGHT OF WAY AND 10'UTILITY EASEMENTS SHALL BE COMPACTED AND BACKFILLED IN ACCORDANCE WITH ITEMS 203 AND 603 IN THE

4. SURFACE COURSE (ITEM 448) AND TACK COAT (ITEM 407 ARE TO BE APPLIED NO SOONER THAN NINE (12) MONTHS AFTER THE LEVELING COURSE (ITEM 448), AND FIFTY (50)PERCENT OF THE HOMES ARE COMPLETED. IF AFTER TWO (2) YEARS, FIFTY (50) PERCENT OF THE HOMES HAVE NOT BEEN COMPLETED, THEN THE TOP COURSE MAY BE APPLIED.

5. A MINIMUM 10' UTILITY EASEMENT SHALL BE SHOWN ON THE RECORD PLAT PARALLEL AND IMMEDIATELY ADJACENT TO THE RIGHT OF WAY LINE ALLOWING FOR INSTALLATION, OPERATION AND MAINTENANCE OF SEWERS, WATER, ELECTRIC AND TELEPHONE CONDUIT AND ANY OTHER PUBLIC OR QUASI PUBLIC UTILITY.

6. DEVELOPER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONDUITS FOR THE FULL WIDTH OF THE PUBLIC RIGHT OF WAY AT A DEPTH OF 38"FOR USE BY THE ELECTRIC, TELEPHONE AND CABLE TV SERVICES. THE LOCATION OF THESE LINES SHALL BE COORDINATED WITH UTILITY COMPANIES BY THE DEVELOPER.

SANITARY LATERALS SHALL BE EXTENDED BEYOND THE LIMITS OF THE UTILITY EASEMENTS, BUT NOT TO EXCEED 12' FROM THE RIGHT OF WAY LINE.

8. ALL ELECTRICAL TRANSFORMERS SHALL BE LOCATED SO THAT THEY DO NOT INTERFERE WITH THE EXISTING MANHOLES.

9. SUMP LINE CONDUITS ARE TO BE SDR 35.

10. THE SANITARY SEWER SHALL BE PLACED IN SUCH A MANNER THAT THE SANITARY MANHOLE COVER DOES NOT CONFLICT WITH THE SIDEWALK.

OVERALL PROJECT MAP 1"=500"

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L COVER SHEET

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9 EROSION CONTROL NOTES & DETAILS

NOTE:
ALL LOTS SHALL BE SERVED BY SANITARY SEWER
AND PUBLIC WATER SYSTEMS.

PROJECT BENCHMARK = CENTERLINE NAIL LOCATED AT THE INTERSECTION OF CARRIAGE HOUSE BOULEVARD AND STAGECOACH WAY. ELEVATION = 790.52

GENERAL NOTES

ALL WORK SHALL BE DONE UNDER THE SUPERVISION OF THE BUTLER COUNTY ENGINEER AND THE AUTHORITY HAVING RESPONSIBILITY FOR UTILITIES IN THE AREA AND IN ACCORDANCE WITH THE RULES AND REGULATIONS FOR

STORM SEWERS SHALL BE A MATERIAL WITH A MANUFACTURER'S MANNINGS "N" OF 0.011 OR LOWER AND A MATERIAL AS NOTED IN APPENDIX D, TABLE D-6 IN THE BUTLER COUNTY SUBDIVISION REGULATIONS ADOPTED NOVEMBER 24, 1997. (NOTE — CORRUGATED METAL PIPE NOT INCLUDED) STEPS SHALL BE INSTALLED IN CATCH BASINS AND MANHOLES IN EXCESS OF FOUR FEET.

CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIAL SPECIFICATIONS" ODOT 1997 STANDARDS OR BUTLER COUNTY REQUIREMENTS AND STANDARDS FOR SUBDIVISIONS. WHEN IN CONFLICT, THE COUNTY REQUIREMENTS SHALL PREVAIL.

SUMP COLLECTOR LINES SHALL BE CONSTRUCTED SDR 35 PVC, ARMCO 2000

A PRE-CONSTRUCTION MEETING IS REQUIRED WITH THE BUTLER COUNTY ENGINEER'S OFFICE PRIOR TO THE START OF CONSTRUCTION.

SANITARY SEWER MATERIALS AND INSTALLATION AS PER BUTLER COUNTY WATER & SEWER SPECIFICATIONS USING SECTION 3110 FOR PVC, SDR-35 & 26 PIPE; SECTION 3140 FOR ABS PVC COMPOSITE PIPE. SECTION 3410 FOR MANHOLES.

SANITARY LATERALS SHALL BE EXTENDED TO AT LEAST TEN (10) FEET BEYOND THE PROPERTY/ RIGHT-OF-WAY LINE OR TO THE EDGE OF THE EASEMENT,

THE UPSTREAM TERMINUS OF THE SANITARY SEWER LATERALS SHOWN HERE ON ARE TO BE 12 FEET BELOW OF THE ELEVATION OF THE BACK OF CURB.

WATER MAIN SHALL HAVE 4' MINIMUM DEPTH TO TOP OF PIPE.
ALL WATER MAINS TO BE DUCTILE IRON PIPE, CL. 53 AWWA C-151.
WATER MAIN MATERIALS, VALVES, FIRE HYDRANTS, FITTINGS, APPURTENANCES,
AND INSTALLATION SHALL BE PER BUTLER COUNTY SPECIFICATIONS, AND SHALL
HAVE RESTRAINED JOINTS. ALL WATER MAIN VALVES TO HAVE A MINIMUM
DEPTH OF 2.5 AND A MAXIMUM OF 4.0' FROM PROPOSED GRADE TO THE
TOP OF THE VALVE OPERATING NUT.

WATER MAIN SHALL HAVE 10' HORIZONTAL, & 18" VERTICAL SEPARATION (OUTSIDE EDGE TO EDGE) WITH ALL OTHER PIPE.

ALL DOWNSPOUT LINES SHALL BE ON SPLASHBLOCKS AND MAY NOT BE CONNECTED TO THE CURB.

ALL TRENCHES WITHIN THE RIGHT-OF-WAY AND UTILITY EASEMENTS SHALL BE COMPACTED AND BACKFILLED IN ACCORDANCE WITH ITEM 203 AND 603 IN THE CURRENT OHIO

THE DEVELOPER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF CONDUITS OF THE FULL WIDTH OF THE PUBLIC RIGHT—OF—WAY AS CALLED FOR ON THE TYPICAL SECTION FOR USE BY THE ELECTRIC, TELEPHONE, AND CABLE TELEVISION SERVICES. THE DEVELOPER SHALL COORDINATE THE LOCATION OF THE LINES WITH EACH UTILITY COMPANY.

ALL ELECTRICAL TRANSFORMERS SHALL BE LOCATED SO THAT THEY DO NOT INTERFERE WITH EXISTING MANHOLES OR WATER MAIN APPURTENANCES.

STORM SEWER PIPE SHALL BE TYPE "B" & "C" CONDUIT, 707.42 PVC, ALL DIA. (CONTECH A200 OR EQUAL), 707.33 PVC, UP TO & INCLUDING 24" DIA (HANCOR, ADS, OR EQUAL), 707.01 CMP, ALL DIA., 706.02, REINFORCED CONCRETE PIPE, ALL DIA.

BUTLER COUNTY WATER & SEWER DOES NOT ACCEPT ANY RESPONSIBILITY
FOR THE RELOCATION, REPAIR OR REPLACEMENT OF ANY OTHER UTILITY INSTALLED
WITHIN FIVE (5) FEET OF THE CENTERLINE OF ANY SANITARY MAIN SEWER OR WATER MAIN.

PRIVATE DRIVEWAYS, PARKING LOTS AND OTHER PAVED AREAS, EARTHEN BERMS OR STRUCTURES SHOULD NOT BE CONSTRUCTED OVER PRIVATE WATER OR SEWER SERVICE LINES WITHIN THE PUBLIC ROAD RIGHT OF WAY OR WITHIN EASEMENT AREAS FOR THE PUBLIC UTILITIES. SHOULD THIS OCCUR, THE PROPERTY OWNER WILL BE HELD RESPONSIBLE FOR THE PROTECTION AND REPAIR OF AND FOR PROVIDING ACCESS TO ANY CURB STOPS, METER PITS, MANHOLES, CLEANOUTS, ETC. INSTALLED IN CONJUNCTION WITH THESE PRIVATE SERVICE LINES AND FOR ANY DAMAGE OR RESTORATION OF THE PAVED SURFACES OR STRUCTURES THAT MAY RESULT FROM THE FUTURE OPERATION, MAINTENANCE, REPAIR OR REPLACEMENT OF SAID SERVICE LINES AND APPURTENANCES.

LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE.

CONTRACTOR SHALL FIELD VERIFY GROUND CONDITIONS AND EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.

THE EXISTING UTILITIES SHOWN ARE FOR CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE OWNER ASSUMES NO RESPONSIBILITY FOR THE LOCATION OF ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. BUTLER COUNTY ASSUMES NO MAINTENANCE RESPONSIBILITY FOR PRIVATE DRIVES.

BUTLER COUNTY WILL NOT BE RESPONSIBLE FOR ANY PAVEMENT OR STORM SEWER REPAIRS RESULTING FROM WATER MAIN REPAIRS. BUTLER COUNTY ALSO WILL NOT BE RESPONSIBLE FOR ADJUSTING VALVES, FIRE HYDRANTS, METER PITS, ETC. AS A RESULT OF GRADE CHANGES. THE GRANTOR SHALL BE RESPONSIBLE FOR THE PROPER ADJUSTMENT OF VALVES, FIRE HYDRANTS, METER PITS, ETC., TO THE SATISFACTION OF BUTLER COUNTY, DUE TO GRADE CHANGES, PAVING, REPAVING, ETC., INITIATED BY THE GRANTOR.

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO

ALL BUILDINGS TO BE SERVED BY THE PUBLIC SEWER SYSTEM SHALL BE CONSTRUCTED SO AS TO PROVIDE A MINIMUM OF FOUR FEET (4') OF VERTICAL SEPARATION BETWEEN THE PUBLIC SANITARY SEWER, AT THE POINT OF CONNECTION, AND THE LOWEST BUILDING LEVEL SERVED BY A GRAVITY SEWER CONNECTION. IN ADDITION, SAID BUILDING LEVEL SHALL BE AT LEAST ONE FOOT (1') ABOVE THE LOWEST POINT OF FREE-OVERFLOW (NON-SEALED MANHOLE COVER) UPSTREAM OF ANY TREATMENT FACILITY OR WASTEWATER PUMPING FACILITY THAT RECEIVES THE DISCHARGE FROM SAID BUILDING. SAID MINIMUM SERVICE LEVELS SHALL BE RECORDED ON THE "AS BUILT" PLANS FOR THE DEVELOPMENT WHICH WILL BE KEPT ON FILE IN THE OFFICE OF THE BUTLER COUNTY WATER AND SEWER DEPARTMENT.

SANITARY SEWER LATERALS, WHICH SHALL INCLUDE ALL PIPE AND APPURTENANCES FROM THE BUILDING TO THE PUBLIC SEWER MAIN, AND CONNECTION TO THE PUBLIC SEWER MAIN SHALL BE CONSIDERED PRIVATE AND THE RESPONSIBILITY OF THE PROPERTY OWNER TO MAINTAIN. THE CONNECTION TO THE SEWER WOULD BE ANY PIPING THAT EXTENDS OUT FROM THE MAIN BARREL OF THE SEWER MAIN.

ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN

SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH STATE OF OHIO SPECIFICATIONS, ITEM 659.

THE CONTRACTOR SHALL SEED AND MULCH DISTURBED GRASS AREAS WITH:

3 LBS. WHEAT OR RYE PER 1000 SQ. FT.
10 LBS. 12-12-12 FERTILIZER PER 1000 SQ. FT.
2 OR 3 BALES OF STRAW PER 1000 SQ. FT.

THE CONTRACTOR SHALL ALSO PROVIDE OTHER EROSION CONTROL MEASURES AS MAY BE REQUIRED BY BUTLER COUNTY ENGINEER DURING THE CONSTRUCTION PHASE.

THE SANITARY SEWER SYSTEM ARE PROHIBITED.

SEEDING— SPECIFICATIONS AT DETENTION BASIN:
RED FESCUE

RED FESCUE

1 LB. PER 1000 SQ. FT

KENTUCKY BLUEGRASS

1/2 LB. PER 1000 SQ. FT.

PERENNIAL RYEGRASS

1/2 LB. PER 1000 SQ. FT.

FERTILIZER: 12 — 12 — 12

FERTILIZER: 12 - 12 - 12

MULCH - 3 BALES OF STRAW PER 1000 SQ. FT.

MULCH TIE DOWN: LIQUID ASPHALT (R.C. 70, 25 OR 800) 40 GALS. PER

1000 SQ. YDS. OR PLASTIC MULCH NETTING, STAPLED

IN PLACE.
SOD: TO BE STAKED IN PLACE.



(NON MEMBERS MUST BE CALLED DIRECTLY)

D E S I G N
McGill Smith Punshon

Architecture 3700 Park 42 Drive
 Engineering Suite 1908
 Landscape Architecture Planning Phone 513.759.0004
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Proiect Manager

Drawn By NAK
DWG 04476064-IMP-SECTION 24
X-Ref(s) 04476063-TOP-2014 MAY 14

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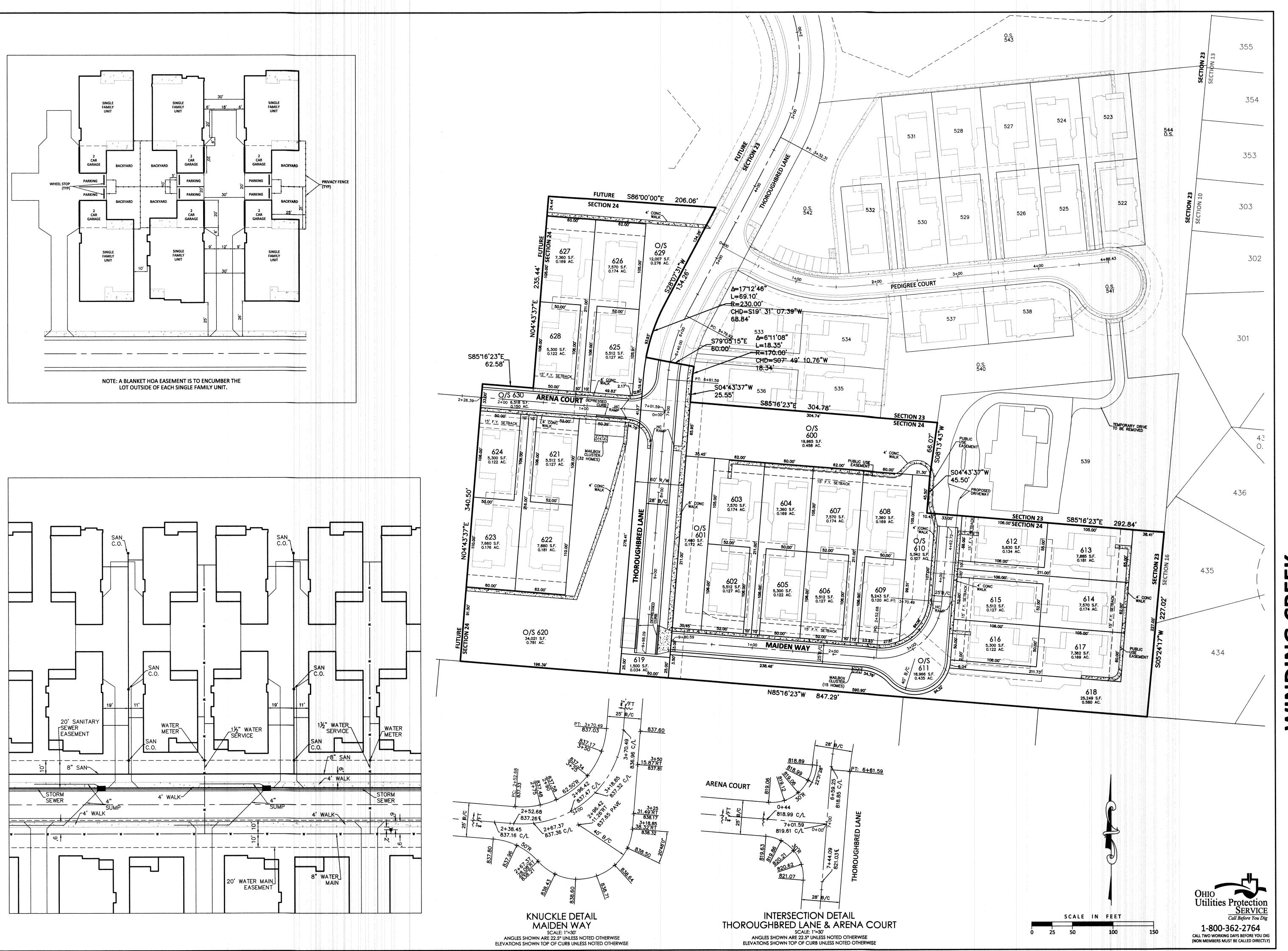
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COVER SHEET

Project Number 04476.06
Drawing Scale AS NOTED
Sheet Number 1/8

File Number

1/8 04476





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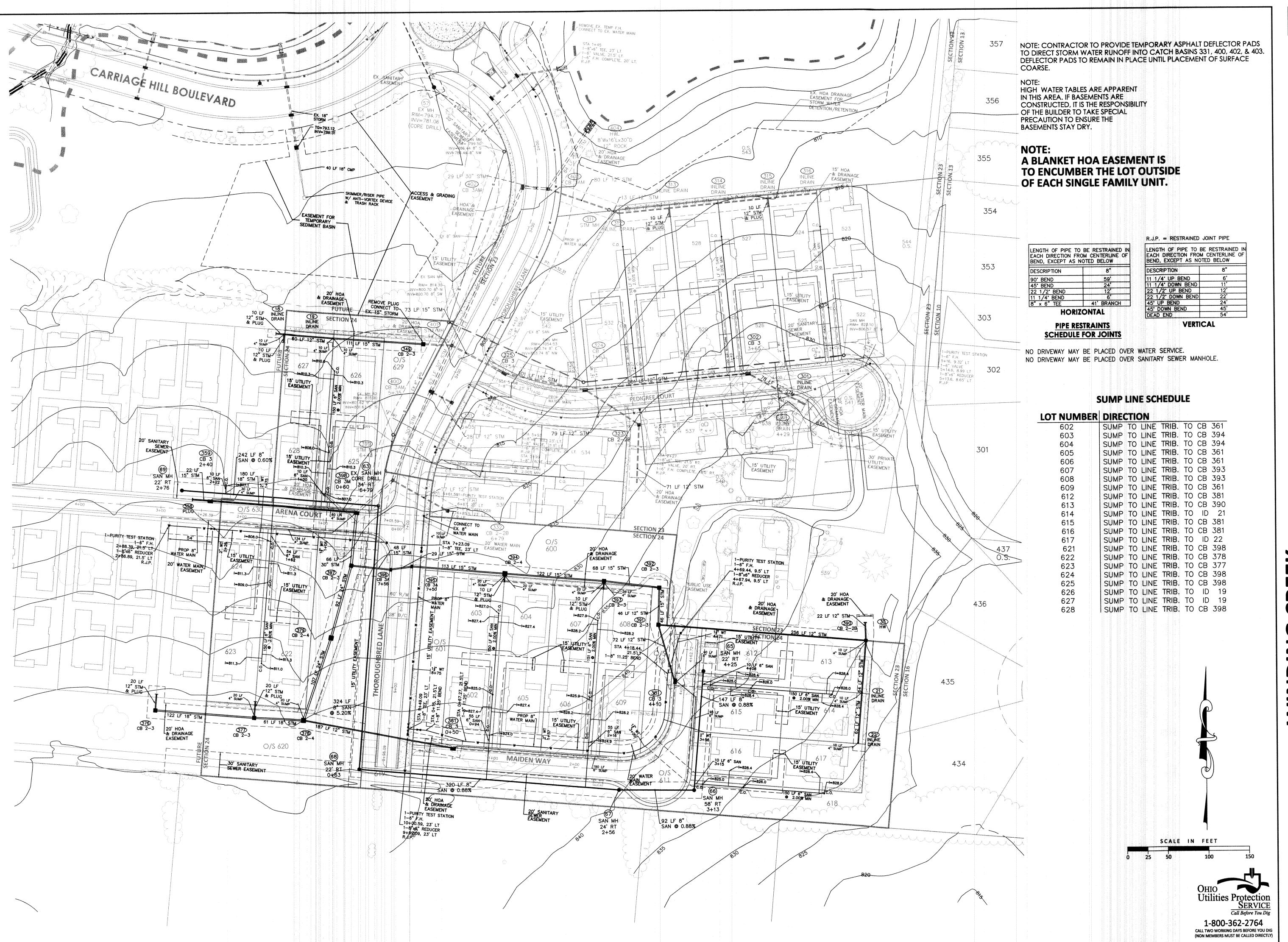
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File Number

LAYOUT PLAN

04476

Project Number 04476.06
Drawing Scale 1" = 50'
Sheet Number 2/9





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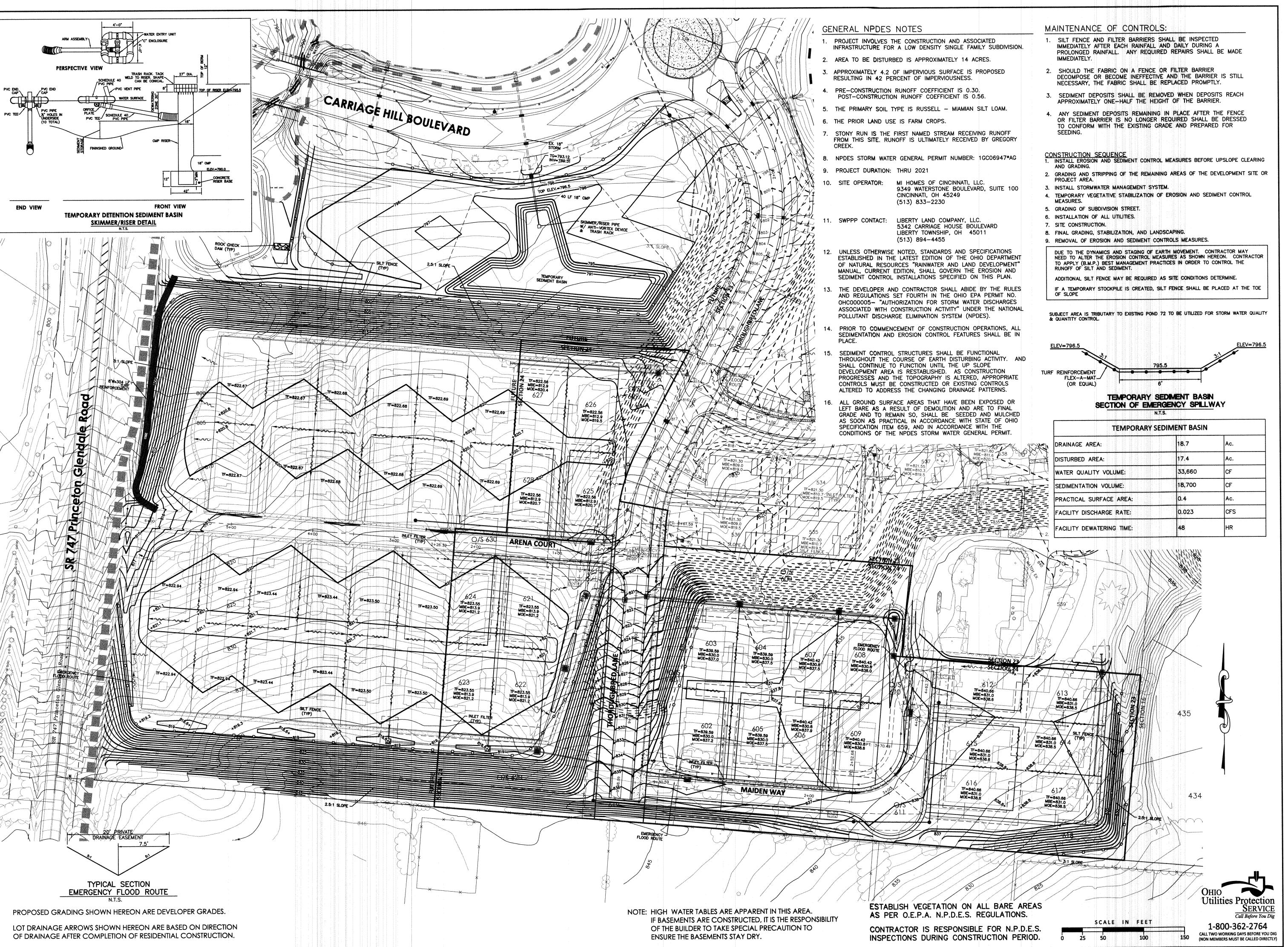
WINDING CREEK SECTION 24 AKA CARRIAGE HILI

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UTILITY PLAN

Project Number 04476.06
Drawing Scale 1" = 50'
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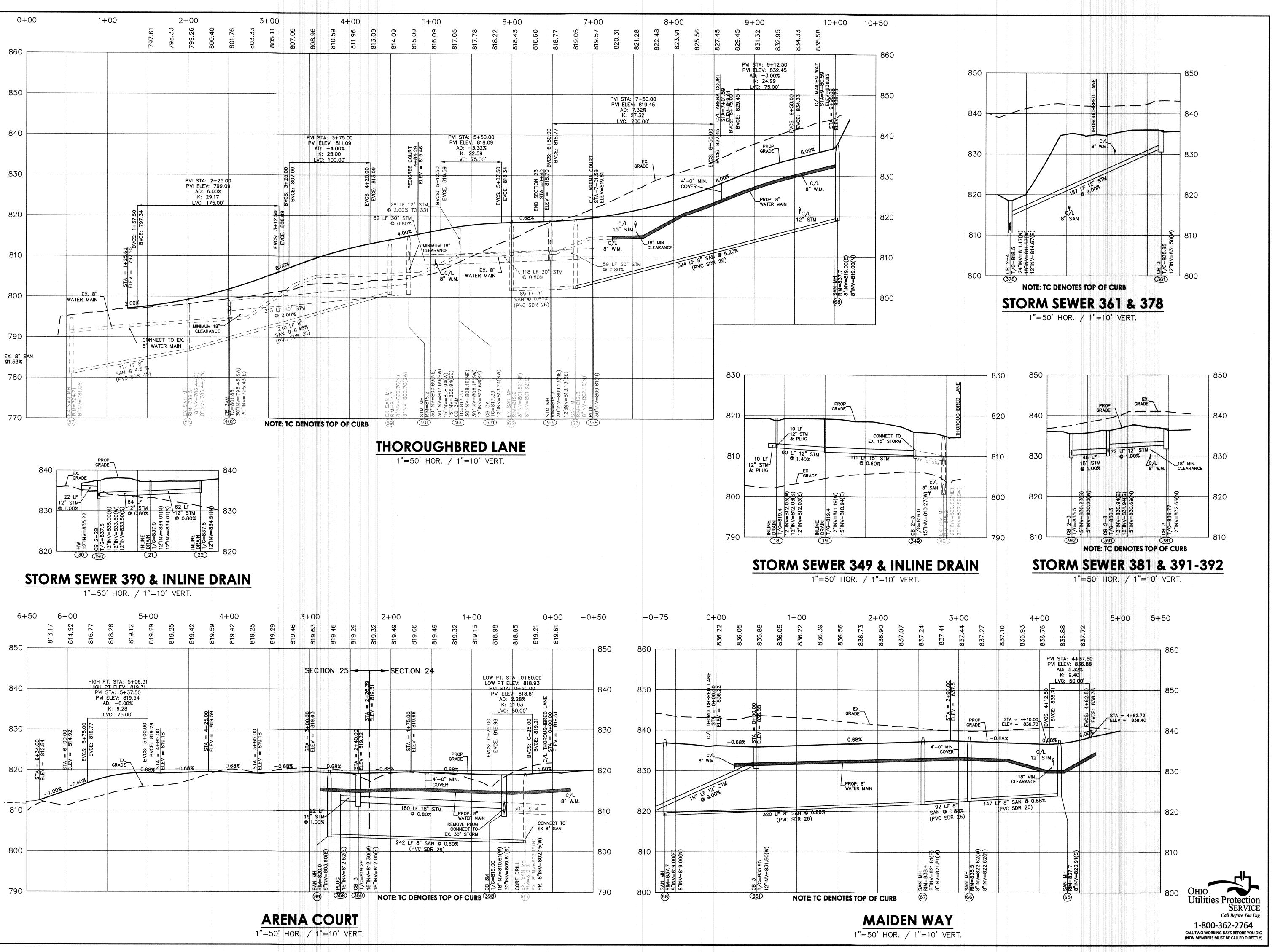
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GRADING & SWP3

Project Number 04476.06
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04476





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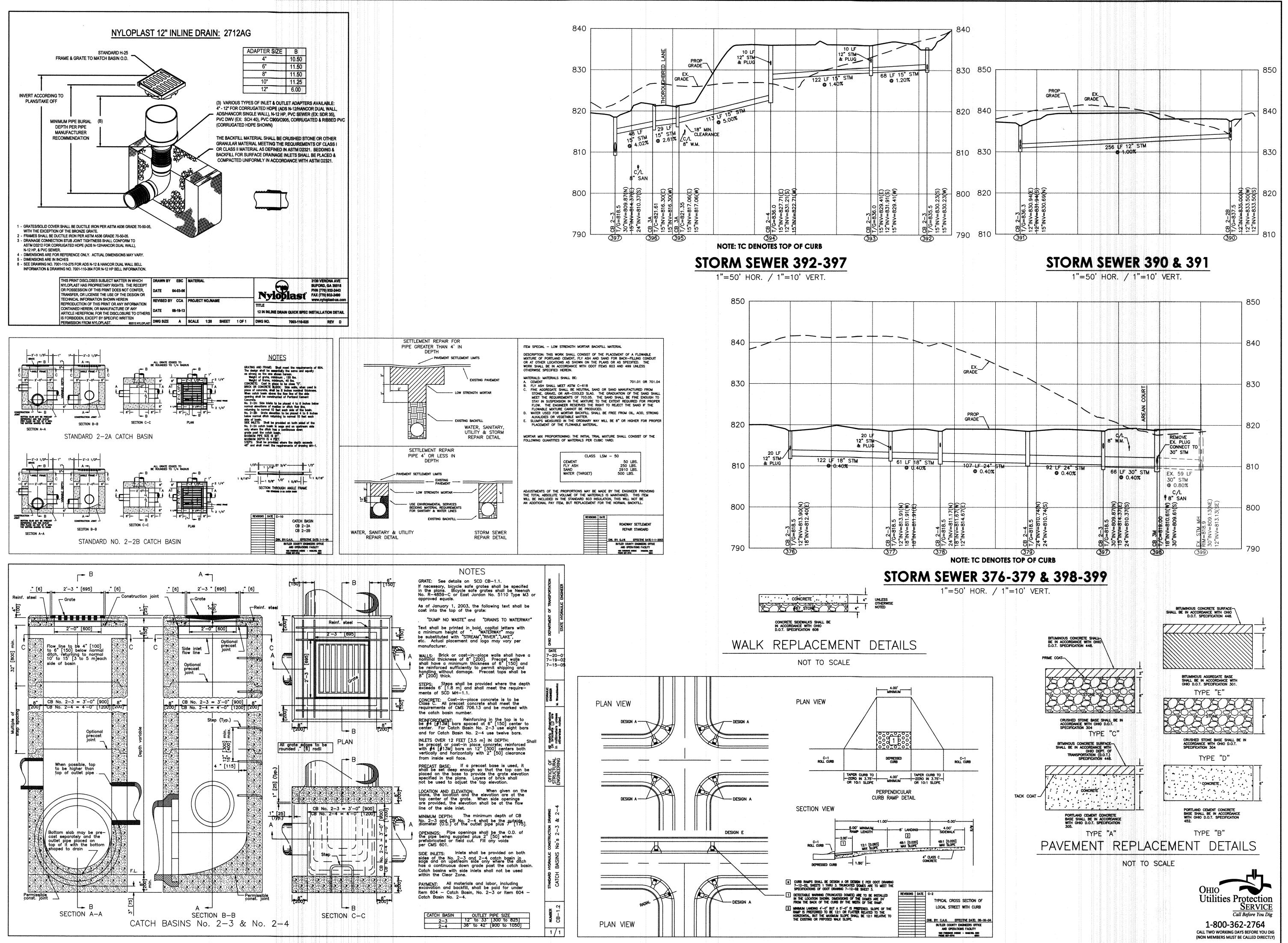
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PROFILES

04476

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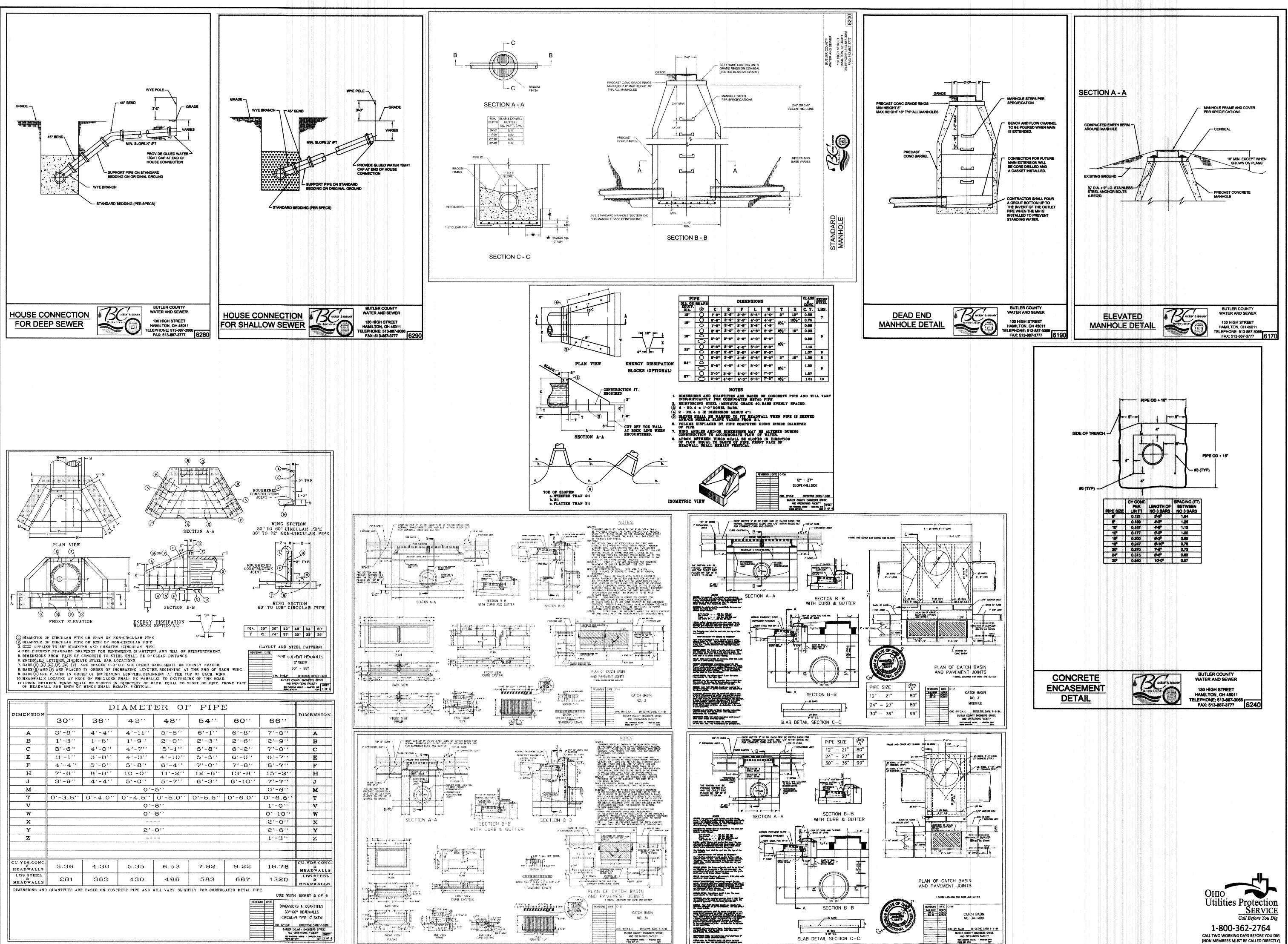
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PROFILES & DETAILS

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SLAB DETAIL SECTION C-C

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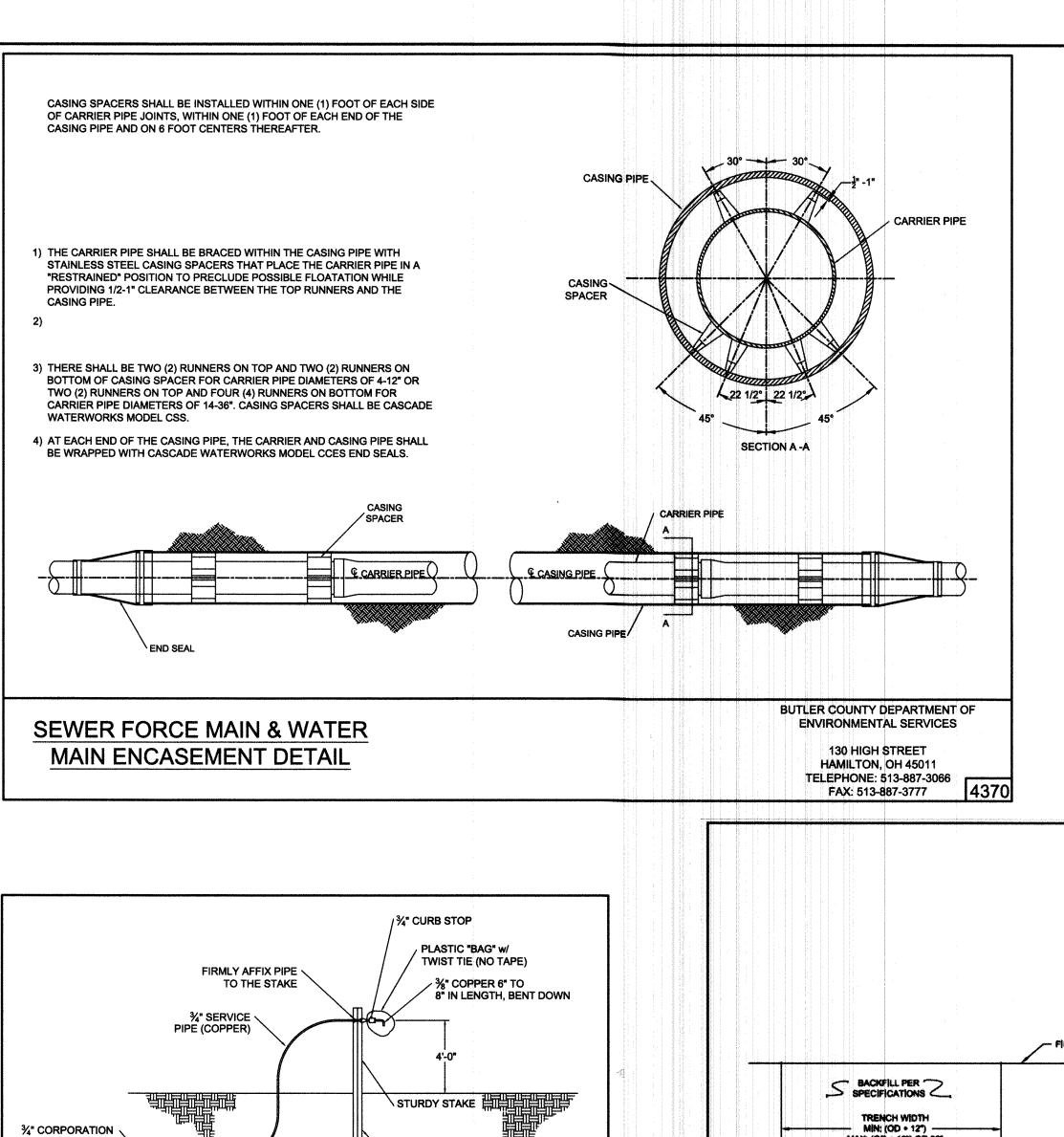
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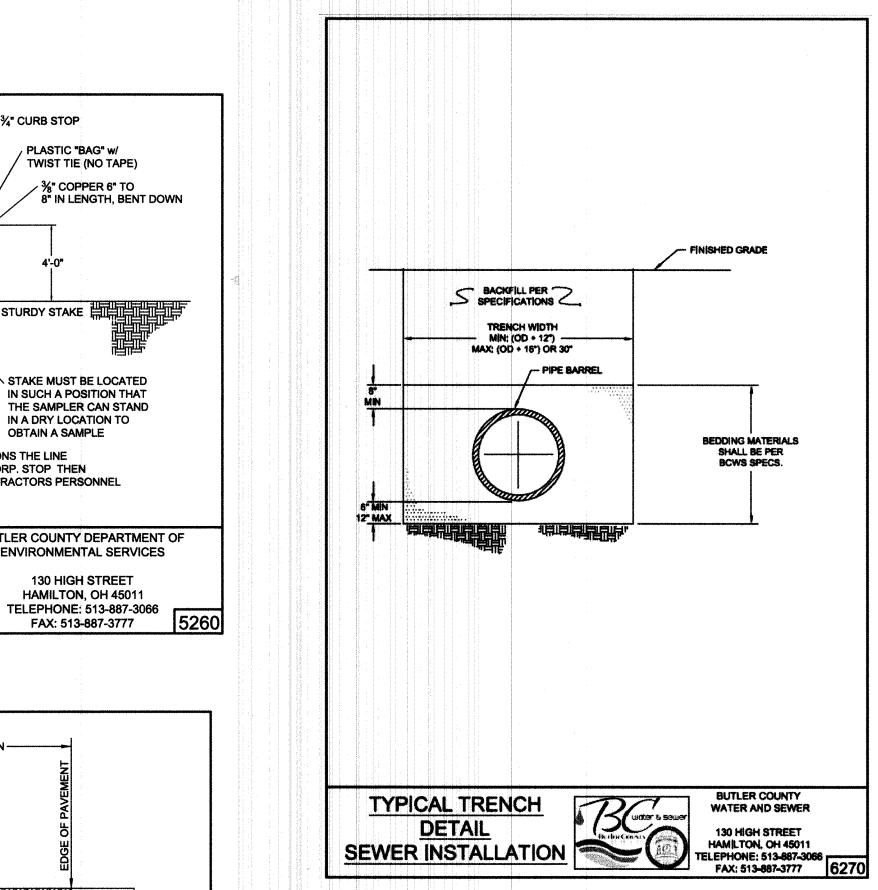
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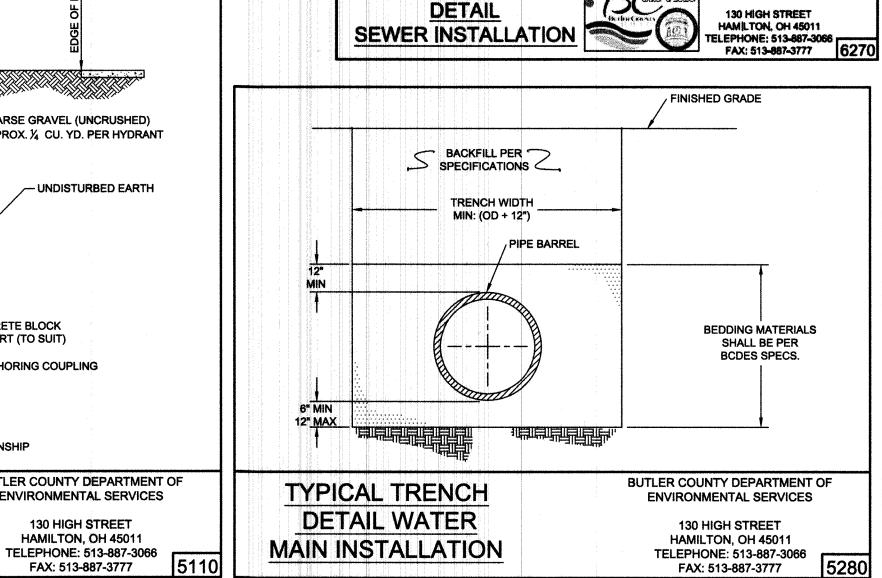
BUTLER COUNTY WATER & SEWER STANDARD DETAILS

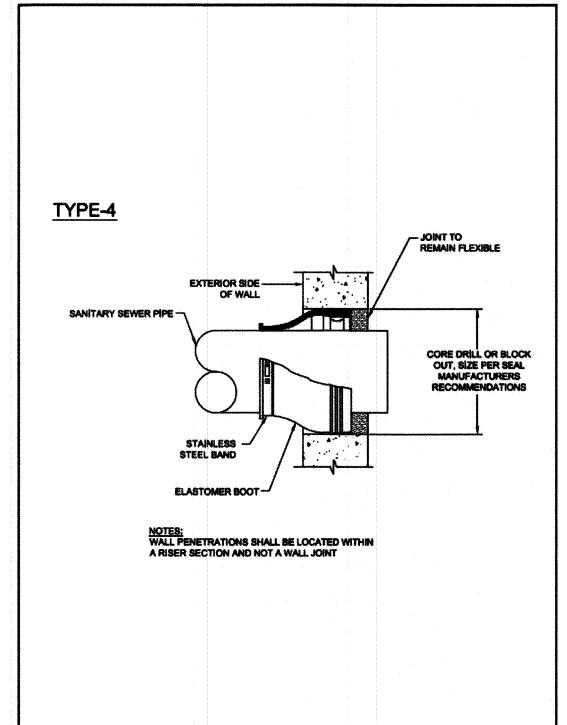
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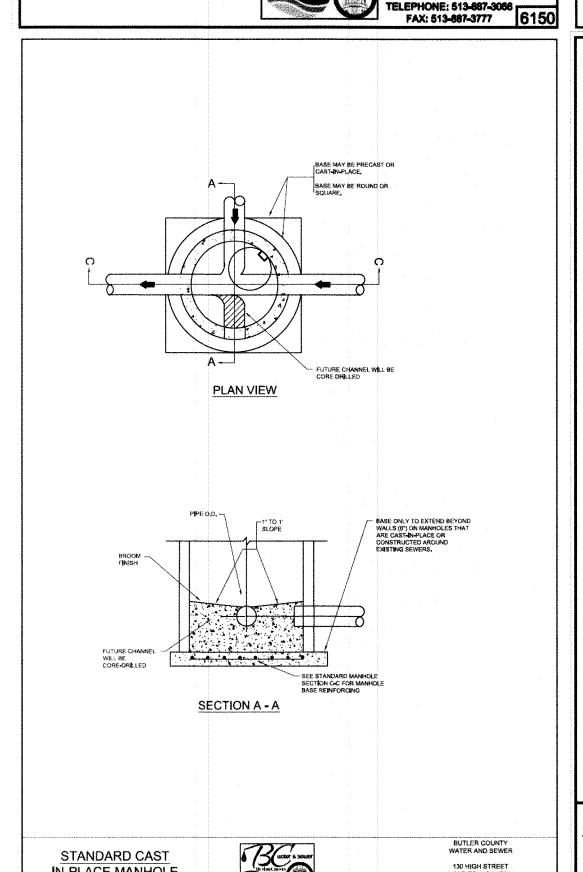
04476.06 N.T.S. 7/9 04476











NOTES:

WATER MAIN-

6" GATE VALVE -

SETTING FOR HYDRANT

ADJACENT TO MAIN

6" HYDRANT-

TEE CLOW F-943

F-1224 OR EQUAL

1.) FITTINGS TO BE MECHANICAL JOINT HYDRANT ANCHOR FITTINGS.

2.) SEE TYPICAL FIRE HYDRANT INSTALLATION DETAIL FOR ADDITIONAL DETAILS.

HYDRANT

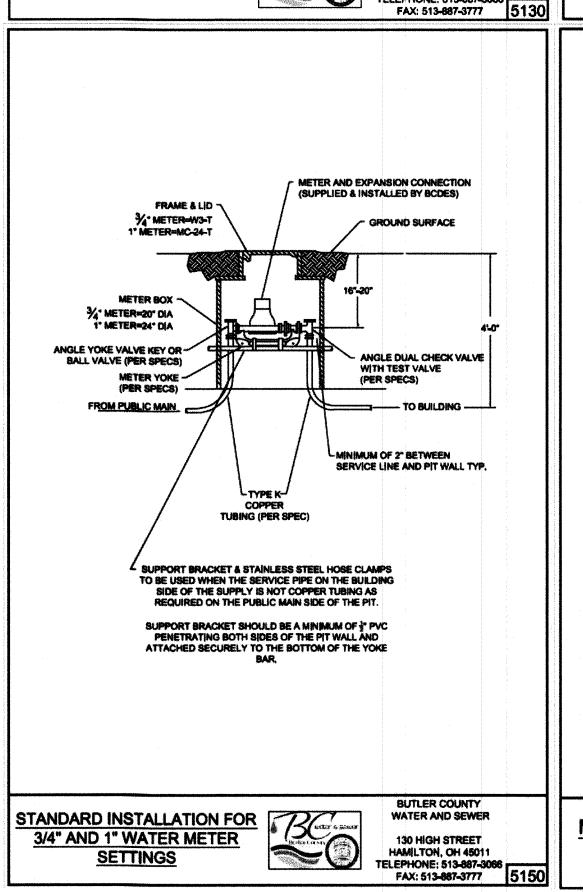
BY MAIN SIZE

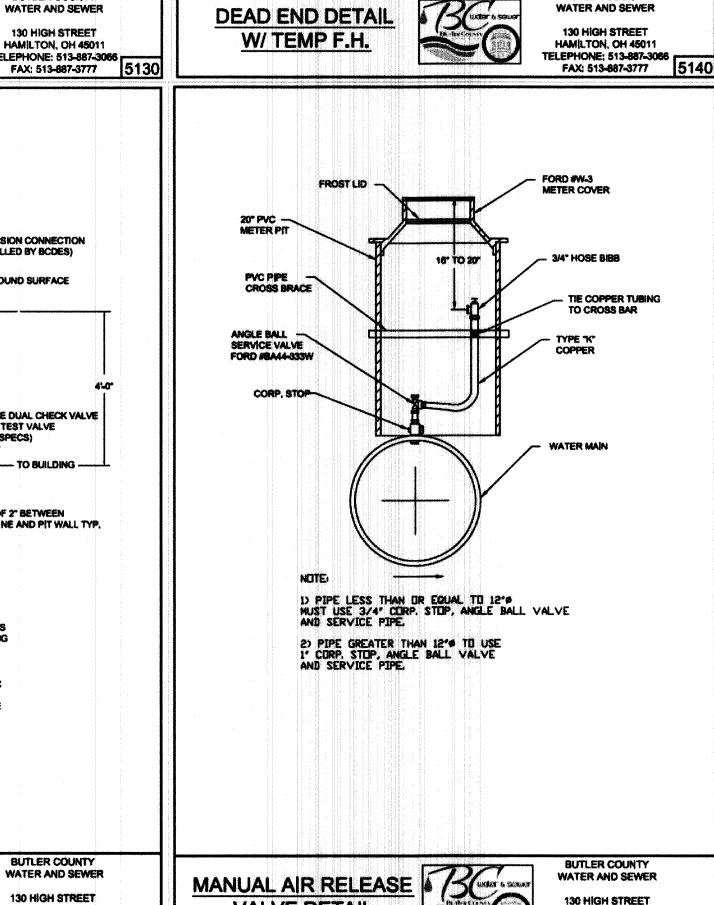
BUTLER COUNTY DEPARTMENT OF

ENVIRONMENTAL SERVICES

130 HIGH STREET HAMILTON, OH 45011

TELEPHONE: 513-887-3066 FAX: 513-887-3777 5120







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TELEPHONE: 513-887-3066 FAX: 513-887-3777 5290

Utilities Protection
SERVICE

1-800-362-2764

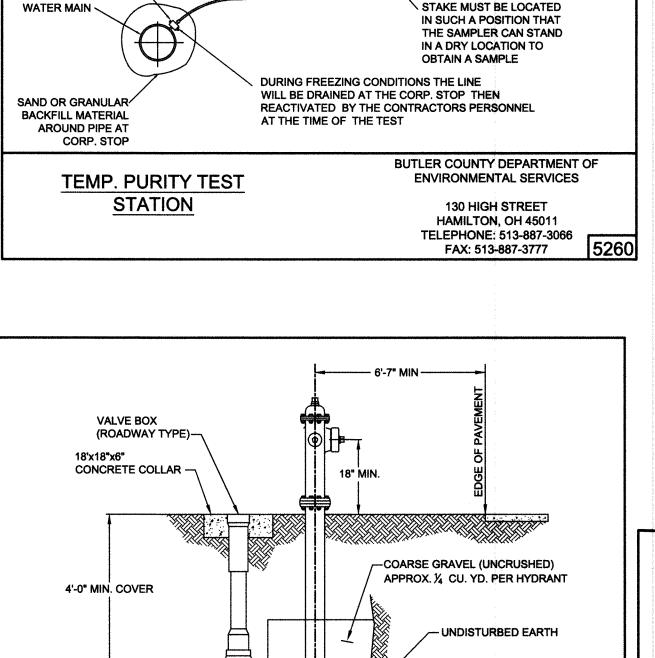
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BUTLER COUNTY WATER & SEWER STANDARD DETAILS

04476.06 Project Number Drawing Scale **Sheet Number**

N.T.S. 8/9 04476



ANCHORING TEE

TYPICAL FIRE

HYDRANT INSTALLATION

& 6" VALVE

CONCRETE BLOCK

SUPPORT (TO SUIT)

6"x1'-0" ANCHORING COUPLING

BUTLER COUNTY DEPARTMENT OF

ENVIRONMENTAL SERVICES

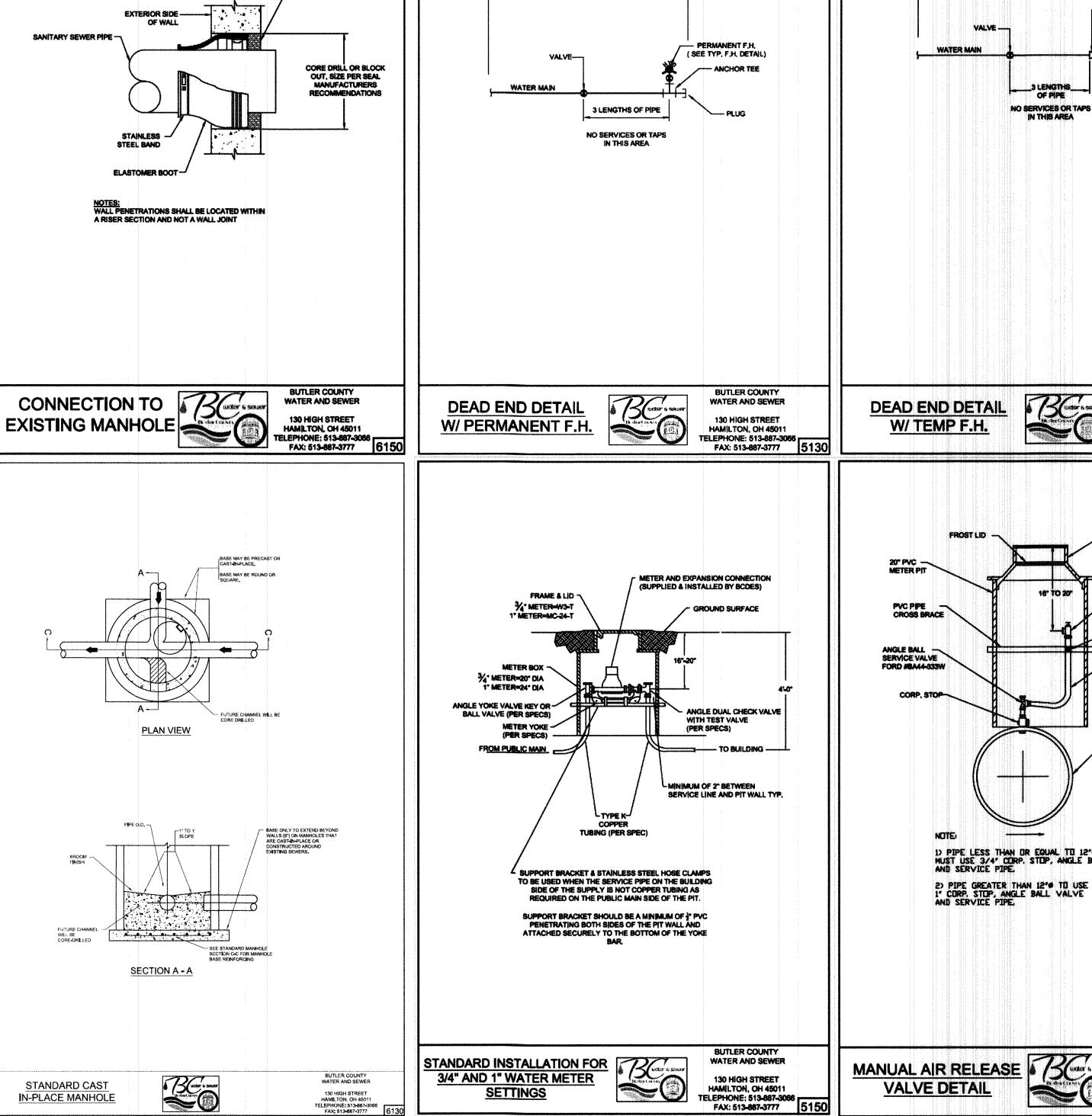
HAMILTON, OH 45011

1.) VERIFY LOCATION OF F.H. RELATIVE

BETWEEN MAIN, STREET AND F.H.

2.) CHECK STREET DETAILS FOR RELATIONSHIP

TO WATER MAIN ON PLANS.



RESTRAINED JOINTS

SITE PREPARATION

1. A subsoiler, plow or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizina 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

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

veaetation.

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 lbs./1,000 sq. ft or 2 tons/ac.

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./1,000 sa ft. or 500 lb./ac/ 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 in. 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 Aug. 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. fillage/ 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 o 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, and the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.

* From November 20 through March 15, when soil conditions permit. prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase type of seeding.

* Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist

* 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.

Note: Other approved seed species may be substituted.

2. Materials

* Straw-If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (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-sq.-ft. sections and spread two 45-lb. bales of straw in each

* Hydroseeders-If wood cellulose fiber is used, it shall be used at 2,000 lb./ac/ or 46 lb./1,000 sq. ft. * Other-Other acceptable mulches

include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac. 3. Straw Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind * 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 in.

* Mulch Nettings—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.

* Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacturer or at the rate of 160

* Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac). DCA-70, Petroset, Terra Tack of equivalent may be used at rates recommended by manufacturer.

* Wood Cellulose Fiber-Wood cellulose fiber binder shall be applied at a net dry weight of 750 lb./ac. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lbs./100 gal.

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

Permanent Seeding Seeding Rate Notes: lb./ac. | lb./1.000 ft General Use Creeping Red Fescue 10-20 10-20 Domestic Ryegrass 1/4-1/ 1/4-1/2 Kentucky Bluegrass Tall Fescue 40 1 Dwarf Fescue Steep Banks or Cut Slopes Tall Fescue Crown Vetch not seed later than August 1/2 Tall Fescue 1/2 1/2 Do not seed later than August Tall Fescue Road Ditches and Swales 40 2 1/4 Kentucky Bluegrass Lawns Kentucky Bluegrass 1 1/2 1 1/2 Perennial Ryegrass Kentucky Bluegrass For shaded areas Creeping Red Fescue

Permanent Seeding

Specifications

1. Permanent seeding shall not be considered established for at least full year from the time of planting. Seeded areas shall be inspected for failure and 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.

. Maintenance fertilization rates shall be established by soil test recommendations or by using the rates shown in the following table.

Mixture	Formula	lb./ac.	lb./1.000 ft. ²	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12		Not closer than 3
Tall Fescue	10-10-10	500	12	Fall, yearly or as needed.	Not closer than 4
Dwarf Fescue	10-10-10	500	12		Not closer than 2
Crown Verch Fescue	0-20-20	400	10	Spring, yearly following establish—	Do not mow
Flat Pea Fescue	0-20-20	400	: 10	ment and every 4—7 yr. thereafter.	Do not mow

Specifications Temporary Seeding

Seeding Dates	Species	lb./1.000 ft. ²	Per Ac.
March 1 to August 15	Oats Tall Fescus Annual Ryegrass	3 1 1	4 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescus Annual Ryegrass	1 1 1	40 lb. 40 lb. 40 lb.
August 16 to November 1	Rye Tall Fescus Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Wheat Tall Fescus Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescus Annual Ryegrass	. 1 : 1 1	40 lb. 40 lb. 40 lb.

2. Materials:

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 far 21 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

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 that 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 and 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

 Applications of temporary seeding shall include mulch that 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.

* Straw-If straw is used, it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lbs./1,000 sq. ft. (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 sq. ft. 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./ac. or 46 lb./1,000 sq. ft.

* Other-Other acceptable mulches include mulch matting applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw mulch shall be anchored immediately to minimize loss by wind or water.

4. 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 in.

* Mulch Nettings—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.

* Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacturer or at the rate of 160 gal. /ac.

* Synthetic Binders-Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates recommended by manufacturer.

* Wood Cellulose Fiber-Wood cellulose

fiber binder shall be applied at a net

dry weight of 750 lb./ac. The wood

cellulose fiber shall be mixed with

water and the mixture shall contain a maximum of 50 lbs./100 gal. MULCH BERM

Varies Depending on Slope Of Existing Ground

MULCH BERM DETAIL

N.T.S.

* Straw-Straw shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lbs./1.000 sa, ft. (two to three bales). The mulch shall be spread uniformly by * Asphalt Emulsion—For straw hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch divide area into approximately 1,000 sq. ft. sections and spread two 45 lb. bales of straw in each section.

Specifications for

Mulching

* Hydroseeders-Wood cellulose fiber should be used at 2,000 lb./ac. or 46 lbs./1,000 sq. ft. * Other-Other acceptable mulches include mulch matting applied

1. Mulch and/or other appropriate

vegetative practices shall be applied

to disturbed areas within 7 days of

grading if the area is to remain

portions of the site which can be

2. Mulch shall consist of one of the

dormant (undisturbed) for more

than 45 days or on areas and

brought to final grade.

followina:

applied at 10-20 tons/ac. 3. Mulch Anchoring-Mulch shall be anchored immediately to minimize loss by wind or runoff. The following are accepted methods for anchoring mulch:

according to manufacturer's

recommendations or wood chips

* Mechanical-Use a disk, crimper or similar type tool set straight to punch or anchor the mulch materia into the soil. Straw mechanically anchored shall not be finely chopped but generally be left longer than 6 in.

* Mulch Nettings—Use according to the manufacturer's recommendations, following all placement and anchoring suggestions. Use in areas of water concentration and steep slopes to hold mulch in place.

mulch, apply at the rate of 160 gal. /ac. (0.1 gal. /sy) into the mulch as it is being applied or as recommended by the manufacturer. * Synthetic Binders-For straw mulch, synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70,

Petroset, Terra Tack or equivalent

by manufacturer.

SOD INSTALLATION

may be used at rates recommended

* Wood Cellulose Fiber-Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 lb./acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lbs./100 gal.

Specifications Sodding

MATERIALS

1. Sod shall be harvested, delivered 1. During periods of excessively high and installed within a period of 48 temperatures, the soil shall be lightly hrs. Sod not transplanted within irrigated immediately prior to laying this period shall be inspected and the sod. approved prior to installation.

2. The sod shall be kept moist and covered during hauling and preparation for placement on the sod bed.

3. Sod shall be machine cut at a uniform soil thickness of 0.75 in. plus or minus 0.25 in., at the time of cutting. Measurements for thickness shall exclude top growth and thatch.

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 shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.

2. The area shall be graded and resoiling shall be done where

3. Soil Amendments: * 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 lbs./1.000 sa. f or 2 tons/ac.

* 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./1,000 sq. ft. or 500 lb./ac. of 10-10-10 or 12-12-12 analysis.

* 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

4. Before laying sod, the surface shall be uniformly graded and cleared of all debris, stones and clods larger than 3 in in diameter.

3. The first row of sod shall be laid in a straight line with subsequent

rows placed parallel to and tightly wedged against each other. Latera joints shall be staggered in a brick-like pattern. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would dry the roots.

2. Sod shall not be placed on frozen

4. On sloping areas where erosion may be a problem, sod shall be laid with the long edge parallel to the contour and with staggered joints. The sod shall be secured with peas or staples.

5. As sodding is completed in any one section, the entire area shall be rolled or tamped to ensure solid contact of roots with the soil surface. Sod shall be watered immediately after rolling or tamping until the sod and soil surface below the sod is thoroughly wet. The operations of laying, tamping and irrigating for any place of sod shall be completed within 8 hrs.

SOD MAINTENANCE

1. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4 in.

2. After the first week, sod shall be watered as necessary to maintain adequate moisture and to ensure establishment.

3. The first mowing shall not be attempted until sod is firmly rooted.

Construction Entrance PLAN VIEW Right of Way Diversion Road or Other Existing Paved Surface.

Specifications

PROFILE 1. Stone Size—Two—inch stone shall be used, or recycled concrete

eauivalent. 2. Length—The construction entrance shall be 70' long. 3. Thickness-The stone layer shall be at least 6 in. thick.

4. Width—The entrance shall be 25'wide. 5. Bedding-A geotextile shall be placed over the entire area prior to placing stone. It shall have a Grab Tensile Strength of at least 200 lb. and a Mullen Burst Strength of at

surfaces.

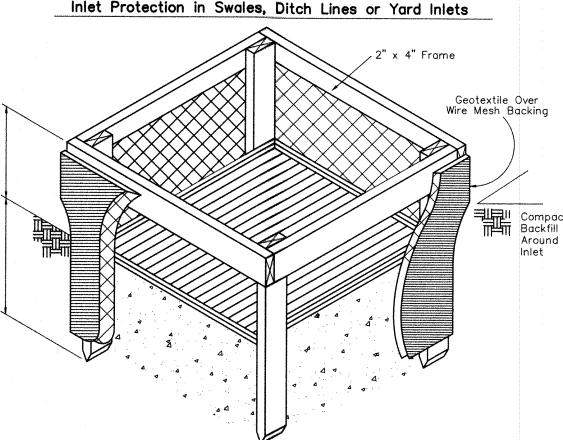
9. Construction entrances shall not 6. Culvert—A pipe or culvert shall be constructed under the entrance if needed to prevent surface water flowing across the entrance from being directed out onto paved

7. Water Bar-A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces

8. Maintenance—Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping. the stakes on the downslope side of

cloth are below the around surface. be relied upon to remove mud from Excess material shall lie on the vehicles and prevent off-site tracking bottom of the 6-in, deep trench. Vehicles that enter and leave the The trench shall be backfilled and construction site shall be restricted from muddy areas. compacted.

Specifications



1. Inlet protection shall be constructed either before upslope land disturbance begins or before the storm drain becomes operational.

3. The wooden frame shall be

2. The earth around the inlet shall be excavated completely to a depth of at least 18 in.

constructed of 2-by-4 in. construction grade lumber. The 2-by-4 in. posts shall be driven 1 ft. into the ground at four corners of the inlet and the top portion of 2-bv-4 in frame assembled using the overlap joint shown. The top of the frame shall be at least 6 in. below adjacent roads if ponded water would pose a safety hazard to

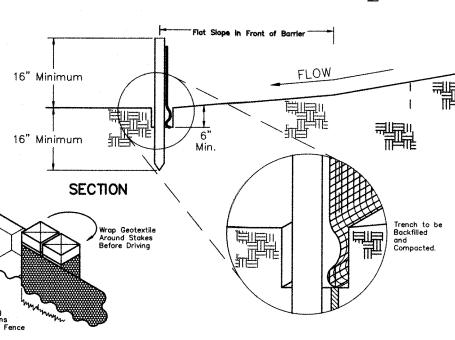
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the

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. I shall extend from the top of the frame to 18 in. 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-in. layers until the earth is even with notch elevation on ends and top elevation

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 the earth dikes shall be at least 6 in. higher than the top of the

Specifications Silt Fence —10" Maximum Level Contour No Slope **ELEVATION** Flat Slope in Front of Barrier



Specifications Silt Fence

1. Silt fence shall be constructed before upslope land disturbance

2. All silt fences shall be placed as

close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions, which may carry small concentrated flows to the silt fence, are dissipated along its

3. To prevent water ponded by the silt fence from flowing around the ends, each end shall be constructed upslope so that the ends are at a higher elevation. 4. Where possible, silt fence shall be

placed on the flattest area available 5. Where possible, vegetation shall be preserved for 5 ft. (or as much as possible) upslope from the silt fence If vegetation is removed, it shall be reestablished within 7 days from the

installation of the silt fence. 6. The height of the silt fence shall be a minimum of 16 in. above the original ground surface.

7. The silt fence shall be placed in a trench cut a minimum of 6 in. deep. The trench shall be cut with a trencher, cable lavina machine, or other suitable device that will ensure an adequately uniform trench depth. 8. The silt fence shall be placed with

the aeotextile and so that 8-in, of

9. Seams between section of silt fence shall be overlapped with the 10. Maintenance-Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under or around ends, or in any other way becomes a concentrated flow, on of the following shall be performed, as appropriate: 1) The layout of the

Criteria for Silt Fence Materials 1. Fence Posts—The length shall be a

silt fence shall be changed, 2)

removed, or 3) Other practices shall

Accumulated sediment shall be

minimum of 32 in. long. Wood posts will be 2-by-2 in. of hardwood of sound quality. The maximum spacing between posts shall be 10 ft. . Silt Fence Fabric shall be ODOT Type C Geotextile Fabric or as described by the chart below:

Fabric Properties imimum Tensile Strength Maximum Elongation at 60 lbs ... Minimum Puncture Strength . Mimimum Tear Strength . 40 lbs. Mimimum Burst Strength Apparent Opening Size ... Mimimum Permittivity ..

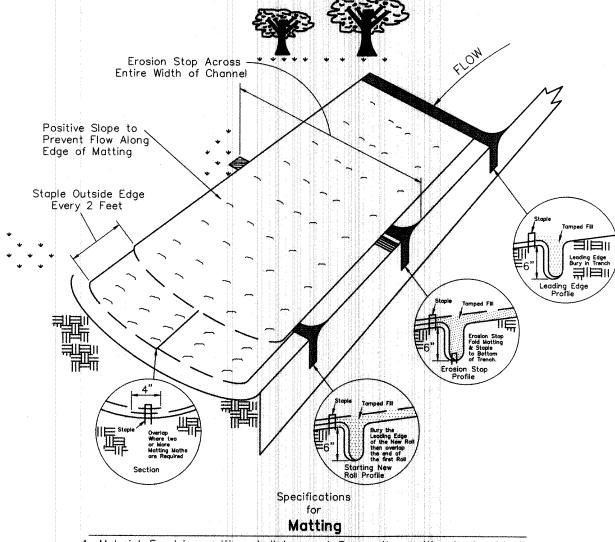
LIFT STRAPS USED FOR EASY MOVEMENT AND INSPECTION OF UNIT STORM SEWER GRATE NOTE: THE DANDY BAGO WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS: HI-FLOW DANDY BAG® (SAFETY ORANGE) *Note: All Dandy Bags® can be ordered with our optional oil absorbent pillows Specifications Matting

DANDY BAG®

CLOSURE

SEWER

GRATE



* Secure the matting by burying the 1. Material—Excelsior matting shall be 48 in, wide and weigh an average of 0.75 lb./sq. yd. or greater. Jute matting shall be 48 in, wide and weigh and average of 1.2 lb./yd. or greater. Matting made of other material and providing equal or greater stabilization than the above

may be substituted. 2. Site Preparation—After the site has been shaped and graded, a seedbed shall be prepared that is relatively free of foreign material. clods or rocks that are greater than 1.5 in. in diameter. The site shall be prepared to ensure that the matting has good soil contact and the matting will not "bridge" or "tent"

3. Matting shall be held in place as recommended by the manufacturer as adequate for the site conditions or with sod staples. Sod staples are U-shaped wire staples used for fastening sod, jute or excelsion matting and other erosion-contro materials to the soil surface. Soc staples shall be No. 11 gauge or heavier and be 6-10 in. in length. In loose or sandy soils, longer staples shall be used.

over obstructions.

4. Planting-Lime and fertilizer shall be used according to the recommendation of a soil test or the seeding plan. Seed according to the manufacturer's recommendations; or, for excelsior matting, seed area to be protected before installation; or, when using jute matting, apply half the seed before and half the seed after installation.

5. Matting shall be installed as specified by the manufacturer as appropriate for the site conditions or the following procedure may be used:

* After the site is prepared and erosion stops are installed, start laying the mat from the top of the slope or channel and unroll the matting allowing 4 in. overlaps at the edges.

top ends in a trench 6 in. deep and staple the folded ends to the botton of the trench. Backfill and tamp firmly to the established grade. * Staple matting every 12-in. across the width beginning at the edges and

every 2 ft. in rows the entire length

of the matting. Every other row of

staples running the length of the matting should be staggered. * To join two rolls together, cut a trench to anchor the end of the new roll and secure it the same as the top roll. Overlap the end of the previous roll 18-in, over the new roll.

* When using excelsior matting, the plastic netting shall be on top of the

Continue to staple as described

recommended by the matting manufacturer and on areas specified where high-erosion potential may cause undermining and gullies to * Erosion stops shall be made of strips of matting placed in narrow

6. Erasion stops shall be used where

trenches 6-12 in deep that cover the full cross section of the channel They shall be spaced according to the manufacturer's recommendations or by the following: * 3 ft. down the channel from each point of entry of concentrated flow. * at points where change in gradien or direction of channel occurs, and * on long slopes at spacing from 20-100 ft. depending on the erodibility of the soil, velocity and

* Erosion stops shall extend beyond the channel liner to the full design width of the channel. This will check any rills that might form outside or along the edge of the channel lining.

and tamped firmly to conform to the cross section of the channel. * If seeding has been done prior to installation of erosion stops, reseed

channel liner.

* Erosion stops shall be constructed

with a 6 in. deep trench, backfilled

disturbed areas prior to placement of **Utilities Protection** Call Before You Dig 1-800-362-2764 **CALL TWO WORKING DAYS BEFORE YOU DIG** (NON MEMBERS MUST BE CALLED DIRECTLY

McGill Smith Punshon Architecture 3700 Park 42 Drive Suite 1908 ■ Landscape Architecture Cincinnati OH 45241 Phone 513.759.000 www.mspdesign.com

Project Manager NAK Drawn By 04476064-IMP-SECTION 24 X-Ref(s)

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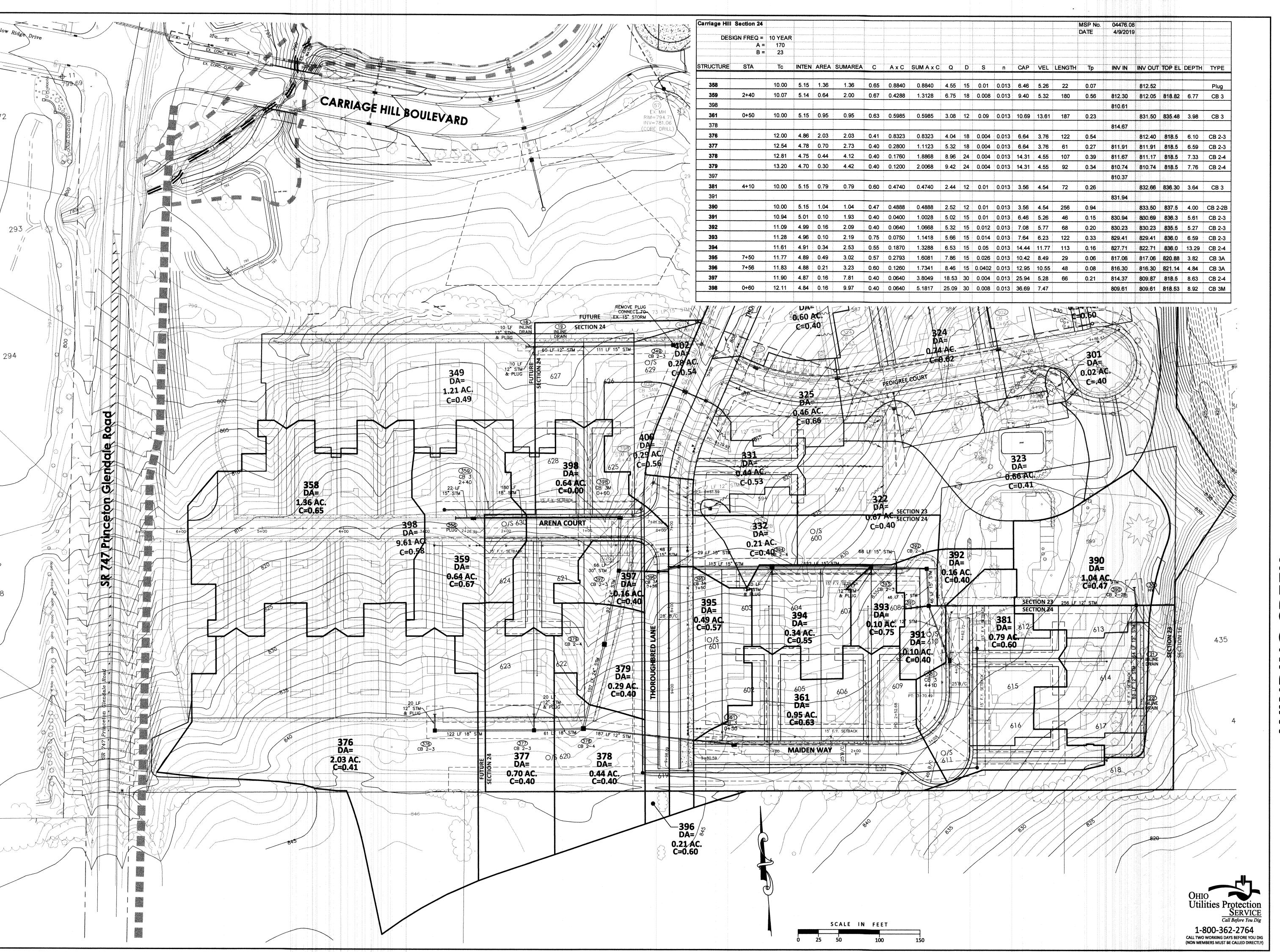
Sheet Title

EROSION CONTROL NOTES & DETAILS

Project Number **Drawing Scale** Sheet Number File Number

04476.06

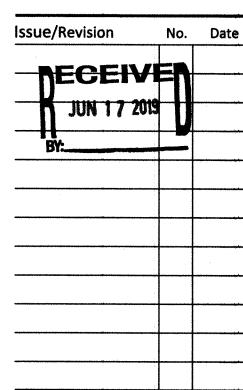
AS NOTED





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Sheet Title

File Number

DRAINAGE MAP

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