

# COUNTY OF SUMMIT ENGINEER GENERAL NOTES (PRIVATE STREETS)

C.1 ALL CONSTRUCTION AND MATERIALS INCLUDED ON THIS PROJECT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE SPECIFICATIONS AND DETAILS OF THE COUNTY OF SUMMIT ENGINEER. WHERE CONFLICTS OCCUR IN THE ABOVE, THE COUNTY OF SUMMIT ENGINEER SHALL DETERMINE THE GOVERNING AUTHORITY.

C.2 ANY DEFECTS IN THE CONSTRUCTION INCLUDING MATERIALS OR WORKMANSHIP SHALL BE REPLACED OR CORRECTED BY REMOVAL AND REPLACEMENT OR OTHER APPROVED METHOD PRIOR TO ACCEPTANCE BY THE COUNTY OF SUMMIT ENGINEER.

C.3 THE COUNTY OF SUMMIT ENGINEER SHALL NOT BE HELD LIABLE FOR DAMAGES OF ANY TYPE WHICH MAY OCCUR AS A RESULT OF ERROR AND/OR OMISSIONS IN THE ENGINEERING DESIGN DATA PRESENTED BY THE DEVELOPER'S ENGINEER, NOR SHALL THE COUNTY OF SUMMIT ENGINEER BE LIABLE FOR DAMAGES RESULTING FROM THE DEVELOPER'S CONTRACTOR NOT COMPLYING WITH THE APPROVED PLANS OR USING CONSTRUCTION METHODS OR MATERIALS NOT APPROVED BY THE COUNTY OF SUMMIT ENGINEER.

C.4 THE DEVELOPER'S ENGINEER CERTIFIES THAT ALL DESIGN DATA AND CALCULATIONS PERTAINING TO THESE IMPROVEMENT PLANS, WHERE APPLICABLE, ARE CORRECT AND DO CONFORM TO THE CURRENT DESIGN CRITERIA.

C.5 THE COUNTY OF SUMMIT ENGINEER IN APPROVING THESE PLANS AND DEDICATION PLAT THEREOF, DOES NOT, IN ANY WAY RELIEVE THE DEVELOPER'S ENGINEER OF HIS RESPONSIBILITY FOR ACCURATE AND COMPLETE ENGINEERING DESIGN RELATIVE TO THE PLANS.

C.6 ALL ROAD SURFACES, EASEMENTS OR RIGHTS-OF-WAY DISTURBED BY CONSTRUCTION OF ANY PART OF THIS IMPROVEMENT ARE TO BE RESTORED COMPLETELY TO THE BEFORE CONSTRUCTION CONDITION OR BETTER WHEN ORDERED BY THE COUNTY OF SUMMIT ENGINEER AND/OR THE SUMMIT COUNTY D.O.E.S.

C.7 THE LOCATIONS OF ALL BURIED UTILITY AND GAS LINES ARE TO BE DETERMINED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES, VALVE BOXES, ETC. ARE TO BE SAFEGUARDED BY THE CONTRACTOR DURING THE CONSTRUCTION.

C.8 THE CONTRACTOR SHALL NOT COMMENCE WITH ANY FORM OF CONSTRUCTION WITHOUT NOTIFYING THE COUNTY OF SUMMIT ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO STARTING CONSTRUCTION (330/643-2850).

C.9 THE CONTRACTOR SHALL CONTACT THE UTILITIES PROTECTION SERVICE, 1-800-362-2764 AT LEAST FORTY-EIGHT (48) HOURS BEFORE ANY UNDERGROUND WORK IS COMMENCED IN EXISTING STREETS.

C.10 ALL LAWN AREAS REMOVED OR DISTURBED SHALL BE REPLACED BY SEEDING AND MULCHING, INCLUDING TOPSOIL WHERE NEEDED, IN ACCORDANCE WITH ITEM 659 OF ODOT SPECIFICATION, AND SHALL BE RESEEDED AND MULCHED, WHEN REQUESTED IF SATISFACTORY RE-ESTABLISHMENT OF LAWN DOES NOT OCCUR.

C.11 ALL DISTURBED SIGNS, GUARDRAIL, MAIL AND/OR PAPER BOXES, DRIVES AND DRIVE CULVERTS SHALL BE REPAIRED AND/OR REPLACED AS DIRECTED BY THE COUNTY OF SUMMIT ENGINEER.

C.12 ALL DISTURBED AND/OR DAMAGED STORM SEWER PIPES, STORM SEWER APPURTENANCES, PAVEMENTS, BERMS AND DITCHES SHALL BE REPAIRED AND/OR REPLACED AS DIRECTED BY THE COUNTY OF SUMMIT ENGINEER.

C.13 THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ODOT ITEM 207, SUMMIT SOIL AND WATER CONSERVATION DISTRICT AND THE COUNTY OF SUMMIT ENGINEER. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE ANY OTHER CONSTRUCTION COMMENCES ON THIS SITE. THE CONTRACTOR SHALL, ON A DAILY BASIS, CLEAN ALL EXISTING STREETS OF MUD AND DIRT DURING THE CONSTRUCTION PHASE.

C.14 ALL STORM SEWERS CONSTRUCTION WITHIN RIGHT-OF-WAY LIMITS SHALL CONFORM WITH ODOT ITEM 603. CONDUIT MAY BE CONCRETE, CORRUGATED ALUMINUM ALLOY METAL PIPE AND/OR PLASTIC PIPE, AS LISTED ON THE PLAN & PROFILE SHEETS OF THE APPROVED IMPROVEMENT PLANS AND ACCORDING TO THE COSE STORM SEWER REQUIREMENTS. REINFORCED CONCRETE PIPE WITH BITUMASTIC JOINTS SHALL MEET THE PIPE REQUIREMENTS OF ASTM C-776, CLASS III MINIMUM PER SECTION 706.02 AS SPECIFIED IN THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT EDITION UNLESS OTHERWISE NOTED ON PLANS. CORRUGATED ALUMINUM ALLOY METAL PIPE SHALL MEET ODOT 707.21 OR 707.22. PLASTIC PIPE SHALL BE CORRUGATED POLYETHYLENE SMOOTH LINED PIPE PER ODOT 707.33.

C.15 STORM MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS PROVIDED IN THIS DOCUMENT. IN ADDITION, STORM MANHOLES SHALL BE PRECAST SECTIONS WHICH CONFORM TO ASTM C-478 WITH A BUTTASTIC TYPE JOINT OR "OT" RINGS. WITH THE CYLINDRICAL SECTION OF THE MANHOLE TO BE EXTENDED VERTICALLY FROM INVERT SHELF A MINIMUM OF 4'-0". MANHOLES SHALL HAVE A MINIMUM DIAMETER OF 48" FOR PIPES LESS THAN OR EQUAL TO 30", 60" FOR PIPES SIZES MORE THAN 30" BUT LESS THAN OR EQUAL TO 36" AND FOR PIPES OF LARGER SIZE INCREASE THE MANHOLE DIAMETER ACCORDINGLY TO MAINTAIN A MINIMUM OF 6" BETWEEN ADJACENT HOLES MEASURED ALONG THE INSIDE PERIMETER. ADJUSTMENT TO THE MANHOLE CASTING TO GRADE SHALL BE BY THE USE OF PRECAST CONCRETE ADJUSTING RINGS OR NEW SOLID CLAY OR SHALE BRICK ASTM C-32 (TWO (2) COURSES MAXIMUM AND/OR TWELVE (12) INCH MAXIMUM ADJUSTMENT).

C.16 WHERE SEWER AND/OR WATER MAIN INTERSECTIONS HAVE LESS THAN EIGHTEEN (18) INCH VERTICAL SEPARATION ENCASE THE LOWER AND MONOLITHICALLY CRADLE THE UPPER PIPE IN 2500 PSI CONCRETE FOR THE WIDTH OF THE TRENCH.

C.17 ALL INSPECTION AND TESTING SHALL BE DONE BY AN EXPERIENCED AND QUALIFIED FIRM ENGAGED IN THIS TYPE OF WORK. VIDEO TAPES AND WRITTEN REPORTS OF ALL INSPECTION AND TESTING SHALL BE SUBMITTED TO THE OWNER AND THE COUNTY OF SUMMIT ENGINEER FOR APPROVAL. ALL STORM SEWER SYSTEMS MUST BE FLUSHED AND HAVE A COLOR TELEVISION INSPECTION IN ACCORDANCE WITH THE COUNTY OF SUMMIT ENGINEER SPECIFICATIONS. THE VIDEOTAPE MUST BE SUBMITTED, REVIEWED AND APPROVED PRIOR TO RELEASE OF THE PERFORMANCE BOND. IF THE INSTALLATION FAILS TO MEET THE REQUIREMENT OF THESE TESTS AND INSPECTIONS, THE CONTRACTOR SHALL REPAIR OR REPLACE DEFECTS AND RETEST THE INSTALLATION.

C.18 THE INTENT IS TO VIDEO TAPE PIPES NOT EASILY ACCESSIBLE FOR VISUAL INSPECTION. FOR EXAMPLE: A CULVERT UNDER A ROAD THAT CAN BE VISUALLY CHECKED IS EXEMPT FROM VIDEO TAPING. A SYSTEM OF PIPES WITH MANHOLES AND CATCH BASINS WILL BE REQUIRED TO BE VIDEO TAPED. THE COUNTY OF SUMMIT ENGINEER WILL DETERMINE IF A PIPE CAN BE VISUALLY CHECKED OR IF A VIDEO TAPE IS REQUIRED. FOR A BASELINE, PIPES SIXTY (60) INCHES IN DIAMETER AND LARGER ARE EXEMPT FROM VIDEO TAPING PROVIDED VISUAL INSPECTION IS POSSIBLE.

C.19 STORM SEWER LATERALS SHALL BE PVC (SDR 35). ALL PIPES SHALL HAVE PRESTAMPED WYES FOR HOUSE LATERAL CONNECTIONS OF SIX (6) INCH DIAMETER. STORM SEWER LATERAL SEWER CONNECTIONS MAY BE PERFORMED BY MECHANICALLY TAPPING THE SEWER MAIN, INSTALLING RUBBER BOOT OR CAST IRON SADDLE. ALL WYES AND LATERALS FOR DOWNSPOUT DRAINS SHALL BE INSTALLED WHEN THE STORM SEWER IS INSTALLED.

C.20 THE LINE AND GRADE OF SEWER MAINS SHALL BE CONTROLLED DURING THE SEWER CONSTRUCTION BY USE OF AN APPROVED LASER DEVICE. THE LINE AND GRADE OF THE LASER SHALL BE "CHECKED" FROM LINE AND GRADE STAKES AT A MAXIMUM OF ONE HUNDRED (100) FEET INTERVALS.

C.21 ALL SEWER/UTILITY CONSTRUCTION CONDUIT BEDDING, PIPE COVER AND BACKFILL SHALL BE AS NOTED IN GENERAL NOTE C.23 AND ON THE TYPICAL UTILITY TRENCH DETAIL ON SHEET #5.

C.22 ALL BACKFILL OF EXCAVATIONS (FOR TRENCHES AND STRUCTURES) UNDER BERM, PAVEMENT AREAS, EXISTING WALK AND DRIVE AREAS, OR WITHIN A 45 DEGREE INFLUENCE LINE FROM THE EDGE OF PAVEMENT, SHALL BE ODOT ITEM 304, CRUSHED SLAG, GRANULATED SLAG, SLACKER AGGREGATES AND RECYCLED CONCRETE IS NOT PERMITTED. ADDITIONAL MATERIAL TESTING MAY BE REQUIRED ON ODOT 304 CRUSHED AGGREGATE TO VERIFY THAT IT MEETS THE ODOT SPECIFICATION 703.17. ADDITIONAL MATERIALS MAY BE REVIEWED FOR USE UPON A WRITTEN SUBMITTAL BY THE CONTRACTOR. THIS REQUEST MUST BE SUBMITTED, REVIEWED AND APPROVED PRIOR TO THE START OF CONSTRUCTION. THE BACKFILL AND COMPACTION REQUIREMENTS ARE DETAILED ON THE TRENCH DETAIL ON SHEET #5.

C.23 WHEREVER UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED THAT ARE NOT INDICATED ON THE PLANS, THE WORK SHALL BE DISCONTINUED UNTIL THE COUNTY OF SUMMIT ENGINEER APPROVES THE METHOD AND MATERIAL TO BE INCORPORATED INTO THE WORK. ALL CONDUITS SHALL BE INSTALLED ON A FIRM BED FOR ITS FULL LENGTH IN ACCORDANCE WITH ODOT ITEM 603.03 UNLESS OTHERWISE SPECIFIED.

C.24 ALL FILLED AREAS, EXCLUDING TRENCHES, WITHIN RIGHT-OF-WAY AREAS SHALL BE COMPACTED IN ACCORDANCE WITH ODOT ITEM 203. IN ADDITION, FOR ANY FILL IN EXCESS OF TWO (2) FEET, NUCLEAR COMPACTION TESTS SHALL BE PERFORMED BY AN APPROVED TESTING COMPANY IN ACCORDANCE WITH ODOT ITEM 203. THESE TESTS SHALL BE APPROVED BY THE COUNTY OF SUMMIT ENGINEER BEFORE ANY PAVEMENT CONSTRUCTION COMMENCES AND SHALL MEET THE COMPACTION REQUIREMENTS LISTED ON THE TRENCH DETAIL ON SHEET #5.

C.25 BEFORE ACCEPTANCE OF THE SUB-GRADE BY THE COUNTY OF SUMMIT ENGINEER, A FORTY (40) TON PROOFROLL SHALL BE REQUIRED ON ALL AREAS TO BE PAVED. THE SUBGRADE AND PROOFROLL MUST BE IN ACCORDANCE WITH ODOT ITEM 204. IN LIEU OF USING THE EQUIPMENT UNDER ITEM 204.06, A TANDEM DUMP TRUCK WITH A GROSS WEIGHT OF 60,000 POUNDS MAY BE SUBSTITUTED.

C.26 THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES AND SHALL BACKFILL AND GRADE EXCAVATED AREAS SO AS TO ELIMINATE PONDING ON THE SITE.

C.27 FOR ODOT ITEMS 301 & 448 THE CONTRACTOR SHALL PROVIDE THE COUNTY OF SUMMIT ENGINEER WITH A JOB MIX FORMULA FOR REVIEW AND APPROVAL PRIOR TO THE PAVING OF ROADWAYS. ALL MATERIALS USED MUST BE OBTAINED FROM A SOURCE APPROVED BY THE OHIO DEPARTMENT OF TRANSPORTATION. FOR ITEM 448 SURFACE COURSE, THE COARSE AGGREGATE IN THE MIX SHALL BE CRUSHED Limestone. CRUSHED AGGREGATE MAY BE SUBMITTED AS AN ALTERNATE, BUT MUST BE APPROVED BY THE COUNTY OF SUMMIT ENGINEER. A REQUEST MUST BE SUBMITTED, IN WRITING, BY THE CONTRACTOR. ADDITIONAL TESTING VERIFYING THAT THE CRUSHED AGGREGATE MEETS ODOT SPECIFICATIONS MAY BE REQUIRED. SURFACE COURSE SHALL BE CONSTRUCTED NO LATER THAN TWO (2) YEARS AFTER ITEM 301 IS PLACED OR AS REQUIRED BY THE COUNTY OF SUMMIT ENGINEER.

C.28 NO ASPHALTIC PAVEMENT COURSE AND/OR CONCRETE PAVEMENT OF CURBING SHALL BE LAID ON FROZEN PAVEMENT, BASE OR SUBBASE.

C.29 A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE COUNTY OF SUMMIT ENGINEER PRIOR TO ANY EARTHMOVING OPERATIONS. CALL (330) 643-2850.

C.32 A ROAD OPENING PERMIT WILL BE REQUIRED ON ALL SUBDIVISIONS BEFORE ACCESS IS GRANTED FOR CONSTRUCTION PURPOSES FROM THE PUBLIC ROADWAY. THERE WILL BE NO EXCEPTIONS GRANTED. WE WILL NOT INSPECT OR ACCEPT ANY WORK THAT IS DONE WITHOUT A ROAD OPENING PERMIT BEING AVAILABLE ON THE CONSTRUCTION SITE.

C.33 THE CONTRACTOR OR DEVELOPER SHALL OBTAIN ALL NECESSARY PERMITS.

C.34 THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES.

C.35 IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE INSPECTOR TO AVOID UNNECESSARY CONSTRUCTION COSTS. IF NO NOTIFICATION IS MADE IN REGARDS TO CANCELLATION OF WORK, THE CONTRACTOR WILL BE CHARGED FOR THE INSPECTION TIME INCURRED.

## BENCHMARKS:

EXISTING INVERT (12" NW) SAN. MH. "T.A.L.X." TWINSBURG ROAD STA. 24+06.81, 25.68 RT. EX. INV. ELEV. = 964.07 (12" NW)

TOP NUT ON EX. HYDRANT STA. 10+65, 21 LT. COUNTRY VIEW PARKWAY ELEV. = 989.76

TOP NUT ON EX. HYDRANT STA. 3+10, 16 RT FOREST COVE LANE ELEV. = 989.22

## NOTE:

SEE SHEET 8 OF 9 FOR CITY OF CLEVELAND AND NORTH HILLS WATER DISTRICT WATER MAIN GENERAL NOTES & DETAILS.

## UTILITY OWNERSHIP NOTES:

ALL SANITARY SEWERS CONTAINED HEREIN SHALL BE PUBLICLY OWNED AND MAINTAINED.

ALL WATER MAINS CONTAINED HEREIN SHALL BE PUBLICLY OWNED AND MAINTAINED.

ALL STORM SEWERS CONTAINED HEREIN SHALL BE PRIVATELY OWNED AND MAINTAINED UNLESS OTHERWISE NOTED AS "PUBLIC" IN WHICH CASE THEY SHALL BE PUBLICLY OWNED AND MAINTAINED. ALL PRIVATE ROADWAY, DRIVEWAY AND SIDEWALK RECONSTRUCTION NECESSARY DUE TO PUBLIC STORM SEWER REPAIR OR REPLACEMENT SHALL BE THE SOLE RESPONSIBILITY OF THE BRANDYWINE PRESERVE HOMEOWNERS' ASSOCIATION.

## SANITARY SEWER AND APPURTENANCES:

- ALL SANITARY SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH CURRENT STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF ENVIRONMENTAL SERVICES (D.O.E.S.).
- ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED. (ORD. 85-856 APPROVED 10-8-85.)
- APPROVAL BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES CONSTITUTES NEITHER EXPRESS NOR IMPLIED WARRANTIES AS TO THE FITNESS, ACCURACY OR SUFFICIENCY OF PLANS, DESIGNS OR SPECIFICATIONS.
- THE DESIGN ENGINEER CERTIFIES THAT ALL UTILITIES IN EXISTING ROADS ARE SHOWN IF THEY APPEAR ON EXISTING RECORDS OR CAN BE OBSERVED ABOVE GROUND. ANY UNDERGROUND UTILITIES THAT ARE UNKNOWN TO THE DESIGN ENGINEER DUE TO THEIR CONCEALED NATURE CANNOT BE CERTIFIED.
- ALL SANITARY SEWERS SHALL PASS THE AIR ACCEPTANCE TEST PRIOR TO ACCEPTANCE BY D.O.E.S.. TEST SHALL COMPLY WITH ASTM F-1417 (33.95, 10 STATE STANDARDS).
- ALL SEWERS SHALL BE COLOR FILMED BY THE OWNER AND FOUND TO BE FREE OF DEFECTS AND FOREIGN MATTER AND IN PROPER ALIGNMENT PRIOR TO FORMAL ACCEPTANCE OF D.O.E.S.
- ALL MANHOLES SHALL BE SUPPLIED WITH SOLID LIDS EXCEPT THOSE IN EASEMENTS WHERE THE MANHOLE COVERS SHALL BE THE SLOD-LOOKING TYPE.
- ALL SANITARY SEWER -6" SAN LATERALS SHALL BE EXTENDED TO NOT LESS THAN FIVE (5) FEET INTO THE LOTS.
- ALL SANITARY SEWER -6" SAN LATERALS SHALL BE LAID AT NO LESS THAN 1% GRADE.
- SANITARY SEWER MATERIALS SHALL CONFORM TO D.O.E.S. & O.E.P.A. STANDARDS.
- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO THE EXISTING SEWERAGE SYSTEM RESULTING FROM NONCONFORMANCE WITH SUMMIT COUNTY STANDARDS OR GENERAL NEGLIGENCE.
- A 12" MAXIMUM MANHOLE GRADE ADJUSTMENT IS PERMITTED. ADJUSTMENT IS TO BE MADE WITH PRECAST GRADE RINGS OR RED BRICK (TWO COURSES MAXIMUM). A MINIMUM OF ONE (1) GRADE RING IS REQUIRED AT EACH MANHOLE.
- WHERE INLET AND OUTLET PIPES CONNECT TO MANHOLES, A FLEXIBLE WATERTIGHT JOINT, AS APPROVED BY THE D.O.E.S., IS REQUIRED.
- ALL SANITARY SEWER MATERIALS SHALL CONSIST OF P.V.C. PIPE, SDR 35 MEETING A.S.T.M. D-3034 WITH JOINTS CONFORMING TO A.S.T.M. D-3212
- ALL ROUGH GRADING (WITHIN 6" OF FINISHED GRADE) SHALL BE COMPLETED WITHIN THE RIGHT-OF-WAY PRIOR TO SANITARY SEWER CONSTRUCTION.
- NO SANITARY SEWER CONSTRUCTION WILL BE PERMITTED UNTIL SUCH A TIME THAT THE PLANS ARE APPROVED BY THE D.O.E.S. AND THE O.E.P.A. INCLUDING PAYMENT OF REVIEW AND "PERMIT TO INSTALL" FEES TO THE O.E.P.A..

17. ALL SANITARY SEWERS CONTAINED HEREIN ARE TO BE PUBLICLY OWNED AND MAINTAINED.

18. SANITARY SEWER LEAKAGE INFILTRATION/EXFILTRATION TESTS SHALL NOT EXCEED 100 GAL/INCH DIA. PIPE/MILE/DAY. INFILTRATION/EXFILTRATION TESTS SHALL BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2.0 FEET PER OHIO E.P.A. STANDARDS.

19. ALL SANITARY MANHOLES SHALL BE TESTED FOR LEAKAGE USING LOW PRESSURE AIR PER ASTM F-1417.

20. ALL SANITARY SEWER MAINS SHALL BE TESTED FOR DEFLECTION IN ACCORDANCE WITH SECTION 33.85 OF THE 10 STATE STANDARDS.

21. AN INTERNAL CHIMNEY SEAL SHALL BE INSTALLED IN EACH MANHOLE.

22. A MANHOLE COVER INSERT SHALL BE INSTALLED IN EACH MANHOLE.

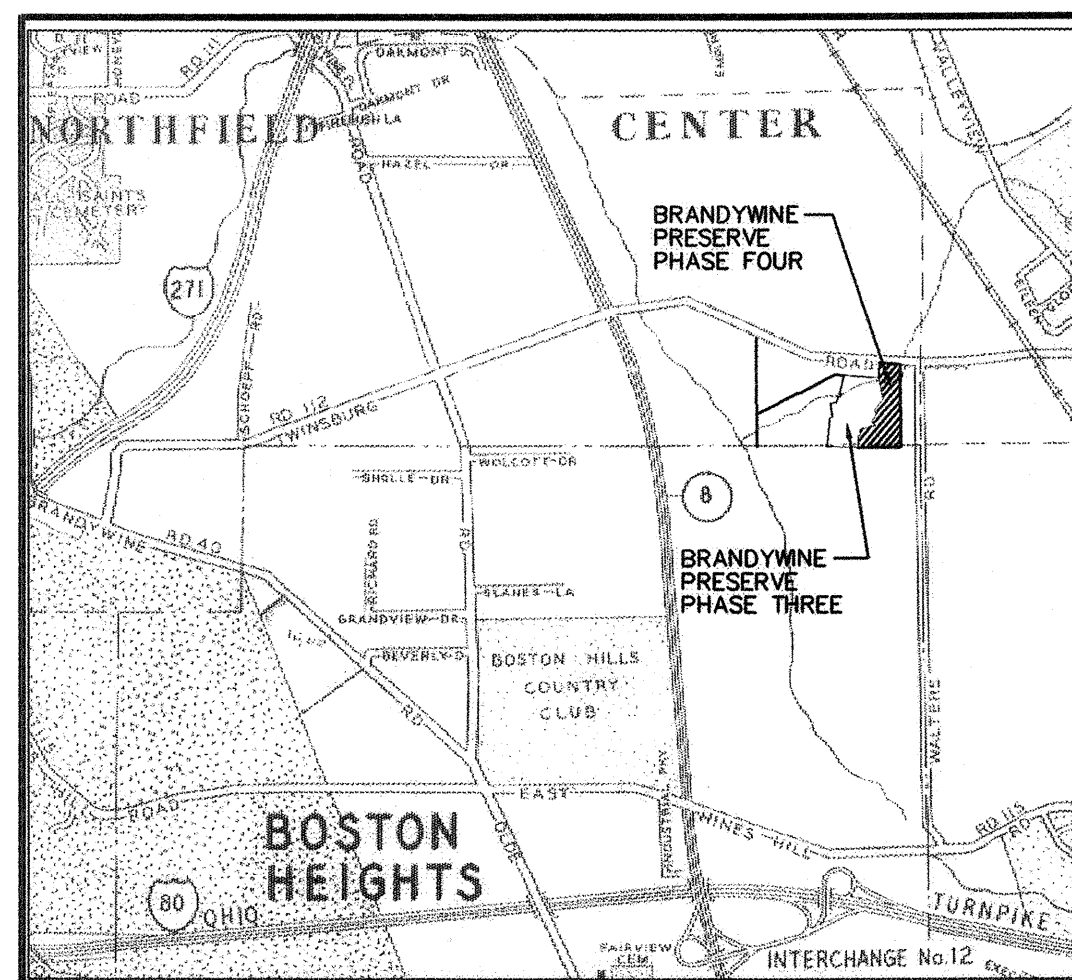
23. CALL THE OHIO UTILITIES PROTECTION SERVICE AT LEAST 48 HOURS BEFORE DIGGING, (1-800-362-2764). REF. NO. 626-008-041

# IMPROVEMENT PLANS FOR BRANDYWINE PRESERVE PHASE FOUR

LOCATED IN NORTHFIELD CENTER TOWNSHIP  
PART OF O.L. 10 FORMERLY NORTHFIELD TOWNSHIP  
COUNTY OF SUMMIT, STATE OF OHIO

JANUARY, 2004

D.O.E.S. PROJECT No. 1542-4 SANITARY SEWER  
CITY OF CLEVELAND WATER PROJECT No. 4057  
CLEVELAND SOUTHERLY (C.V.I.) VIA PUMP STATION No. 10



## VICINITY MAP

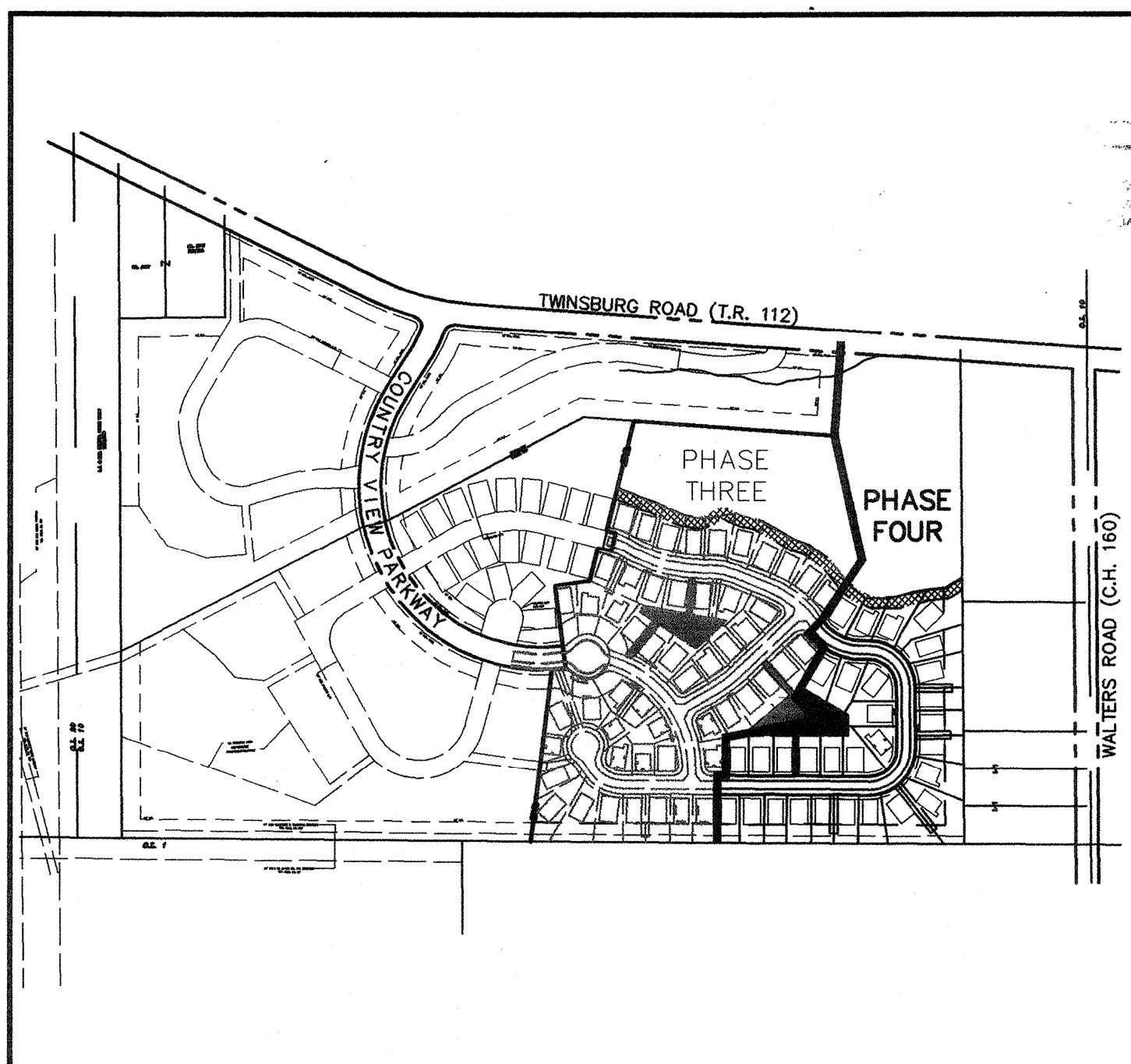
SCALE: 1"=3000'

CHAGRIN VALLEY ENGR.

SCAN DATE:

SCAN FILE: X:\NORTH HILLS WATER DISTRICT\DEEP CREEK CIRCLE\BRANDYWINE PRESERVE PHASE 4

JOB#:



## PHASE FOUR SITE MAP

SCALE: 1"=400'



2 WORKING DAYS

BEFORE YOU DIG

CALL TOLL FREE 800-362-2764

O.U.P.S. PROJECT REF. No. 626-008-041

## THE OIL AND GAS PRODUCERS UNDERGROUND PROTECTION SERVICE

P.O. BOX 206  
GRANVILLE, OHIO 43023-0206

PHONE (614) 587-0486 OR

CALL TOLL FREE 800-925-0988

O.G.U.P.S. PROJECT REF. No. 33426

## OWNER/DEVELOPER:

BRANDYWINE PRESERVE, LLC.  
29325 CHAGRIN BLVD., (SUITE 302)  
PEPPER PIKE, OHIO, 44124  
REP: GREGG S. LURIE  
PH: (216) 378-9700

## DESIGN ENGINEER

SEYMOUR D. WEISS & ASSOCIATES, INC.  
9329 RAVENNA ROAD, SUITE F  
TWINSBURG, OHIO 44087  
DANIEL J. COLLINS, P.E.  
(330) 405-5004

SUBMITTED BY:

*Daniel J. Collins*  
DANIEL J. COLLINS, P.E. No. 67077

10-07-04  
DATE

APPROVED BY:

BRANDYWINE PRESERVE, LLC.

DATE

## SEWERAGE SYSTEM APPROVAL

APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL SERVICES :

*Daniel E. Marguard*  
DIRECTOR

11/30/04  
DATE

*Shirley J. Muel*  
PUBLIC WORKS MANAGER

10/28/04  
DATE

APPROVED BY: O.E.P.A. BY LETTER THIS 16<sup>TH</sup> DAY OF DECEMBER, 2004.  
(SEWERAGE SYSTEM)

## ROADWAY & DRAINAGE APPROVAL

APPROVED BY THE COUNTY OF SUMMIT ENGINEER :

*Doug Bachman*  
GREG BACHMAN, P.E., P.S.  
SUMMIT COUNTY ENGINEER

10-21-04  
DATE

## WATER SYSTEM APPROVAL

APPROVED BY THE APPROVED DIVISION OF WATER:  
(FOR WATER MAINS ONLY)

*John C. C...*  
Commissioner of Water

DATE

APPROVED BY THE NORTH HILLS WATER DISTRICT:

*Seymour D. Weiss*  
ENGINEER

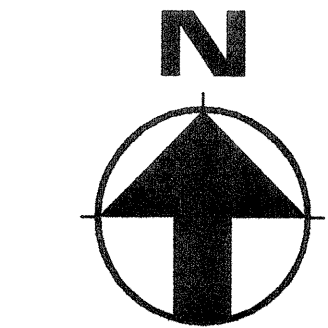
08/18/04  
DATE

APPROVED BY: O.E.P.A. BY LETTER THIS 7<sup>TH</sup> DAY OF JANUARY, 2004.  
(WATER SYSTEM)

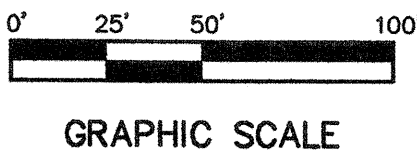
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SCALE 1" = 50'



REVISIONS	
03/29/04	PER C.O.S.E.
10/06/04	PER C.O.S.E.

**SEYMOUR D. WEISS & ASSOCIATES, INC.**  
CONSULTING ENGINEERS • SURVEYORS  
9329 Ravenna Road • Suite F  
Twinsburg, Ohio 44087-2457  
Tel: (330) 405-5004 Fax: (330) 405-5055  
Email: sdwa@sdwainc.com

**SDWA**

NORTHFIELD CENTER TOWNSHIP  
**BRANDYWINE PRESERVE PHASE FOUR**  
GEOMETRIC CONTROL PLAN

DATE: JANUARY, 2004
SCALE: 1"=50'
DRAWN BY: ZSM
CHECKED BY: WRD

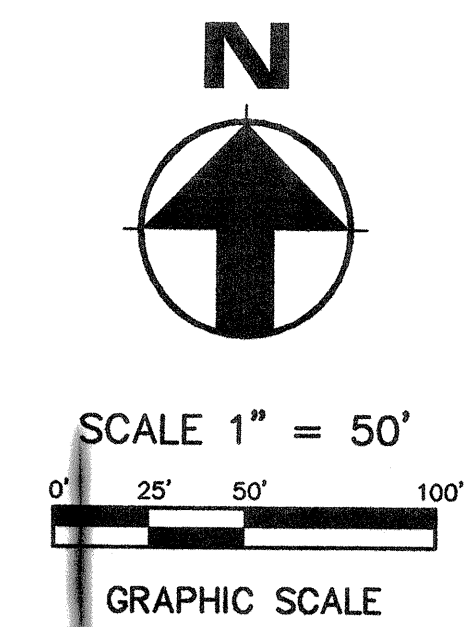
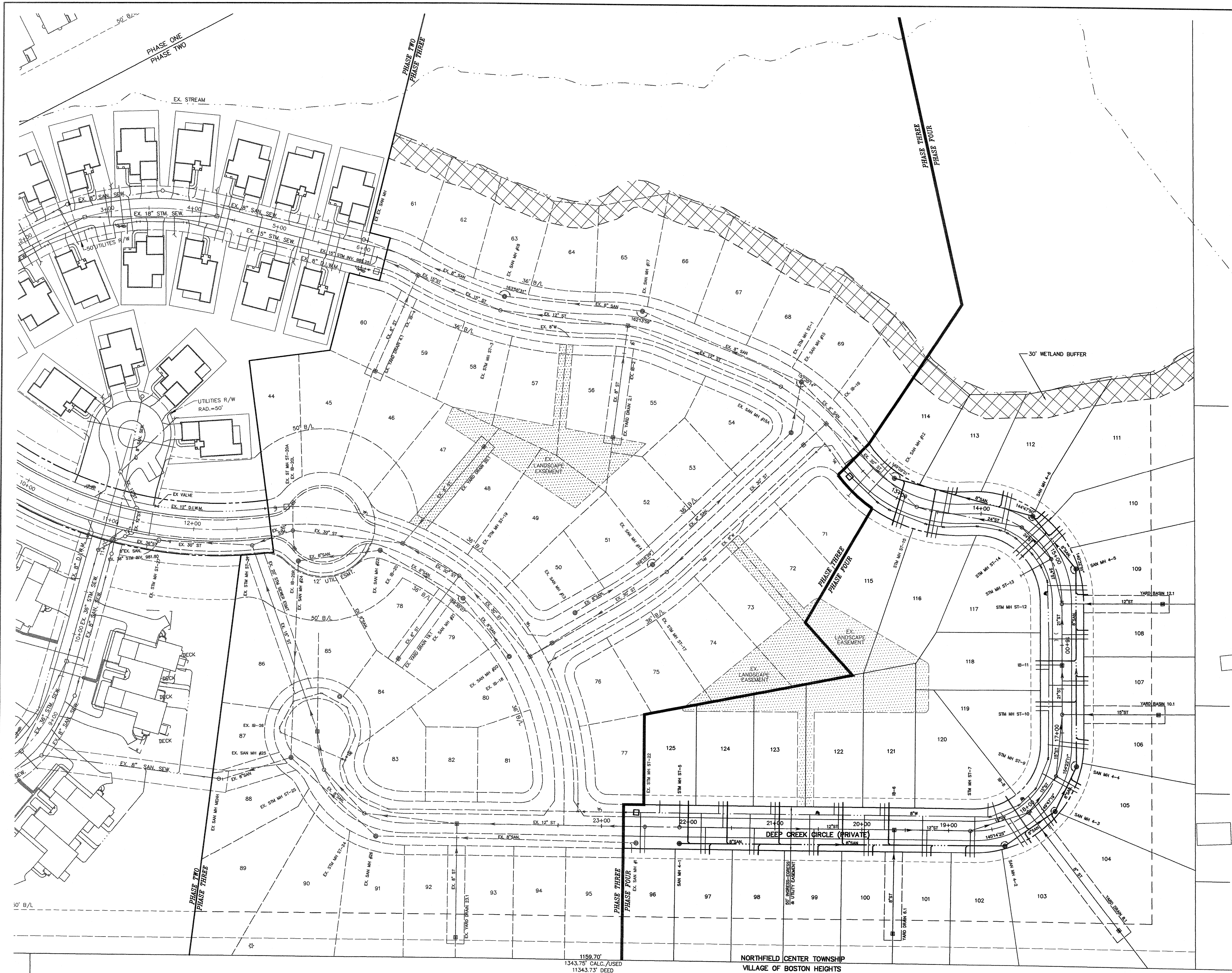
SHEET NUMBER  
**2** OF **9**

FILE NUMBER  
P0304-3007 NC  
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CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD	TANGENT	DELTA	CHORD BEARING
C1	150.00	148.28	142.32	80.83	56°38'18"	S60°24'23"E
C2	100.00	160.91	144.11	103.91	92°11'47"	N42°37'39"W
C3	100.00	158.60	142.50	101.54	90°52'26"	N48°54'28"E

W. P. & E. WARREN  
2958/92





REVISIONS	
1	03/29/04 PER C.O.S.E.

**SEYMOUR D. WEISS & ASSOCIATES, INC.**  
 CONSULTING ENGINEERS • SURVEYORS  
 9329 Ravenna Road • Suite F  
 Twinsburg, Ohio 44087-2457  
 Tel: (330) 405-5004 Fax: (330) 405-5055  
 Email: sdwa@sdwainc.com

**SDWA**

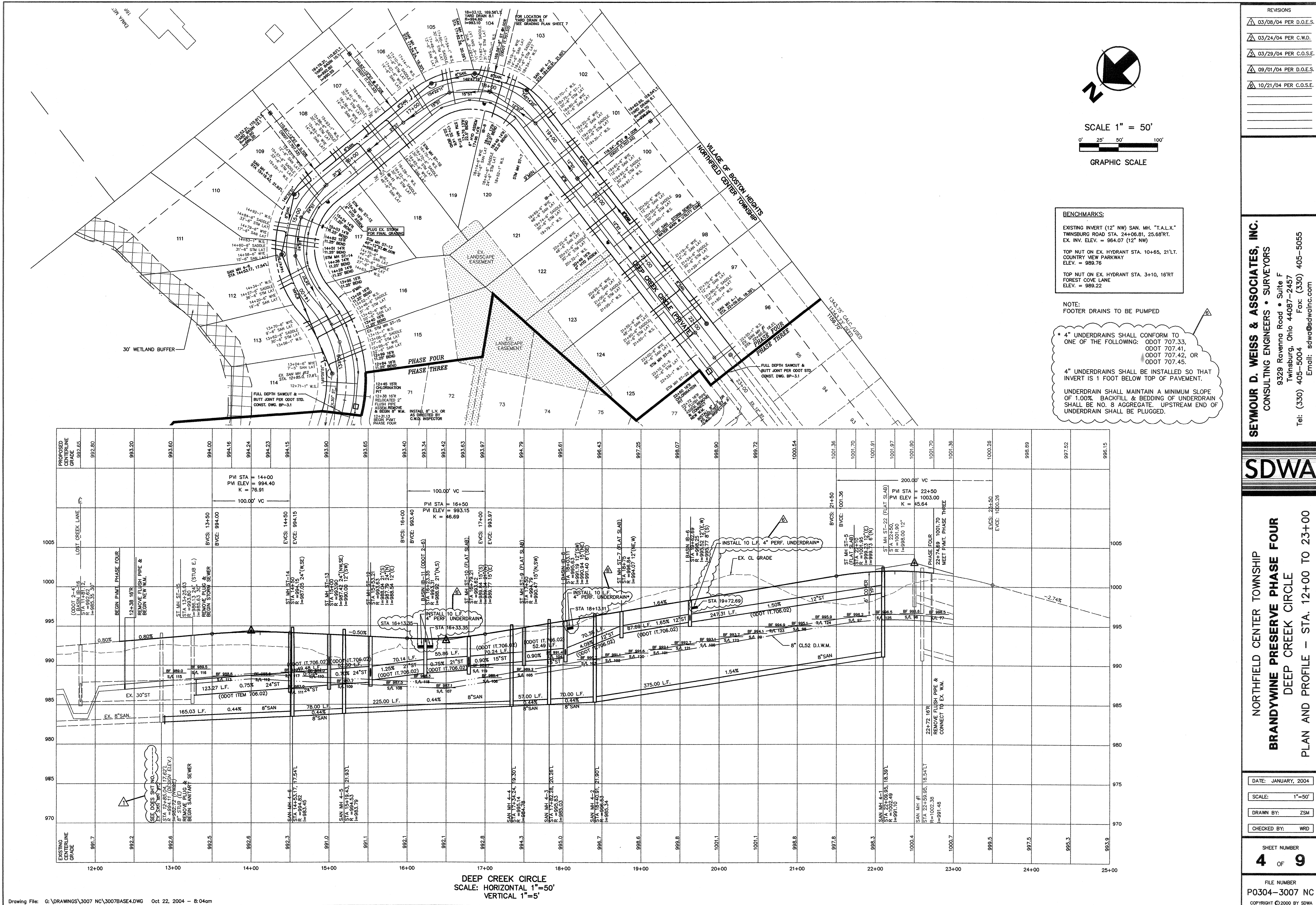
NORTHFIELD CENTER TOWNSHIP  
**BRANDYWINE PRESERVE PHASE FOUR**  
 OVERALL SITE UTILITY PLAN

DATE:	JANUARY, 2004
SCALE:	1"=50'
DRAWN BY:	ZSM
CHECKED BY:	WRD

SHEET NUMBER  
**3** OF **9**

FILE NUMBER  
 P0304-3007 NC  
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**EXPANSION JOINT**  
(ODOT ITEM 451 & 452,  
ODOT STD DWG. BP-2.2)



## WATER WORK

### GENERAL

ALL WATER WORK SHALL BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION AND MATERIALS SPECIFICATIONS OF THE CITY OF CLEVELAND, DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF WATER, 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114. ALL PERMITS AND FEES ASSOCIATED WITH THE VARIOUS WATER WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

### HYDRANT

ALL HYDRANTS SHALL BE KENNEDY "MATHES" TYPE, MUELLER "ALBERTVILLE" TYPE OR AMERICAN "TRAFFIC MODEL" TYPE PER THE CITY OF CLEVELAND'S STANDARDS. HYDRANTS SHALL BE SUPPLIED WITH NOZZLE CONFIGURATIONS AND STANDARD PER THE CITY OF BEDFORD HEIGHTS STANDARDS. A SIX (6) INCH HYDRANT ASSEMBLY SHALL INCLUDE THE TEE OR REDUCER, AS APPLICABLE, VALVE, VALVE BOX, PIPE AND A STANDARD SIX (6) INCH HYDRANT SET TO PROPER GRADE. THE CONTRACTOR SHALL PROVIDE ALL EXCAVATION, BEDDING, BLOCKING, TRENCH BACKFILL, MATERIALS, COMPACTION AS REQUIRED, LABOR, PIPE AND ALL OTHER INCIDENTAL ITEMS NECESSARY TO COMPLETE SUCH WORK.

### WATER MAIN

ALL WATER MAIN TRENCH UNDER EXISTING OR PROPOSED PAVEMENTS SHALL BE BACKFILLED AS PER THE PLAN DETAILS. ALL WATER MAIN PIPE SHALL BE ASA CLASS 52, CEMENT-LINED, DUCTILE IRON PIPE WITH A RUBBER RING GASKET, AND COMPRESSION TYPE JOINT UNLESS OTHERWISE NOTED. ONE INCH (1") AND ONE AND ONE HALF INCH (1 1/2") DOMESTIC SERVICE PIPE SHALL BE COPPER TYPE "K". THE CONTRACTOR SHALL PROVIDE ALL EXCAVATION, BEDDING, BLOCKING, TRENCH BACKFILL, MATERIALS, COMPACTION AS REQUIRED, LABOR, PIPE AND ALL OTHER INCIDENTAL ITEMS NECESSARY TO COMPLETE SUCH WORK.

### TESTING AND INSPECTION

THE CONTRACTOR SHALL MAKE APPLICATION AND PAYMENT TO THE CITY OF CLEVELAND WATER DEPARTMENT FOR ANY AND ALL TESTING, CHLORINATION AND TAPS INTO THE WATER MAIN AND APPURTENANCES. ALL EXPENSES CONNECTED WITH THE AFOREMENTIONED WORK SHALL BE BORNE BY THE CONTRACTOR. ALL WATER NECESSARY FOR THE SATISFACTORY COMPLETION OF ALL CLASSES OF WORK SHALL BE FURNISHED BY THE CONTRACTOR AT HIS EXPENSE.

A 72 HOUR NOTICE SHALL BE GIVEN BY THE CONTRACTOR TO THE OFFICE OF THE CITY OF CLEVELAND, DIVISION OF WATER AND HEAT IN ADVANCE OF THE START OF ACTUAL CONSTRUCTION WORK, WHETHER INITIAL OR AFTER CESSATION OF WORK DUE TO ANY CAUSE. ALL EXPENSES CONNECTED WITH THE INSPECTION OF THE WATER MAIN BY THE CITY OF CLEVELAND SHALL BE BORNE BY THE CONTRACTOR.

### CEPA

INSTALLATION AND PRESSURE TESTING OF WATER MAINS SHALL COMPLY WITH AWWA C600.

ALL WATER MAINS TO BE DISINFECTED PER AWWA C651.

A MINIMUM THIRTY-FIVE (35) PSI PRESSURE SHALL BE DELIVERED TO THE CURB STOP BOXES DURING NORMAL OPERATING CONDITIONS FOR ALL WATER SERVICE CONNECTIONS. BOOSTER PUMPS ARE NOT PERMITTED ON WATER SERVICE CONNECTIONS (CEPA).

### CLEVELAND DIVISION OF WATER NOTES FOR NEW WATER MAIN INSTALLATION

#### GENERAL:

1. ALL WATER WORK REQUIRED, WHETHER SHOWN ON THE PLANS OR AS DIRECTED BY THE CLEVELAND DIVISION OF WATER, SHALL BE AT THE EXPENSE OF THE PROJECT.
2. THE INFORMATION SHOWN ON THE CLEVELAND DIVISION OF WATER'S SUMMARY OF WORK/CHARGE LETTER AND STRIP MAPS ARE TAKEN FROM EXISTING AVAILABLE RECORDS AND THEIR ACCURACY IS NOT GUARANTEED.
3. CALL THE INSPECTION AND ENFORCEMENT UNIT AT 216-664-2342 TO SCHEDULE A PRECONSTRUCTION MEETING. THE OPERATION OF ANY VALVE OR ALTERATION OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES IS PROHIBITED WITHOUT THE SUPERVISION OF THE CLEVELAND DIVISION OF WATER INSPECTOR.
4. THE MUNICIPALITY SHALL REQUIRE THAT THE PROJECT'S PROFESSIONAL ENGINEER OBTAIN ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE CWD INSPECTOR WITH RECORDS IN A FORM ACCEPTABLE TO THE DIVISION OF WATER. THE CLEVELAND DIVISION OF WATER WILL REQUIRE THE DELIVERY AND ACCEPTANCE OF TWO COPIES OF RECORD (AS BUILT) PRINTS BEFORE THE PRESSURE TEST AND CHLORINATION OF THE MAIN.
5. FOR THE PURPOSES OF CHLORINATION AND BACTERIOLOGICAL TESTING OF THE WATER MAINS, THE CONTRACTOR SHALL PROVIDE AND INSTALL, AT EACH OF THE CHLORINATION PIT LOCATIONS SHOWN AND AT OTHER LOCATIONS DETERMINED BY THE DIVISION OF WATER, FLUSHING/SAMPLING TAPS OF SIZES TO BE DETERMINED BY THE DIVISION OF WATER. CHLORINATION PITS SHALL BE SIX (6) FOOT SQUARE, MEETING OSHA STANDARDS.
6. A TWO YEAR WARRANTY, COMMENCING FROM THE DATE OF ACCEPTANCE OF THE FINAL CHLORINATION OF THE WATER MAIN INSTALLATION, SHALL BE PROVIDED BY THE BUILDER/DEVELOPER AND/OR CONTRACTOR FOR ALL WATER MAINS AND SERVICE CONNECTION WORK PERFORMED BY THE CONTRACTOR, INCLUDING RETAPS, SHOULD ANY LEAKS OCCUR AND REPAIRS BE REQUIRED DUE TO DEFECTIVE MATERIAL OR POOR WORKMANSHIP.
7. USE BACKFILL MATERIAL AS SPECIFIED AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE EXISTING MAINS AND WATER SERVICE CONNECTION ARE EXPOSED. (SEE DIVISION OF WATER STANDARD DETAIL STD-001).
8. ALL WATER MAINS AND APPURTENANCES THEREOF SHALL CONFORM WITH THE LATEST MATERIAL SPECIFICATIONS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE CONSTRUCTION AND STANDARD DETAILS OF THE CITY OF CLEVELAND, DIVISION OF WATER.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING WATER MAINS AND APPURTENANCES THEREOF WHEN CONNECTING THE NEW WATER MAIN FOR THE HYDROSTATIC TEST. ALL REPAIRS TO DAMAGED, EXISTING FACILITIES SHALL BE MADE BY THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE DIVISION OF WATER. (REFER TO THE ALTERNATE TEST DETAIL STD-002 AS NEEDED).
10. ALL HYDROSTATIC PRESSURE TESTING SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF THE DIVISION OF THE WATER'S INSPECTOR. THE HYDROSTATIC TEST PRESSURE SHALL BE 75 PSI ABOVE THE STATIC PRESSURE PREVAILING AT THE SITE, BUT IN NO CASE LESS THAN 150 PSI. THE PRESSURE TEST SHALL BE FOR A DURATION OF TWO (2) HOURS WITH THE PRESSURE BEING MAINTAINED WITHIN 5 PSI OF THE REQUIRED TEST PRESSURE. SHOULD THE PRESSURE TEST FAIL, THE CONTRACTOR SHALL FIND AND CORRECT THE DEFICIENCY(IES) TO THE SATISFACTION OF THE DIVISION OF WATER AND REPEAT THE TWO (2) HOUR PRESSURE TEST.

### WATER MAINS:

- 11A. ALL PIPE, UNLESS OTHERWISE CALLED FOR, SHALL BE DUCTILE IRON, MINIMUM CLASS 52, CEMENT LINED, HAVING PUSH-ON JOINTS WITH RADIALLY COMPRESSED RUBBER RING GASKET.
  - 11B. ALL FITTINGS, UNLESS OTHERWISE CALLED FOR, SHALL BE DUCTILE IRON, CLASS 350, CEMENT LINED. ALL FITTINGS AND PIPE CONNECTED TO FITTINGS SHALL BE RESTRAINED USING A "RETAINED" MECHANICAL JOINT IN ACCORDANCE WITH ANSI/AWWA C-110/A21.10 AND ANSI/AWWA C-111/A21.11, OR "COMPACT" FITTINGS IN ACCORDANCE WITH ANSI/AWWA C-153/A21.53, EXCEPT FOR ANCHOR TEES, REDUCERS OR OTHER SPECIAL CIRCUMSTANCES WHEN DIRECTED BY THE CLEVELAND WATER DIVISION OF WATER. ALL FITTINGS ARE TO HAVE BELL ENDS.
  - 11C. ALL BOLTS AND NUTS ON ALL "RETAINED" MECHANICAL JOINTS SHALL HAVE, FIELD APPLIED, ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".
  - 11D. WHERE SHOWN ON THE PLANS OR WHEN OTHERWISE CALLED FOR, PIPE AND FITTINGS SHALL HAVE AN APPROVED "TYPE I" OR "TYPE II" BOLTLESS RESTRAINED, PUSH-ON JOINTS TO THE LIMITS SHOWN ON THE DRAWINGS.
- HYDRANTS**
12. IN ALL HYDRANT INSTALLATIONS, THE CONTRACTOR SHALL FACE ALL HYDRANT'S 4" (STEAMER) NOZZLE TOWARD THE PAVEMENT PRIOR TO TESTING AND CHLORINATION OF WATER MAINS. CONTRACTOR SHALL CONSULT WITH THE LOCAL MUNICIPALITY'S ENGINEERING OR SERVICE DEPARTMENT TO OBTAIN HYDRANT MODEL AND NOZZLE THREAD REQUIREMENTS IF NOT INDICATED ON THE APPROVED PLANS.

### CONNECTIONS:

13. WATER CONNECTIONS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY AND ARE NOT PART OF THE WATER MAIN APPROVAL. ADDITIONAL PERMITS FOR SERVICE CONNECTIONS MUST BE OBTAINED FROM THE DIVISION OF WATER PRIOR TO INSTALLATION OF ANY PORTION OF THE SERVICE CONNECTION(S). IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR PERMITS FOR ALL SIZE WATER SERVICE CONNECTIONS BEFORE PERFORMING ANY WORK. THE AMOUNT OF THE CHARGES CAN BE OBTAINED FROM THE DIVISION OF WATER, PERMITS AND SALES SECTION AT 216-664-2444 X5203.

14. ONE INCH SERVICE CONNECTIONS SHALL BE PERMITTED TO SERVICE HOMES BASED ON THE FOLLOWING CRITERIA:

\* PEAK FLOW DEMANDS DO NOT EXCEED 25 GPM FOR AN INDIVIDUAL HOME/UNIT. INCLUSIVE OF ALL USAGE (FIRE, DOMESTIC AND/OR IRRIGATION), AND

\* LENGTH OF ONE INCH CONNECTION DOES NOT EXCEED 50 FEET AS MEASURED FROM THE MAIN TO THE CURB VALVE.

ANY SERVICE REQUESTS DIFFERING FROM THE STATED CRITERIA SHALL REQUIRE THE SUBMITTAL OF A COMPLETE WATER SERVICE APPLICATION. PEAK DEMANDS ARE TO BE ASSESSED ON APPLICATION AND SETBACKS ARE TO BE SHOWN ON AN ACCOMPANYING SITE PLAN. SITE PLANS SHALL SHOW WATER METER VAULTS IN THE RIGHT-OF-WAY OR IN AN EASEMENT CONTIGUOUS TO THE RIGHT-OF-WAY FOR ANY HOMES/UNITS WITH SETBACKS GREATER THAN 150 FEET. EASEMENTS ARE TO BE PROVIDED WITH THE SERVICE CONNECTION APPLICATION SUBMITTAL.

15. ALL WATER MAIN CURB VALVE BOXES AND METER VAULTS WILL BE INSTALLED IN GRASS AREAS WHEN POSSIBLE.

### EMERGENCIES:

16. IF A WATER MAIN OR SERVICE CONNECTION BREAK OCCURS DURING CONSTRUCTION AND EMERGENCY ASSISTANCE IS REQUIRED, PLEASE NOTIFY THE DIVISION OF WATER AT 216-664-3060.

### NORTH HILLS WATER DISTRICT (NHWD) ADDITIONAL NOTES FOR WATER MAIN INSTALLATION

#### GENERAL:

1. ALL WATER WORK SHALL BE IN ACCORDANCE WITH THE STANDARD CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF CLEVELAND, DEPARTMENT OF PUBLIC UTILITIES, DIVISION OF WATER (CWD), 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44113, AND THE NORTH HILLS WATER DISTRICT (NHWD). ALL PERMITS AND FEES ASSOCIATED WITH THE VARIOUS WATER WORK ITEMS SHALL BE THE RESPONSIBILITY OF THE PROJECT'S OWNER/DEVELOPER OR ITS CONTRACTOR.
2. AMEND NOTE CWD 2 TO INCLUDE THE PRESENCE OF THE NHWD INSPECTOR AT THE PRECONSTRUCTION MEETING BY CALLING THE OFFICE OF THE DISTRICT ENGINEER AT 330-405-5004.
3. AMEND NOTE CWD 3 TO PROVIDE FOR THE ENGINEER FOR THE NHWD TO OBTAIN ACTUAL FIELD MEASUREMENTS OF THE WORK AND TO PREPARE THE RECORD PRINTS REQUIRED TO BE FURNISHED TO THE CWD.
4. AMEND NOTE CWD10 TO INCLUDE THE NHWD INSPECTOR ALONG WITH THE CWD INSPECTOR AT THE TIME OF THE HYDROSTATIC TEST.

#### HYDRANTS:

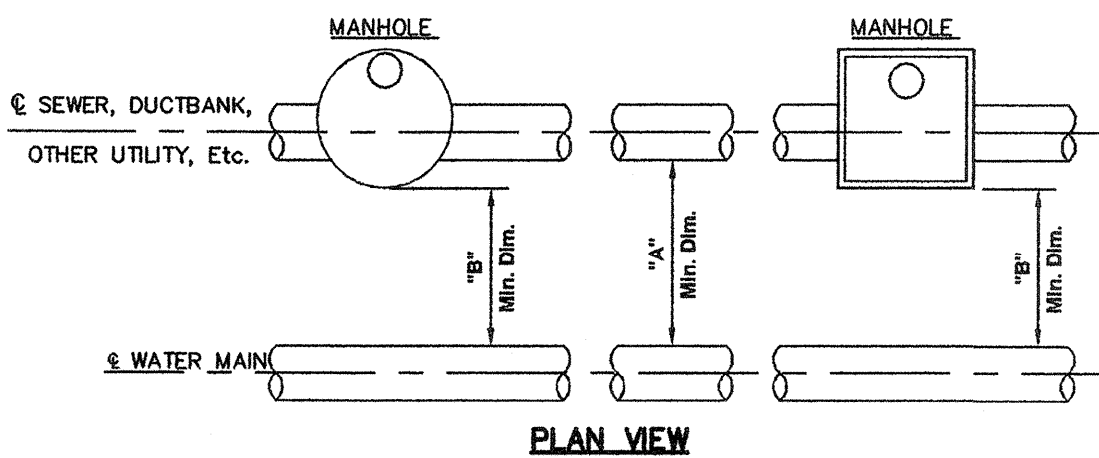
5. ALL HYDRANTS SHALL BE OF THE "BREAKAWAY" TYPE, KENNEDY KB1A AS PER THE CITY OF CLEVELAND'S STANDARDS. HYDRANTS SHALL BE SUPPLIED WITH NATIONAL STANDARD THREADS (NST), ONE (1) x 1/2" STEAMER NOZZLE, TWO (2) HOSE NOZZLES, PER THE NORTH HILLS WATER DISTRICT STANDARDS. A SIX (6) INCH HYDRANT ASSEMBLY SHALL INCLUDE THE TEE OR REDUCER AS APPLICABLE, VALVE, VALVE BOX, PIPE, AND A STANDARD SIX (6) INCH HYDRANT SET TO THE PROPER GRADE.

#### WATER MAINS:

6. ALL WATER MAIN TRENCHES UNDER EXISTING OR PROPOSED PAVEMENTS SHALL BE BACKFILLED AS PER THE PLAN DETAILS. ALL WATER MAIN PIPE SHALL BE A MINIMUM OF ASA CLASS 52 CEMENT-LINED DUCTILE IRON PIPE WITH A RUBBER RING GASKET COMPRESSION TYPE JOINT, UNLESS OTHERWISE NOTED. ALL WATER MAINS IN EASEMENTS SHALL BE POLYETHYLENE WRAPPED PER THE NORTH HILLS WATER DISTRICT REQUIREMENTS.

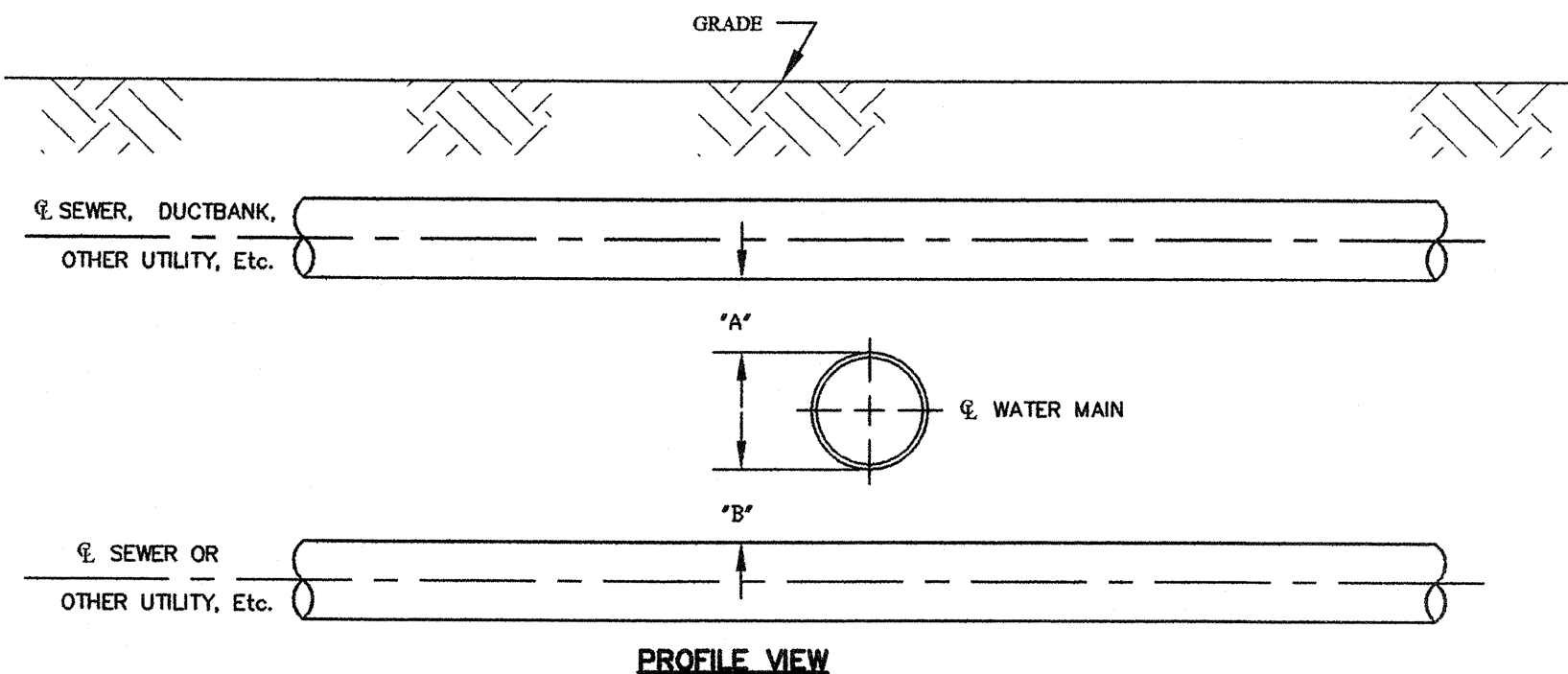
#### TESTING AND INSPECTION:

7. THE CONTRACTOR SHALL SUPPLY PROOF TO THE NHWD ENGINEER AND/OR OWNER HAVING MADE APPLICATION AND PAYMENT TO THE CWD FOR ANY AND ALL TESTING, CHLORINATION, AND TAPPING OF THE WATER MAIN AND APPURTENANCES. ALL EXPENSES CONNECTED WITH THE AFOREMENTIONED WORK SHALL BE BORNE BY THE CONTRACTOR. ALL WATER NECESSARY FOR THE SATISFACTORY COMPLETION OF ALL CLASSES OF WORK SHALL BE FURNISHED BY THE CONTRACTOR AT HIS EXPENSE. THE NHWD ENGINEER SHALL BE NOTIFIED A MINIMUM OF SEVENTY-TWO (72) HOURS BEFORE ANY SUCH WORK IS DONE ON THE WATER MAIN SO THAT HE OR HIS AUTHORIZED REPRESENTATIVE MAY BE PRESENT. ANY OF THE AFOREMENTIONED NOT COMPLIED WITH, OR DONE IN THE ABSENCE OF THE NORTH HILLS WATER DISTRICT ENGINEER, WILL NOT BE ACCEPTED AND SHALL BE RETESTED AT THE CONTRACTOR'S EXPENSE.
8. A SEVENTY-TWO (72) HOUR NOTICE SHALL BE GIVEN BY THE CONTRACTOR TO THE OFFICE OF THE CITY OF CLEVELAND, DIVISION OF WATER, AND THE ENGINEER OF THE NORTH HILLS WATER DISTRICT IN ADVANCE OF THE START OF ACTUAL CONSTRUCTION WORK. ALL EXPENSES CONNECTED WITH THE INSPECTION OF THE WATER MAIN BY THE CITY OF CLEVELAND SHALL BE BORNE BY THE CONTRACTOR.



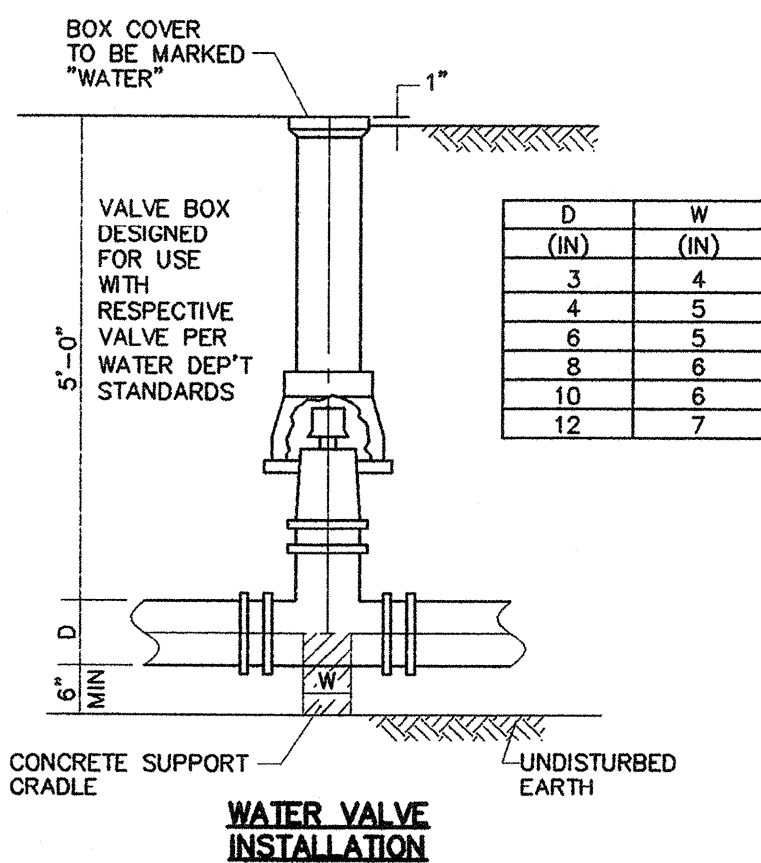
	HORIZONTAL CLEARANCE	STORM SEWER	SANITARY SEWER	GAS, DUCTBANK, OTHER UTILITY, ETC.
WHEN BOTTOM OF UTILITY PIPE IS AT OR ABOVE BOTTOM OF WATER MAIN	"A"	4'-0"	10'-0" MIN.	3'-0"
	"B"	4'-0"	7'-0" MIN.	3'-0"
WHEN BOTTOM OF UTILITY PIPE IS BELOW BOTTOM OF WATER MAIN	"A"	5'-0"	10'-0" MIN.	5'-0"
	"B"	5'-0"	7'-0" MIN.	5'-0"

### CLEARANCE FOR UTILITIES

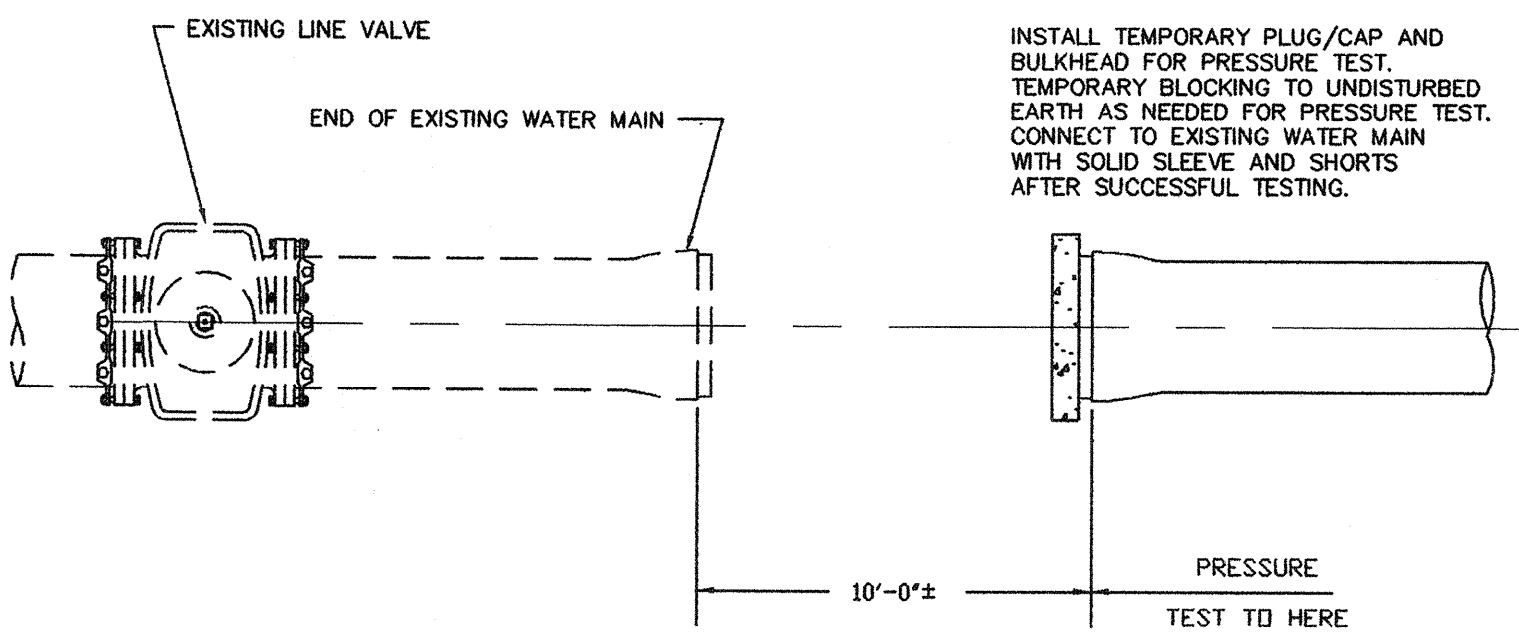


VERTICAL CLEARANCE	SANITARY SEWER LESS THAN 24"	SANITARY SEWER 24" & LARGER	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY LESS THAN 24"	STORM SEWER, DUCTBANK, GAS, OTHER UTILITY 24" & LARGER	REMARKS
"A"	18" Min.	*18" Min.	***12"	*12"	*WATER MAIN IN CASING: CLEARANCE TO TOP OF CASING
"B"	18" Min.	**18" Min.	12"	**12"	**CLEARANCE TO TOP OF UTILITY OR TOP OF CASING; WHEN UTILITY IS IN CASING

### CLEARANCE FOR UTILITIES

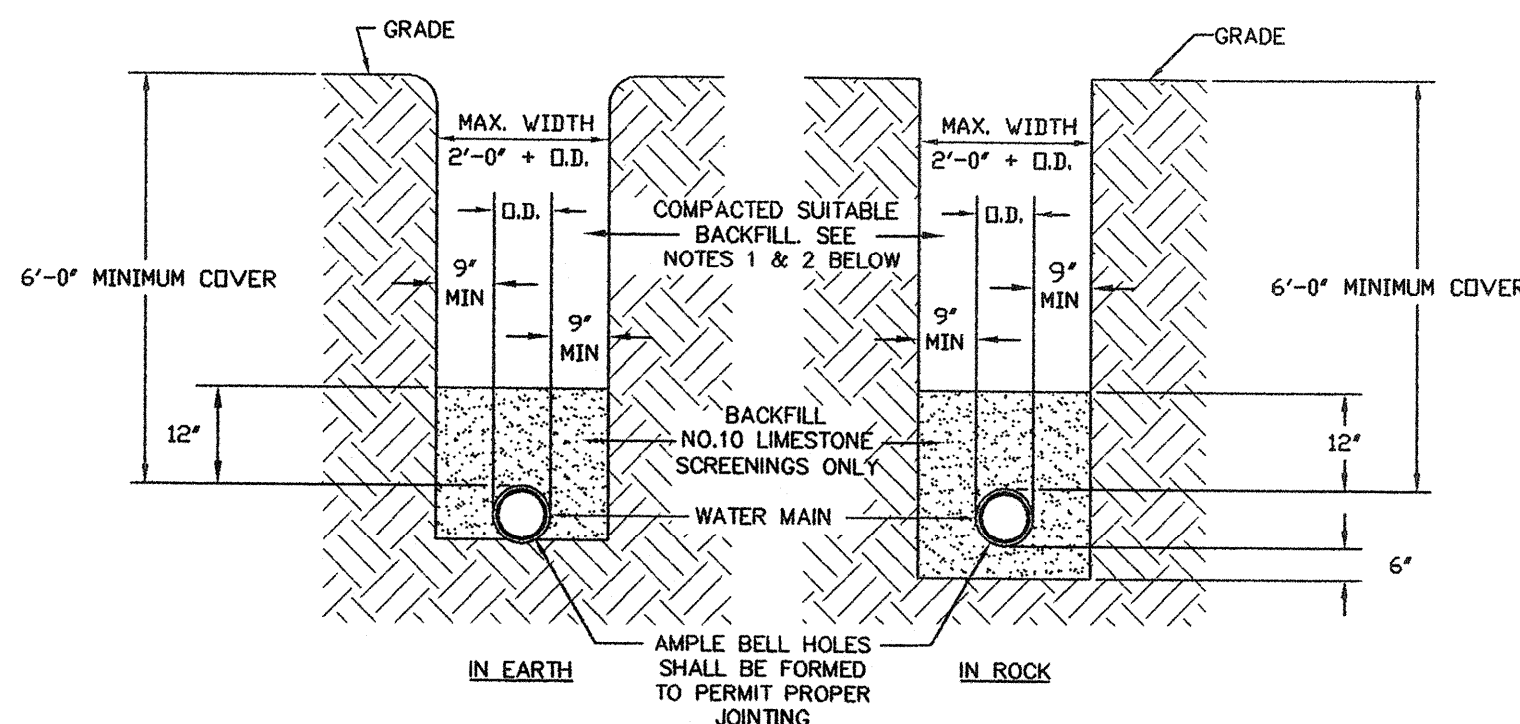


### WATER VALVE INSTALLATION



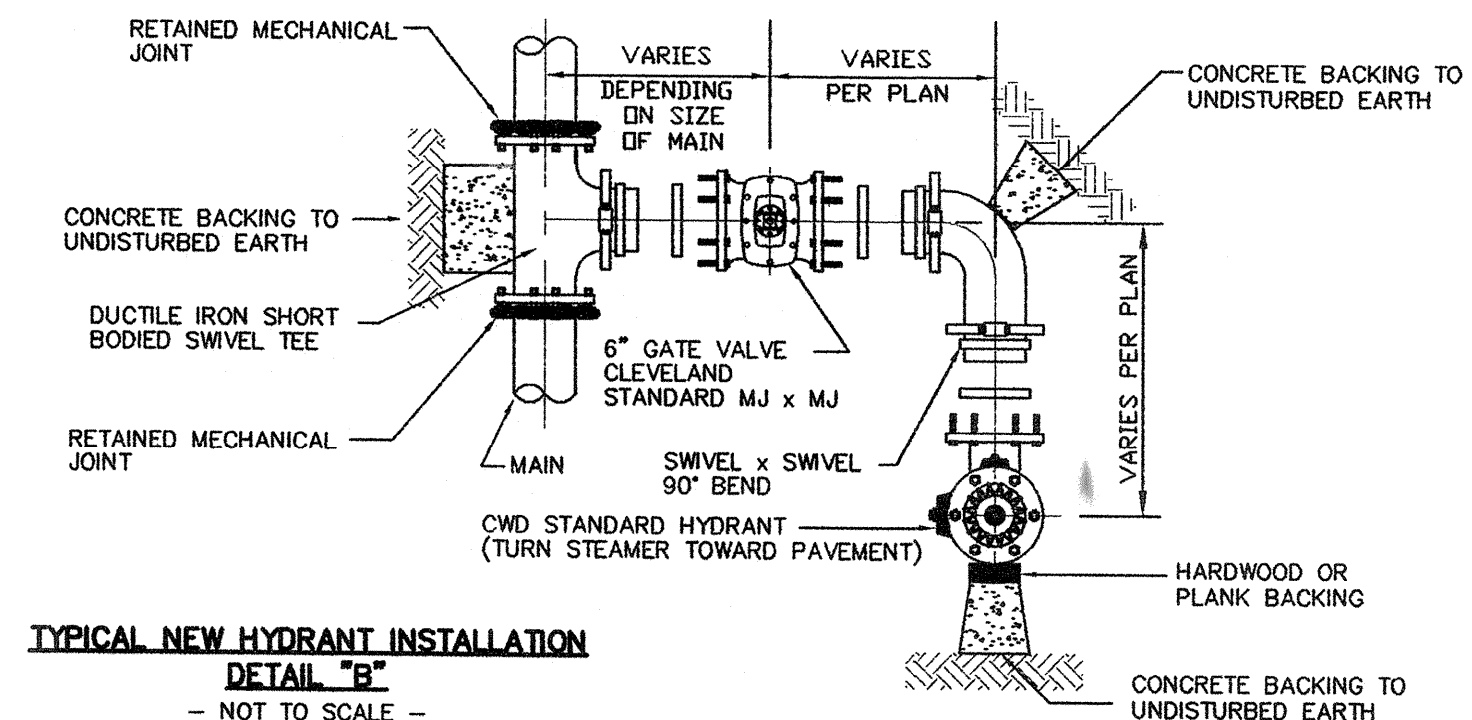
NOTE:  
PRESSURE TESTING OF WATER MAINS:  
WHERE NEW/EXTENDED WATER MAINS ARE CONNECTED TO AN EXISTING WATER MAIN FOR PRESSURE TEST, RESULTING IN FAILURE OF THE PRESSURE TEST OR ANY DAMAGE TO THE EXISTING WATER MAIN, OR ITS APPURTENANCES, THE REPAIR THEREOF SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL REPAIRS SHALL BE DONE TO THE SATISFACTION OF THE DIVISION OF WATER.

### ALTERNATE PRESSURE TESTING DETAIL



### WATER MAIN TRENCH DETAILS

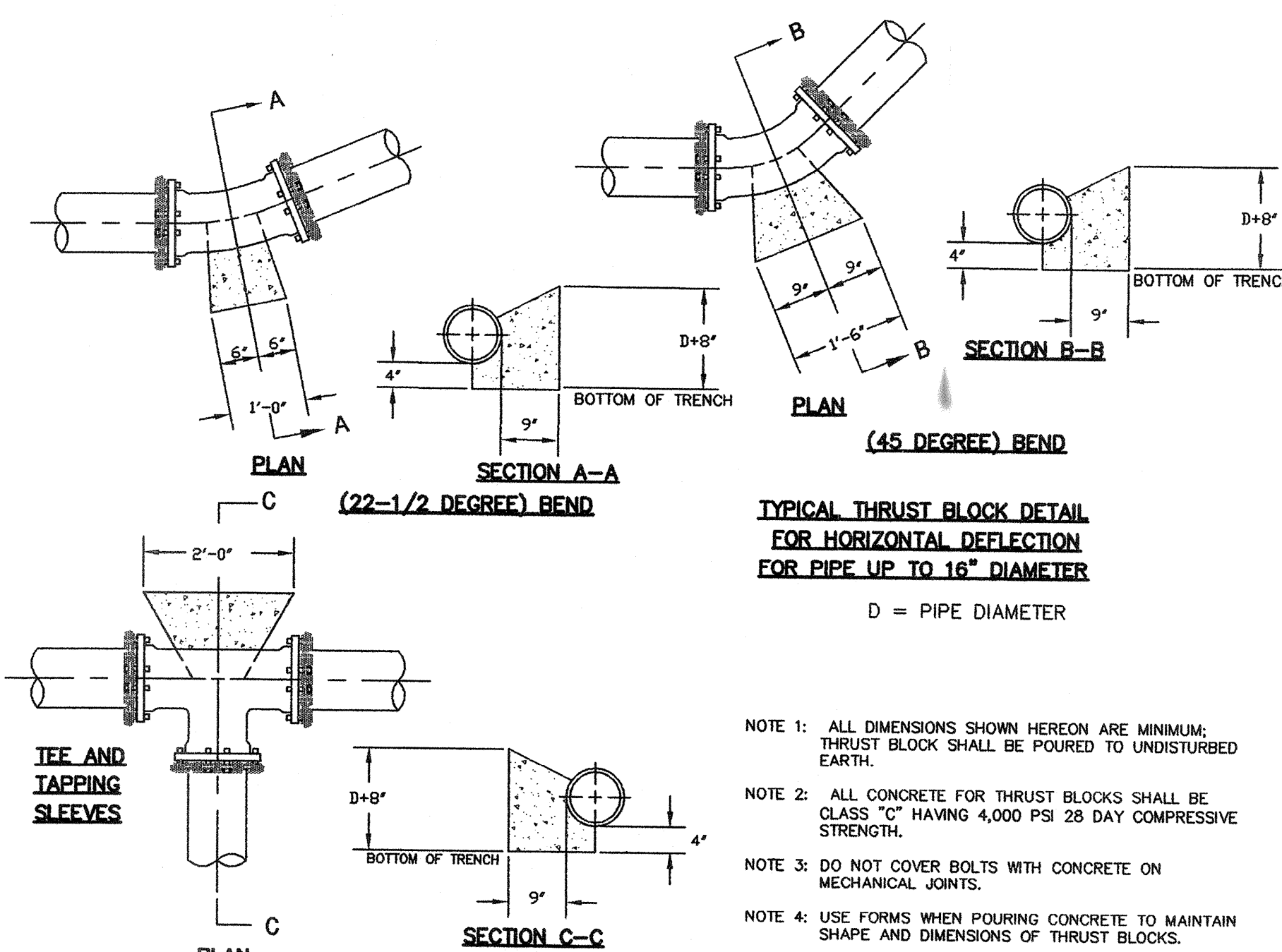
- NOTES:
- 1) PREMIUM BACKFILL REQUIRED UNDER EXISTING OR FUTURE PAVEMENTS, SIDEWALKS, AND/OR DRIVES OR WHEN REQUIRED BY LOCAL MUNICIPALITY. BACKFILL AND COMPACTION STANDARDS SHALL FOLLOW THE C.O.S.E. TRENCH DETAIL ON SHEET 5.
  - 2) PREMIUM BACKFILL SHALL BE LESTON SCREENINGS GRADED PER ODOT 304.02 OR ODOT 411. NO SLAG IS PERMITTED.
  - 3) CONTRACTOR SHALL USE SPECIAL CARE IN PLACING THE SAND BEDDING BACKFILL, SO AS TO AVOID SCRAPING OF THE EXTERIOR COATING, INJURING THE PIPE, DISTORTING OR MOVING THE PIPE WHEN COMPACTING THE SAME. THE SAND BEDDING BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.
  - 4) MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.
  - 5) PAVEMENT, SIDEWALK OR DRIVES TO BE INSTALLED IN ACCORDANCE WITH LOCAL MUNICIPALITY'S SPECIFICATIONS.



### TYPICAL NEW HYDRANT INSTALLATION DETAIL "B" - NOT TO SCALE -

NOTE: IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINT. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-1-5/A21.5-88 CLASS "C" METHOD "B".

ALL BOLTS AND NUTS FURNISHED WITH RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOY CORROSION RESISTANT STEEL.



- NOTE 1: ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.
- NOTE 2: ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.
- NOTE 3: DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.
- NOTE 4: USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.

### REVISONS

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SDWA

NORTHFIELD CENTER TOWNSHIP  
BRANDYWINE PRESERVE PHASE FOUR  
CLEVELAND AND NORTH HILLS WATER  
NOTES AND DETAILS

DATE: JANUARY, 2004

SCALE: N.T.S.

DRAWN BY: ZSM

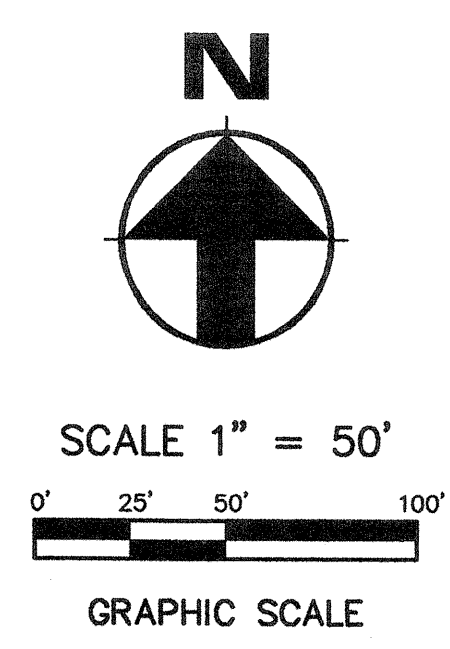
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SHEET NUMBER  
6 OF 9

FILE NUMBER  
P0304-3007 NC

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SEE SWP3 DETAILS  
AND NOTES SHEET 9

REVISIONS	
03/29/04	PER C.O.S.E.
10/06/04	PER C.O.S.E.

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**SDWA**

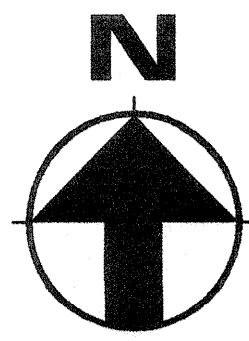
NORTHFIELD CENTER TOWNSHIP  
**BRANDYWINE PRESERVE PHASE FOUR**  
PHASE FOUR EARTHWORK GRADING AND  
SWP3 PLAN

DATE:	JANUARY, 2004
SCALE:	1"=50'
DRAWN BY:	ZSM
CHECKED BY:	WRD

SHEET NUMBER  
**7** OF **9**

FILE NUMBER  
P0304-3007 NC  
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SCALE 1" = 50'

0' 25' 50' 100'

GRAPHIC SCALE



REVISIONS	
1	03/29/04 PER C.O.S.E.

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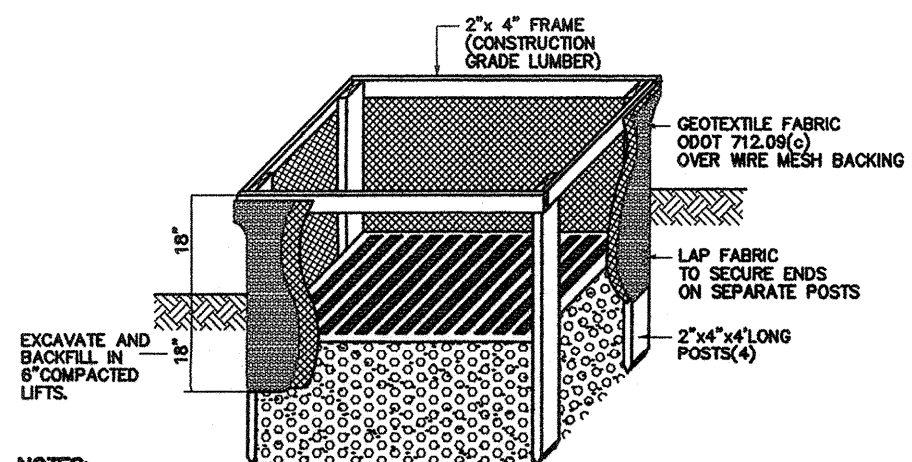
NORTHFIELD CENTER TOWNSHIP  
**BRANDYWINE PRESERVE PHASE FOUR**  
FINAL GRADING PLAN

DATE: JANUARY, 2004  
SCALE: 1"=50'  
DRAWN BY: ZSM  
CHECKED BY: WRD

SHEET NUMBER  
**8** OF **9**

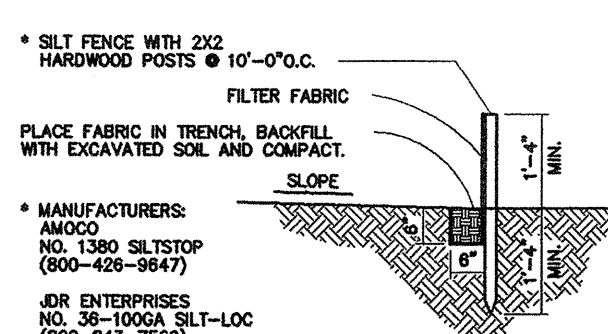
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**P0304-3007 NC**  
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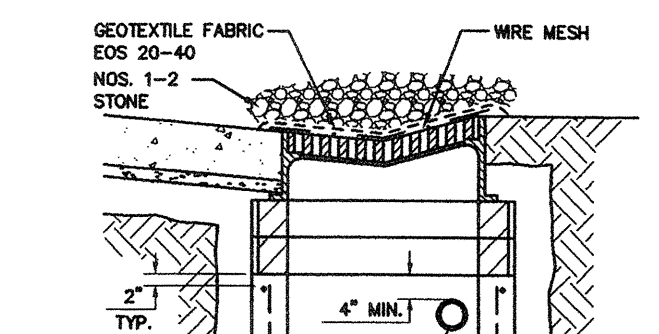


- NOTES:
1. INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPLOUSE LAND DISTURBANCE BEGINS OR BEFORE THE STORM DRAIN BECOMES OPERATIONAL.
  2. WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.
  3. 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 SETBACK POND. THE TOP OF EARTH DIKE SHALL BE AT LEAST 6 INCHES HIGHER THAN THE TOP OF THE FRAME.

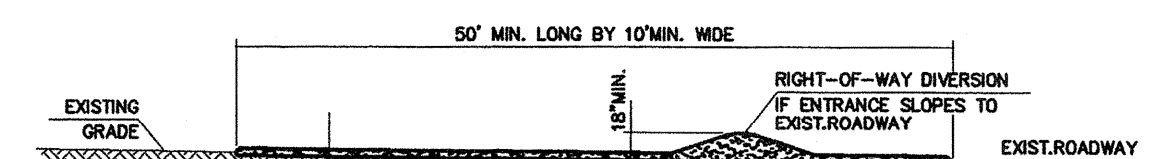
(IP) INLET PROTECTION  
N.T.S.



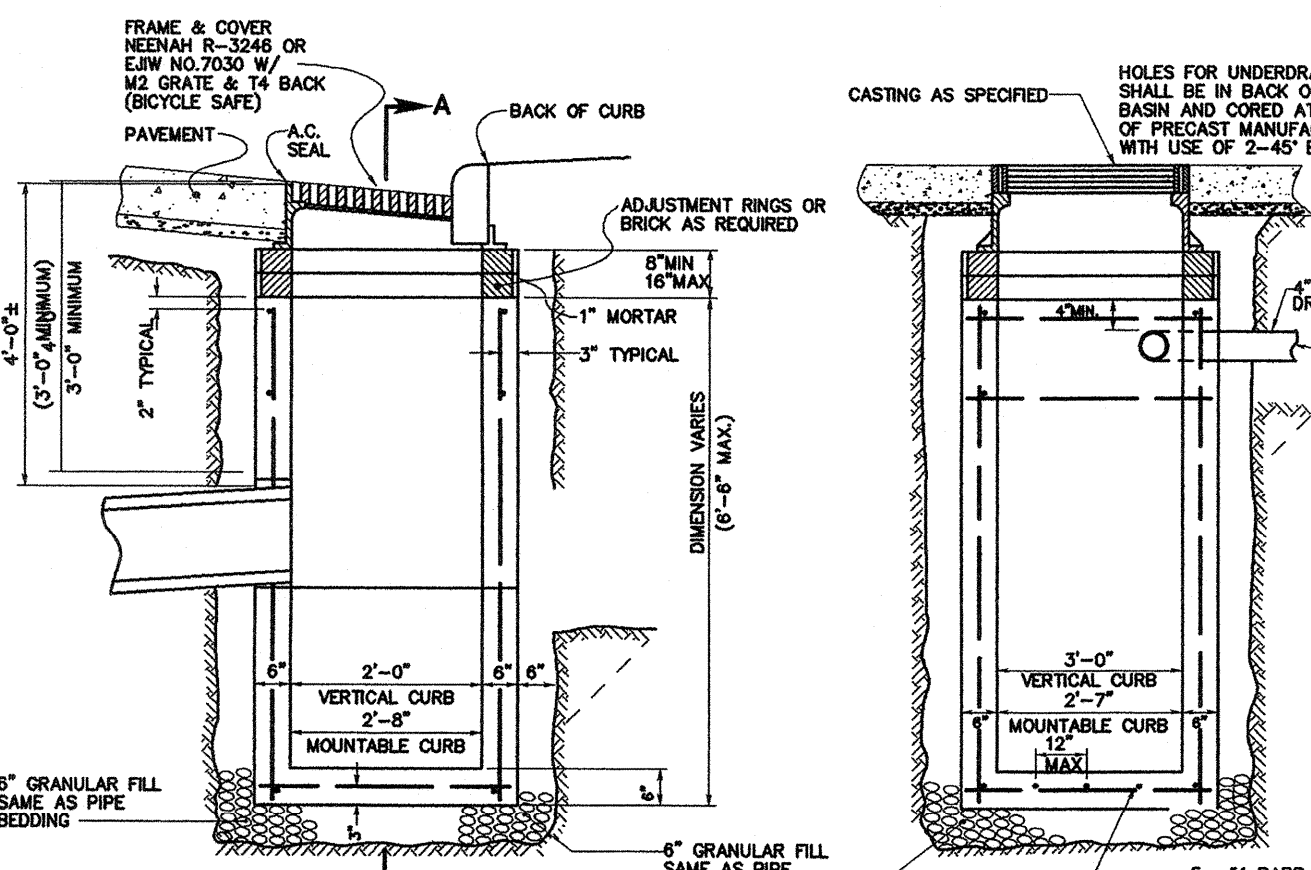
(SF) SILT FENCE DETAIL  
N.T.S.



(CIP) CURB INLET PROTECTION DETAIL  
N.T.S.

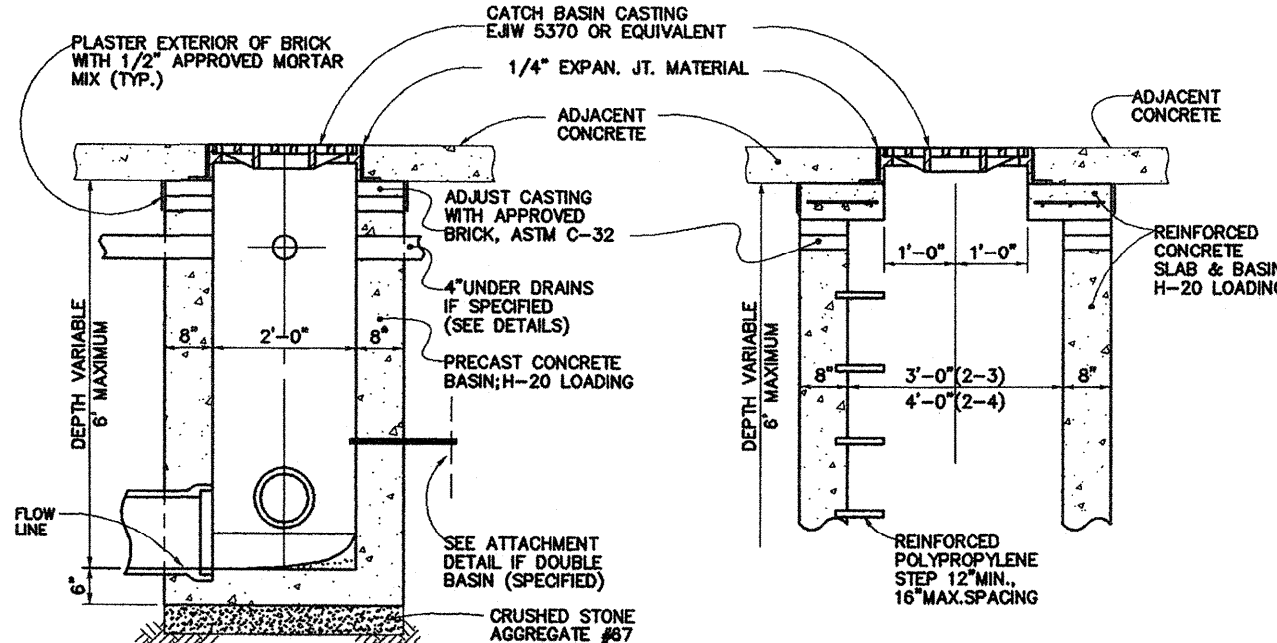


(CE) CONSTRUCTION ENTRANCE  
N.T.S.



RECTANGULAR PRECAST CONCRETE CATCH BASIN  
N.T.S.

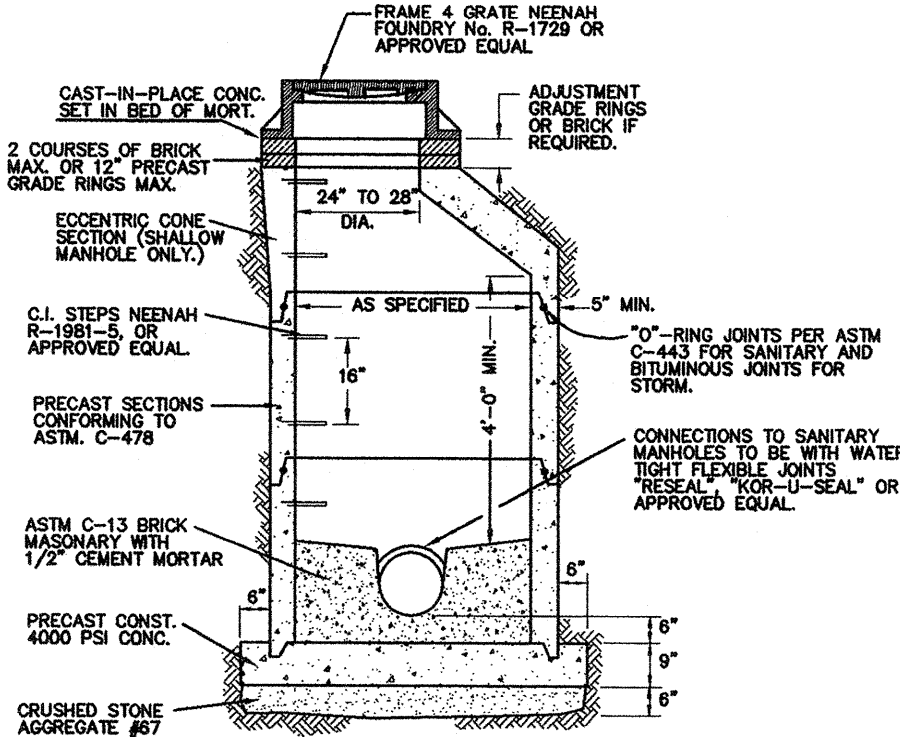
SECTION A-A



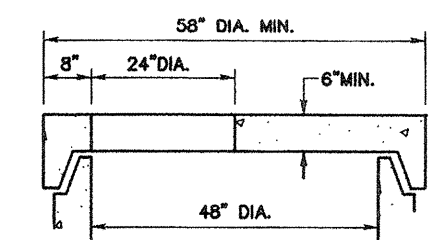
PRECAST INLET BASIN  
(SIM. TO ODOT 2-2-B)

PRECAST INLET BASIN  
(SIM. TO ODOT 2-3 & 2-4)

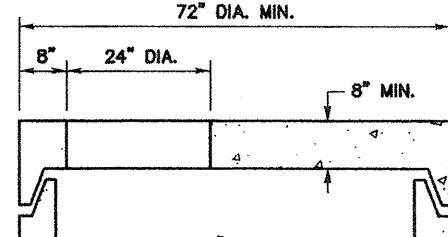
MINIMUM MANHOLE DIAMETERS REFER TO PLAN FOR SPECIFIC SIZING REQUIREMENTS	
MH Inside Dia. (ft.)	Max. Pipe Dia. (ft.)
48	30
60	36 to 42
72	48
84	54
90	60
96	60



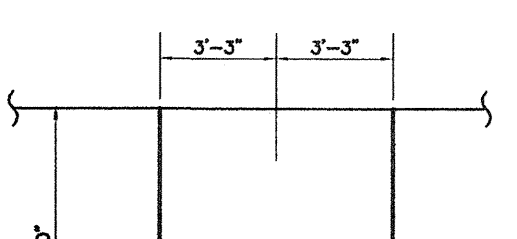
STORM SEWER  
MANHOLE DETAIL  
N.T.S.



FLAT SLAB TOP  
N.T.S.



FLAT SLAB TOP  
N.T.S.



JOINTING DETAIL

#### STORMWATER POLLUTION PREVENTION NOTES

1. THE CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED WITH THE IMPLEMENTATION OF THIS STORMWATER POLLUTION PREVENTION PLAN ARE HEREBY INFORMED THAT THE TERMS AND CONDITIONS OF INPES PERMIT NO. 36000436\*AG APPLY TO THE CONSTRUCTION ACTIVITIES ON THIS SITE. SEE LETTER DATED OCTOBER 3rd, 2003 FROM SUMMIT SOIL & WATER CONSERVATION DISTRICT, SIGNED BY ATTORNEY GAYLE L. SNYDER, SUPERVISOR. PRIOR TO CONDUCTING ANY ACTIVITIES AT THIS SITE, THE CONTRACTOR AND SUBCONTRACTORS SHALL UNDERSTAND THE CONDITIONS AND STANDARDS OF THIS PLAN AND THE SCHEDULE PROPOSED FOR THEIR IMPLEMENTATION.

2. SITE DESCRIPTION:  
THIS PROJECT IS THE FOURTH PHASE OF A RESIDENTIAL, SINGLE FAMILY DEVELOPMENT CONTAINING 30 DETACHED DWELLINGS. THE CONSTRUCTION PERIOD IS 4 YEARS TO TOTAL BUILD-OUT.  
THE TOTAL SITE AREA IS 12.2655 ACRES. CONTRIBUTING OFF-SITE DRAINAGE IS 2.9300 ACRES. THE MAXIMUM DISTURBED AREA RESULTING FROM THIS PROJECT IS 7.6253 ACRES.

PRECONSTRUCTION RUN-OFF COEFFICIENT C=0.2

POST-CONSTRUCTION RUN-OFF COEFFICIENT C=0.5

THE PROPERTY IS UNDEVELOPED AND WAS PREVIOUSLY TILLED FOR AGRICULTURAL USE. THE PROPERTY DRAINS FROM SOUTH TO NORTH TO DRAINAGE COURSES BOUNDED BY NEILANDS LOCATED IN THE COMMON (UNDISTURBED) AREA LYING BETWEEN TWINSBURG ROAD AND THE NORTHERLY LIMITS OF THE DEVELOPED AREA. THE DRAINAGE COURSES, ONE UNDER TWINSBURG ROAD AND THE OTHER UNDER WALTERS ROAD, INTERSECT IN THE COMMON AREA AND FLOWS WESTERLY. THE TOTAL OFF-SITE AREA TRIBUTARY TO THESE DRAINAGE COURSES IS 400 ACRES. THE SOILS IN THE DEVELOPED AREAS OF THE PROPERTY ARE WADSWORTH SILT-LOAMS.

#### CONSTRUCTION SCHEDULE:

CONSTRUCTION START:	SEPTEMBER 1, 2004
(BEGIN EARTHWORK OPERATIONS, INSTALL SILT CONTROLS)	SEPTEMBER 1, 2004
BEGIN TEMPORARY MULCHING FOR EROSION CONTROL:	OCTOBER 15, 2004
BEGIN PAVING OPERATIONS:	OCTOBER 30, 2004
COMPLETE PAVING OPERATIONS:	APRIL 15, 2005
BEGIN FINAL LANDSCAPING AND SEEDING:	MAY 1, 2005
COMPLETE LANDSCAPING AND SEEDING:	MAY 15, 2005
CLEAN STORM SEWER SYSTEM OF ACCUMULATED DEPOSITS:	JUNE 15, 2005
COMPLETION OF SITE IMPROVEMENTS:	DECEMBER 31, 2006
COMPLETE BUILDING UNITS	

3. CONTROLS:  
STABILIZATION: EXISTING VEGETATION BEYOND THE CONSTRUCTION LIMITS SHALL BE PRESERVED AND PROTECTED. DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF DAYS OR MORE, SHALL BE STABILIZED WITH SEEDING AND MULCHING OR OTHER APPROPRIATE MEANS WITHIN 7 DAYS (2 DAYS FOR AREAS WITHIN 50 FEET OF STREAMS). TEMPORARY OR PERMANENT SOIL STABILIZATION SHALL BE APPLIED WITHIN 7 DAYS (2 DAYS FOR AREAS WITHIN 50 FEET OF STREAM) AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. MULCHING OR MATTING SHALL BE PLACED WHEN SEASONAL CONDITIONS PROHIBIT APPLICATION OF OTHER STABILIZATION MEASURES. (SEE WINTERIZATION)

WINTERIZATION - ANY DISTURBED AREA THAT IS NOT GOING TO BE WORKED FOR 21 DAYS OR MORE MUST BE SEEDING AND MULCHING BY NOVEMBER 1 OR MUST HAVE A DORMANT SEEDING OR MULCH COVER APPLIED BETWEEN NOVEMBER 1 AND MARCH 1.

CONCRETE TRUCK WASHOUT - NO WASHOUT IS ALLOWED ON SITE. ALL UNUSED CONCRETE MUST BE RETURNED TO THE PLANT. THIS APPLIES TO ALL CONCRETE WORK PERFORMED IN THE CONSTRUCTION OF THESE SITE IMPROVEMENTS. THE PROHIBITION WILL EXTEND TO HOME BUILDERS UNDER SEPARATE PERMIT.

STRUCTURAL PRACTICES: CONTRACTOR SHALL INSTALL THE SEDIMENT PONDS/TRAPS AND PERIMETER CONTROLS SHOWN WITHIN 7 DAYS OF THE START OF GRUBBING, PRIOR TO GRADING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED. OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS.

POST-CONSTRUCTION STORM WATER POLLUTION PREVENTION: POLLUTANTS IN STORM WATER DISCHARGES FROM THIS SITE AFTER THE COMPLETION OF CONSTRUCTION WILL BE CONTROLLED THROUGH THE INSTALLATION OF VEGETATIVE COVER ON ALL AREAS OF THE SITE NOT COVERED WITH BUILDINGS OR PAVEMENT.

MAINTENANCE: ALL TEMPORARY AND PERMANENT CONTROL MEASURES SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE PUBLIC IMPROVEMENTS BY THE SUMMIT COUNTY AND NORTFIELD CENTER TOWNSHIP. MAINTENANCE AND REPAIRS CONTROLS ON PRIVATE PROPERTY WILL BE THE RESPONSIBILITY OF THE DEVELOPER UNTIL OWNERSHIP IS CONVEYED TO THE OWNER/BUILDER OF EACH LOT. THIS SHALL INCLUDE ALL FUNCTIONS NECESSARY TO ASSURE THE CONTINUED PERFORMANCE OF THE INTENDED FUNCTIONS OF THE VARIOUS CONTROL DEVICES. TRAPPED SEDIMENTS SHALL BE REMOVED PROMPTLY TO ASSURE EFFECTIVE OPERATIONS OF THE CONTROLS. PORTIONS OF THE CONTROL DEVICES WHICH HAVE BEEN DISPLACED OR BROKEN BY CONSTRUCTION OPERATIONS OR ACTS OF NATURE, SHALL BE PROMPTLY REPAIRED.

OWNER/BUILDER IS RESPONSIBLE FOR EROSION CONTROL ON INDIVIDUAL LOTS AND MUST FILE INDIVIDUAL LOT NOTICE OF INTENT (NOI) WITH OHIO EPA.

INSPECTIONS: THE CONTRACTOR SHALL CAUSE THE EROSION AND SEDIMENT CONTROL PRACTICES TO BE INSPECTED AT LEAST ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. QUALIFIED INSPECTION PERSONNEL SHALL CONDUCT A WEEKLY INSPECTION OF THE SITE TO IDENTIFY AREAS CONTRIBUTING TO STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. THIS INSPECTION SHALL EVALUATE WHETHER MEASURES TO PREVENT EROSION AND CONTROL POLLUTANTS ARE ADEQUATE AND PROPERLY IMPLEMENTED. DISTURBED AREAS AND MATERIAL STOCKPILES EXPOSED TO PRECIPITATION ARE TO BE INSPECTED FOR EVIDENCE OF POLLUTANTS ENTERING THE DRAINAGE SYSTEM. DISCHARGE LOCATIONS SHALL BE INSPECTED TO DETERMINE WHETHER ON-SITE EFFORTS ARE PREVENTING SEDIMENT OR POLLUTANT DISCHARGES. PAVED AREAS AROUND THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE VEHICLE TRACKING. PERMANENT RECORDS OF MAINTENANCE AND INSPECTION MUST BE KEPT THRU THE CONSTRUCTION PERIOD. PROVIDE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURES TAKEN.

4. NO WASTE (SOLID OR LIQUID) SHALL BE DISCHARGED INTO STORM WATER RUNOFF.

5. OFF-SITE VEHICLE TRACKING SEDIMENTS SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROAD NOTED ON THE PLAN.

6. EROSION CONTROL BLANKETS WITH MATTING WILL BE USED ON DITCHES GREATER THAN 1.5% AND ALL OTHER SLOPES GREATER THAN 6% GRADE. SEEDING REQUIREMENTS APPLY.

7. EROSION AND SEDIMENT CONTROL PRACTICES USED ON THIS SITE SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE "OHIO RAINWATER AND LAND DEVELOPMENT HANDBOOK", (1996).

8. CONTRACTOR SHALL CONFORM WITH ALL REQUIREMENTS OF LOCAL, MUNICIPAL, AND COUNTY AGENCIES RELATIVE TO STORM WATER DISCHARGES. ANY PLANS OR PERMITS REQUIRED BY THESE AGENCIES SHALL BE MAINTAINED ON THE SITE WITH THIS STORMWATER POLLUTION PREVENTION PLAN.

9. THE TERMS AND CONDITIONS OF THIS PLAN SHALL REMAIN IN EFFECT UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN COMPLETED AND ALL TEMPORARY MEASURES REMOVED. TEMPORARY MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION.

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.

BRANDYWINE PRESERVE, LLC.

NAME \_\_\_\_\_

OFFICIAL TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

#### SEEDING SPECIFICATIONS

TEMPORARY SEEDING: ODOT ITEM 207.03 B.3  
PERMANENT SEEDING: ODOT ITEM 659 CLASS I-LAWN MIXTURE

#### REVISIONS

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SDWA

NORTHFIELD CENTER TOWNSHIP  
BRANDYWINE PRESERVE PHASE FOUR  
STORMWATER POLLUTION PREVENTION PLAN  
DETAILS AND NOTES

DATE: JANUARY, 2004

SCALE: N.T.S.

DRAWN BY: ZSM

CHECKED BY: WRD

SHEET NUMBER  
9 OF 9

FILE NUMBER  
P0304-3007 NC  
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