DRAWING INDEX

CODE & REGULATORY DATA - 2011 OBC

USE GROUP:

EXISTING BUILDING: S-1 / F-1 / B NON-SEPARATED MIXED USE

NEW ADDITION: S-1 NON-SEPARATED MIXED USE

AREA	ALLOWABLE AREA LIMITATIONS AS PER OBC TABLE 503	ALLOWABLE AREA LIMITATIONS AS PER OBC SECTION 903	ACTUAL
EXISTING	UNLIMITED AS PER OBC 507.3	NA	87,472 SF
NEW	UNLIMITED AS PER OBC 507.3	NA	40,200 SF
		TOTAL	127,672 SF

HEIGHT	ALLOWABLE HEIGHT LIMITATIONS AS PER OBC TABLE 503	ACTUAL
B	3 STORIES UP TO 55'	ONE STORY, 34'-0"
F-1	2 STORIES UP TO 55'	ONE STORY, 34'-0"
S-1	2 STORIES UP TO 55'	ONE STORY, 34'-0"

FIRE RATINGS:	ALLOWABLE FIRE RATINGS AS PER OBC TABLE 601 & 602	ACTUAL
STRUCTURAL FRAME	0 HRS	0 HRS
BEARING WALLS	0 HRS	0 HRS
NON-BEARING WALLS & PARTITIONS	0 HRS	0 HRS
FLOOR CONSTRUCTION	0 HRS	0 HRS
ROOF CONSTRUCTION	0 HRS	0 HRS
FIRE SEPARATION WALL BETWEEN B AND S-1 USE	3 HRS	3 HRS

INTERIOR FINISHES	REQUIRED AS PER OBC TABLE 803.5	ACTUAL
WALLS & CEILINGS		
VERTICAL EXITS & PASSAGEWAYS	CLASS A	N/A
EXIT ACCESS CORRIDORS & OTHER EXITWAYS	CLASS B	CLASS A
ROOMS & ENCLOSED SPACES	CLASS C	CLASS B

TYPE OF CONSTRUCTION (AS PER OBC CHAPTER 6)

EXISTING: 2-B PROPOSED NEW ADDITION: 2-B

FIRE SUPPRESSION SYSTEM

COMPLETE FIRE SUPPRESSION SYSTEM DESIGNED & INSTALLED AS PER NFPA 13

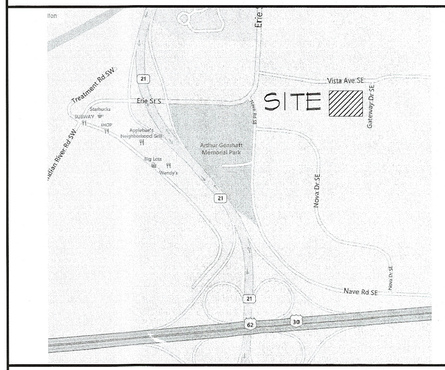
MISCELLANEOUS	ALLOWABLE AS PER OBC	ACTUAL
MAXIMUM LENGTH OF EXIT TRAVEL (TABLE 1016.1)	B=300', F-1=250', S-1=250'	B=175', F-1=220'
MAXIMUM OCCUPANCY (TABLE 1004.1.1)		
B (8,877 SF) /100 SF PER OCCUPANT	58	25
F-1 (8,545) SF /100 SF PER OCCUPANT	816	25
S-1 (40,200) SF /500 SF PER OCCUPANT	80	25
MINIMUM NUMBER OF EXITS (TABLE 1021.1)	3	8
MINIMUM CORRIDOR FIRE RESISTANCE RATING (TABLE 1018.1)	0 HRS	0 HRS
MINIMUM FLOOR DEFLECTION & LIVE LOADS (SEC. 1604.3 & 1607.6)	250 PSF	2,000 PSF
ELEVATED SLAB	125 PSF	125 PSF
MINIMUM ROOF LIVE LOAD (SEC. 1607.11.2)	20 PSF	20 PSF
GROUND SNOW LOAD , P_g (SEC. 1608.2)	20 PSF	20 PSF
SNOW EXPOSURE FACTOR, C_e (TABLE 1608.3.1)	1.0	1.0
SNOW IMPORTANCE FACTOR I_s (TABLE 1604.5)	1.0	1.0
THERMAL FACTOR C_t (TABLE 1608.3.2)	1.0	1.0
FLAT ROOF SNOW LOAD, P_f (SECT. 1608.3)	20.0 PSF	20.0 PSF
COLLATERAL LOADS	N/A	5 PSF
EXPOSURE FACTOR (SEC. 1609.4)	B	B
BASIC WIND SPEED (SEC. 1609.3)	90 MPH	90 MPH
WIND IMPORTANCE FACTOR, I_w (TABLE 1604.5)	1.0	1.0
SEISMIC USE GROUP (TABLE 1604.5, SECT 1613)	GROUP I	GROUP I
SEISMIC DESIGN SPECTRAL RESPONSE COEFFICIENT (SECT 1613.5.4)		
S_{DS}	----	0.124
S_{D1}	----	0.087
SEISMIC SITE CLASS (TABLE 1613.5.5)	D	D
SEISMIC FORCE RESISTANCE SYSTEM (SECT. 1613.6)	MOMENT RESISTANT FRAME, BUILDING FRAME	
ANALYSIS PROCEDURE (SECT. 1613.6)	EQUIVALENT LATERAL FORCE METHOD	
LOAD BEARING VALUE OF SOILS (SEC. 1804) (PRESUMPTIVE VALUES)	N/A	2,000 PSF

NOTES:
1) SOIL IS TO BE TESTED AFTER EXCAVATION. A COPY OF REPORT SHALL BE PROVIDED TO THE BUILDING OFFICIAL. NOTIFY ENGINEER IMMEDIATELY OF ANY READINGS BELOW 2,000 PSF.
2) ALL HAZARDOUS MATERIALS ARE WITHIN THE EXEMPT AMOUNTS AS PER TABLE 307.1.

NOTES TO PLAN EXAMINER

1. PLANS ARE PREPARED ACCORDING TO AND ARE TO BE REVIEWED UNDER THE 2011 OBC.
   - A. CONSTRUCTION TO BE IN COMPLIANCE WITH THE 2011 OHIO BUILDING CODE (OBC).
   - B. CONSTRUCTION TO BE IN COMPLIANCE WITH THE 2011 OHIO PLUMBING CODE (OPC).
   - C. CONSTRUCTION TO BE IN COMPLIANCE WITH THE 2011 OHIO MECHANICAL CODE (OMC), AND CHAPTERS 12 AND 28 OF THE 2011 OHIO BUILDING CODE.
   - D. CONSTRUCTION TO BE IN COMPLIANCE WITH THE 2011 OHIO BUILDING CODE CHAPTER 27, AND THE 2014 NATIONAL ELECTRIC CODE (NEC), THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
   - E. CURRENT ACCESSIBILITY STANDARD PER OBC CHAPTER 35 IS 2009 ICC/ANSI A117.1.
2. NO VAPOR BARRIER IS TO BE PROVIDED IN NON-OFFICE AREAS AS IS PERMITTED BY OBC 1910.1 EXCEPTION #3.
3. FIRE PROTECTION SYSTEM WILL BE DESIGNED BY A LICENSED FIRE PROTECTION DESIGNER AND FIRE PROTECTION (SPRINKLER) DESIGN AND SHOP DRAWINGS WILL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION AS SOON AS THEY ARE RECEIVED FROM THE FIRE PROTECTION CONTRACTOR.
4. PRE-ENGINEERED METAL BUILDING SHOP DRAWINGS WILL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION AS SOON AS THEY ARE RECEIVED FROM THE PRE-ENGINEERED BUILDING FABRICATOR.
5. STATEMENT OF SPECIAL INSPECTIONS:
   A STATEMENT OF SPECIAL INSPECTIONS WILL BE PROVIDED TO THE BUILDING OFFICIAL OR AHJ TO INCLUDE THE FOLLOWING:
   - A. SOILS
   - B. FOUNDATIONS
   - C. MASONRY
   - D. STEEL (PEMB MANUFACTURER APPROVED FABRICATOR PER AISC)

SITE LOCATION MAP



ADA REGULATIONS

THE OWNER AND CONTRACTOR SHALL FURNISH AND INSTALL ALL SITE AND BUILDING ACCESSORIES AND MISCELLANEOUS DESIGN DETAILS IN THE FIELD FOR FULL COMPLIANCE WITH THE AMERICAN DISABILITIES ACT INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1) SITE AND BUILDING ACCESS: WALKS, SURFACE TEXTURES, CURB CUTS, RAMPS, PARKING SPACES, ETC.
2) INTERIOR ACCESS: CORRIDORS, DOORS, FLOORING, HANDRAILS, STAIRS, ETC.
3) DOOR HARDWARE: THRESHOLDS, CLOSERS, DOOR KNOBS, PULLS, HINGES, ETC.
4) PLUMBING AND ELECTRICAL FIXTURES: WATER CLOSETS, LAVATORIES, DRINKING FOUNTAINS, MIRRORS, GRAB BARS, PUBLIC PHONES, ELEVATOR CONTROLS, SWITCH DEVICES, EMERGENCY WARNING SYSTEMS, ETC.

Approved by the Massillon City Engineer this 2ND Day of JUNE, 2015.

Keith A. Dylewski, P.E., P.S.

Only approved signed plans by the City Engineer are to be used for construction.

A NEW DESIGN-BUILD PROJECT FOR:

PREMIER BUILDING SOLUTIONS, INC.

480 NOVA DRIVE SE, MASSILLON, OHIO 44646

Campbell CONSTRUCTION

CONSTRUCTION SERVICES
CONSTRUCTION MANAGEMENT
FACILITIES MAINTENANCE

DESIGN-BUILD SPECIALISTS • SINCE 1953

SAFETY • QUALITY • PRODUCTION — Campbell CONSTRUCTION

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1 PARK CENTRE DR., WADSWORTH, OH 44281 330/336-8786

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AN EQUAL OPPORTUNITY EMPLOYER

William Shivak PE 5-26-15

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LOT & R/W CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C1	2751.09'	264.45'	264.34'	S89° 28' 11"E	005° 30' 27"	132.33'
C2	70.00'	83.17'	78.37'	N58° 12' 42"W	068° 04' 40"	47.28'
C3	80.00'	212.52'	155.27'	N74° 47' 45"E	152° 08' 47"	321.62'
C4	25.00'	36.65'	33.46'	S45° 45' 43"W	083° 59' 44"	22.51'
C5	402.90'	78.42'	78.30'	N36° 01' 43"W	011° 09' 07"	39.33'

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OHIO UTILITIES PROTECTION SERVICES

LOT SIZE 8.7491 ACRES

BENCHMARK
EXISTING SAN. MH "D"
RIM ELEV = 996.14'

PROPERTY OWNER INFORMATION
RDJK HOLDING COMPANY, LLC DEREK MILLER 7571 CHAMPAIGN AVENUE NW CANAL FULTON, OH 44614 330-244-2907

EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE 1" = 40'-0"

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BUILDING ADDITION FOR
PREMIER BUILDING SOLUTIONS, INC.
480 NOVA DRIVE SE
MASSILLON, OHIO 44646

SEAL
STATE OF OHIO
WILLIAM D. SLIMINSKI
E-63683
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

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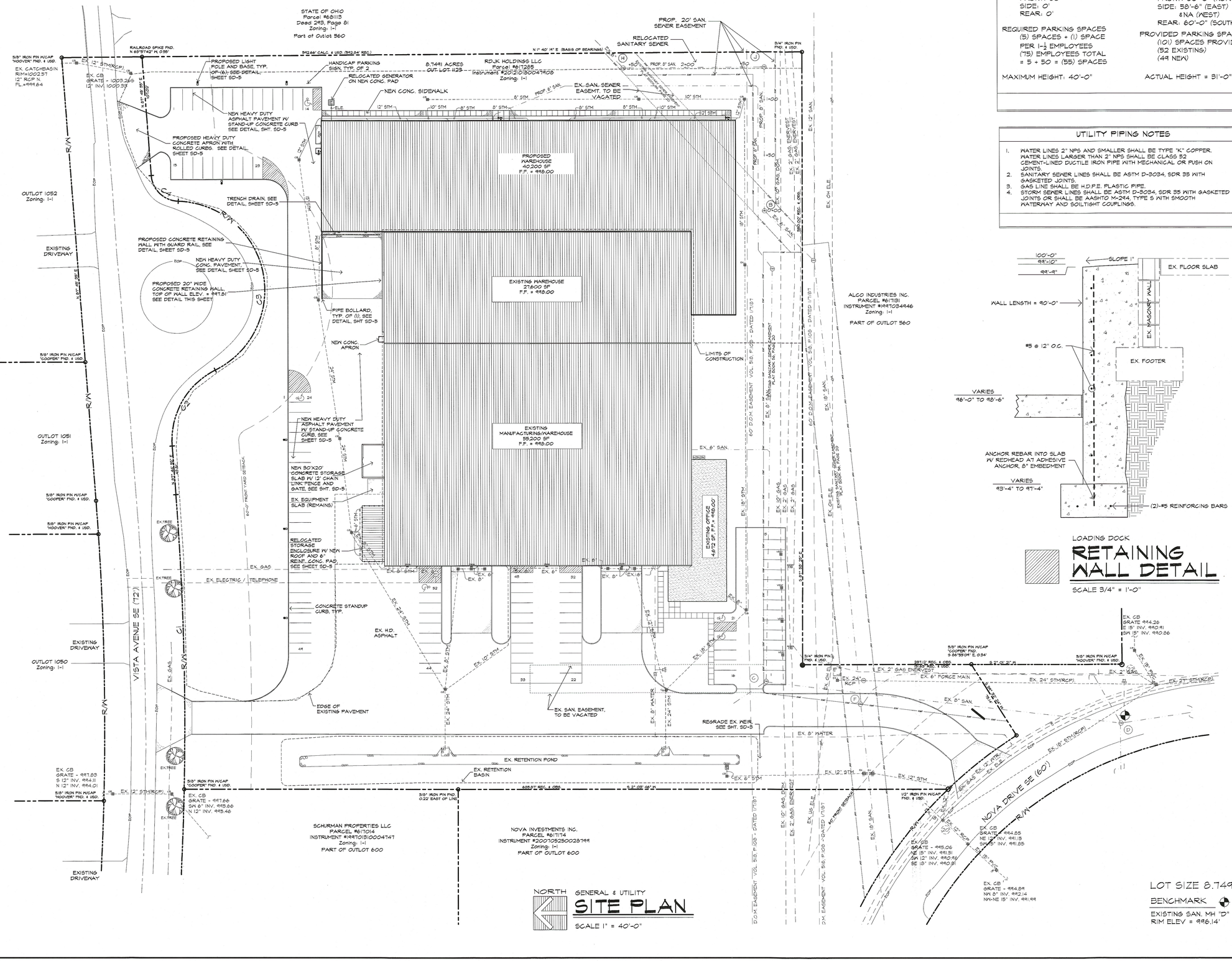

GENERAL & UTILITY

SITE PLAN

SCALE 1" = 40'-0"

ZONING NOTES

ZONING CLASSIFICATION = I-I LIGHT INDUSTRIAL

REQUIRED BUILDING SETBACKS
FRONT: 60'
SIDE: 0'
REAR: 0'

ACTUAL BUILDING SETBACKS
FRONT: 60'-0" (NORTH)
SIDE: 58'-6" (EAST)
& NA (WEST)
REAR: 60'-0" (SOUTH)

REQUIRED PARKING SPACES
(5) SPACES + (1) SPACE
PER 1-½ EMPLOYEES
(75) EMPLOYEES TOTAL
= 5 + 50 = (55) SPACES

PROVIDED PARKING SPACES
(101) SPACES PROVIDED
(52 EXISTING)
(49 NEW)

MAXIMUM HEIGHT: 40'-0"

ACTUAL HEIGHT = 31'-0"

UTILITY PIPING NOTES

1. WATER LINES 2" NPS AND SMALLER SHALL BE TYPE "K" COPPER. WATER LINES LARGER THAN 2" NPS SHALL BE CLASS 52 CEMENT-LINED DUCTILE IRON PIPE WITH MECHANICAL OR PUSH ON JOINTS.
2. SANITARY SEWER LINES SHALL BE ASTM D-3034, SDR 35 WITH GASKETED JOINTS.
3. GAS LINE SHALL BE H.D.P.E. PLASTIC PIPE.
4. STORM SEWER LINES SHALL BE ASTM D-3034, SDR 35 WITH GASKETED JOINTS OR SHALL BE AASHTO M-294, TYPE S WITH SMOOTH WATERWAY AND SOILTIGHT COUPLINGS.

LOADING DOCK

RETAINING WALL DETAIL

SCALE 3/4" = 1'-0"

LOT SIZE 8.7491 ACRES

BENCHMARK ⊕

EXISTING SAN. MH "D"
RIM ELEV = 996.14'

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SEAL
WILLIAM D. SLIWINSKI
E-63683

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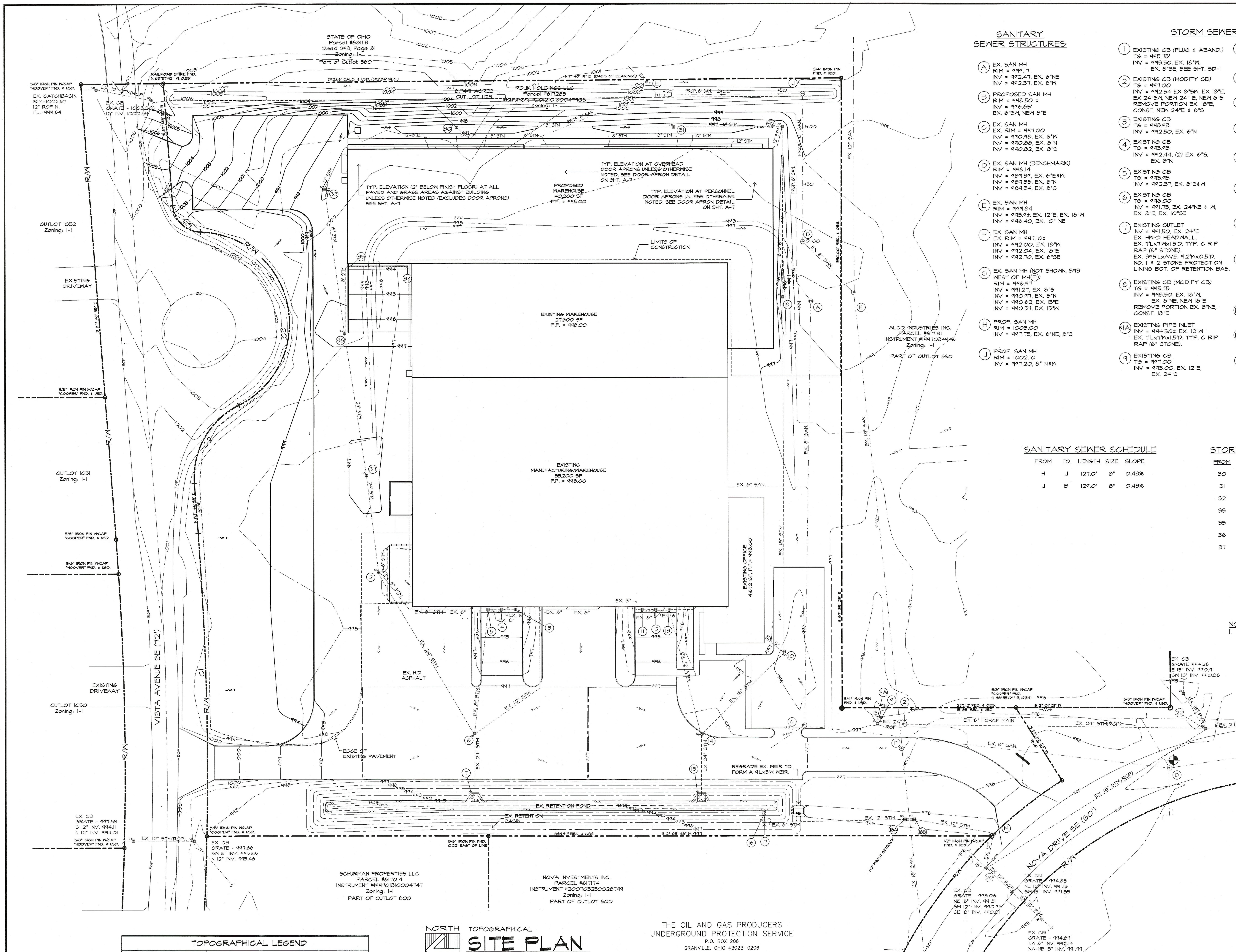

SANITARY SEWER STRUCTURES

(A) EX. SAN MH
RIM = 999.17
INV = 992.47, EX. 6"NE
INV = 992.37, EX. 8"W

(B) PROPOSED SAN MH
RIM = 998.50 ±
INV = 996.65'
EX. 6"SW, NEW 8"E

(C) EX. SAN MH
EX. RIM = 997.00
INV = 990.98, EX. 6"W
INV = 990.88, EX. 8"N
INV = 990.82, EX. 8"S

(D) EX. SAN MH (BENCHMARK)
RIM = 996.14
INV = 989.39, EX. 6"E&W
INV = 989.38, EX. 8"N
INV = 989.34, EX. 8"S

(E) EX. SAN MH
RIM = 999.84
INV = 995.9±, EX. 12"E, EX. 18"W
INV = 996.40, EX. 10" NE

(F) EX. SAN MH
EX. RIM = 997.10±
INV = 992.00, EX. 18"W
INV = 992.04, EX. 18"E
INV = 992.70, EX. 6"SE

(G) EX. SAN MH (NOT SHOWN, 393' WEST OF MH(F))
RIM = 996.97
INV = 991.27, EX. 8"S
INV = 990.97, EX. 8"N
INV = 990.62, EX. 15"E
INV = 990.57, EX. 15"W

(H) PROP. SAN MH
RIM = 1003.00
INV = 997.75, EX. 6"NE, 8"S

(J) PROP. SAN MH
RIM = 1002.10
INV = 997.20, 8" N&W

STORM SEWER STRUCTURE SCHEDULE

(1) EXISTING CB (PLUG & ABAND.)
TG = 995.75'
INV = 993.50, EX. 18"W, EX. 8"SE, SEE SHT. SD-1

(2) EXISTING CB (MODIFY CB)
TG = 997.00
INV = 992.54 EX 8"SW, EX 18"E, EX 24"SW, NEW 24" E, NEW 6"S
REMOVE PORTION EX. 18"E, CONST. NEW 24"E & 6"S

(3) EXISTING CB
TG = 993.93
INV = 992.50, EX. 6"N

(4) EXISTING CB
TG = 993.93
INV = 992.44, (2) EX. 6"S, EX. 8"N

(5) EXISTING CB
TG = 993.93
INV = 992.37, EX. 8"S&W

(6) EXISTING CB
TG = 996.00
INV = 991.75, EX. 24"NE & W, EX. 8"E, EX. 10"SE

(7) EXISTING OUTLET
INV = 991.50, EX. 24"E
EX. HW-D HEADWALL,
EX. 7'Lx7'Wx1.5'D, TYP. C RIP RAP (6" STONE).
EX. 395'LxAVE. 9.2'Wx0.5'D, NO. 1 & 2 STONE PROTECTION LINING BOT. OF RETENTION BAS.

(8) EXISTING CB (MODIFY CB)
TG = 995.75
INV = 993.50, EX. 18"W, EX. 8"NE, NEW 18"E
REMOVE PORTION EX. 8"NE, CONST. 18"E

(9A) EXISTING PIPE INLET
INV = 994.50±, EX. 12"W
EX. 7'Lx7'Wx1.5'D, TYP. C RIP RAP (6" STONE).

(9) EXISTING CB
TG = 997.00
INV = 993.00, EX. 12"E, EX. 24"S

(10) EXISTING CB
TG = 996.00
INV = 992.26, EX. 18"E&NW, EX. 8"NE

(11) EXISTING CB
TG = 993.93
INV = 992.50, EX. 6"N, EX. 8"S

(12) EXISTING CB
TG = 993.93
INV = 992.44, EX. 8"N&S

(13) EXISTING CB
TG = 993.93
INV = 992.20, EX. 8"N, EX. 6"N&S, EX. 12"W

(14) EXISTING CB
TG = 996.00
INV = 991.74, EX. 12"E, EX. 18"SE, EX. 24"W

(15) EX. PIPE OUTLET
INV = 991.50
EX. HW-D HEADWALL,
EX. 7'Lx7'Wx1.5'D, TYP. C RIP RAP (6" STONE).

(16) EX. PIPE INLET (MODIFY INV.)
EX. INV = 991.33, EX. 6"W
NEW INV 991.50, EX. 6"W
EX. GRATE AT EAST END OF PIPE.

(17) EX. CB (MODIFY ORIFICE)
TG = 994.60
INV = 991.31, EX. 6"E, EX. 12"S
EX. ENDCAP AT WEST END OF 6" PIPE WITH EX. 2.50"Φ ORIFICE. REPLACE ENDCAP WITH NEW 1.75"Φ ORIFICE, INV = 991.31'

(18A) EXISTING 3'X2' CB
TG = 995.50
INV = 991.05, EX. 12"N, (4) EX. 6"S

(18B) EX. 3'X2' CB
TG = 995.50
INV = 991.03, (4) EX. 6"N, EX. 12"S

(19) EXISTING CB
TG = 995.15
INV = 990.88, EX. 12" N&W

(20) EXISTING CB,
TG = 995.06
INV = 991.51, EX. 15"SW
INV = 990.81, EX. 18"SE, EX.12"E
INV = 990.96, EX. 12"NE

(21) EX. STM MH
TOP OF RIM = 998.01
INV = 992.31', EX. 24" N&S

(22) EXISTING CB
TG = FIELD VERIFY
INV = 990.66±, EX. 24"N
INV = TG - 4.83', EX. 15"E
INV = TG - 5.05', EX. 18"NW
INV = TG - 5.10', EX. 27"S

(30) PROPOSED CB
TG = 996.25
INV = 994.50, 8"S

(31) PROPOSED CB
TG = 996.25
INV = 994.06', 8"N, 10"S

(32) PROPOSED CB
TG = 997.25
INV = 993.84, 10"N, 12"W, 18"W

(33) PROPOSED CB
TG = 996.90
INV = 994.65, 12"E, 15"W

(34) START OF TRENCH DRAIN
TG = 993.98
INV = 993.65
SEE DETAIL, SHT. SD-5

(35) END OF TRENCH DRAIN
TG = 993.98
INV = 993.25, 6"N,
CONSTRUCT 6" FROM TRENCH DRAIN TO RET. WALL NORTH FACE, THEN CONVERT TO 8" STM

(36) PROPOSED CB
TG = 996.42
INV = 993.00, 8"E, 15"E, 24"W

(37) PROPOSED CB
TG = 996.50
INV = 992.73, 24" E&W

SANITARY SEWER SCHEDULE

FROM	TO	LENGTH	SIZE	SLOPE
H	J	127.0'	8"	0.43%
J	B	129.0'	8"	0.43%

STORM SEWER SCHEDULE

FROM	TO	LENGTH	SIZE	SLOPE
30	31	190.0'	8"	0.23%
31	32	95.0'	10"	0.23%
32	8	149.0'	18"	0.23%
33	36	127.0'	15"	1.30%
35	36	61.0'	8"	0.41%
36	37	126.0'	24"	0.21%
37	2	85.0'	24"	0.22%

NOTES:
1. PROJECT SITE IS NOT IN A FEMA FLOOD ZONE.

TOPOGRAPHICAL LEGEND

TC = TOP OF CURB	EXISTING POINT ELEVATION
TP = TOP OF PAVEMENT	NEW POINT ELEVATION
GRD = GRADE	EXISTING CONTOUR LINE ——100——
TG = TOP OF GRATE	NEW CONTOUR LINE ——100——
INV = INVERT	

NORTH

TOPOGRAPHICAL
SITE PLAN
SCALE 1" = 40'-0"

LOT SIZE 8.7491 ACRES

BENCHMARK
EXISTING SAN. MH "D"
RIM ELEV = 996.14'

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SEAL
STATE OF OHIO * WILLIAM D. SLIWINSKI E-63683 REGISTERED PROFESSIONAL ENGINEER *

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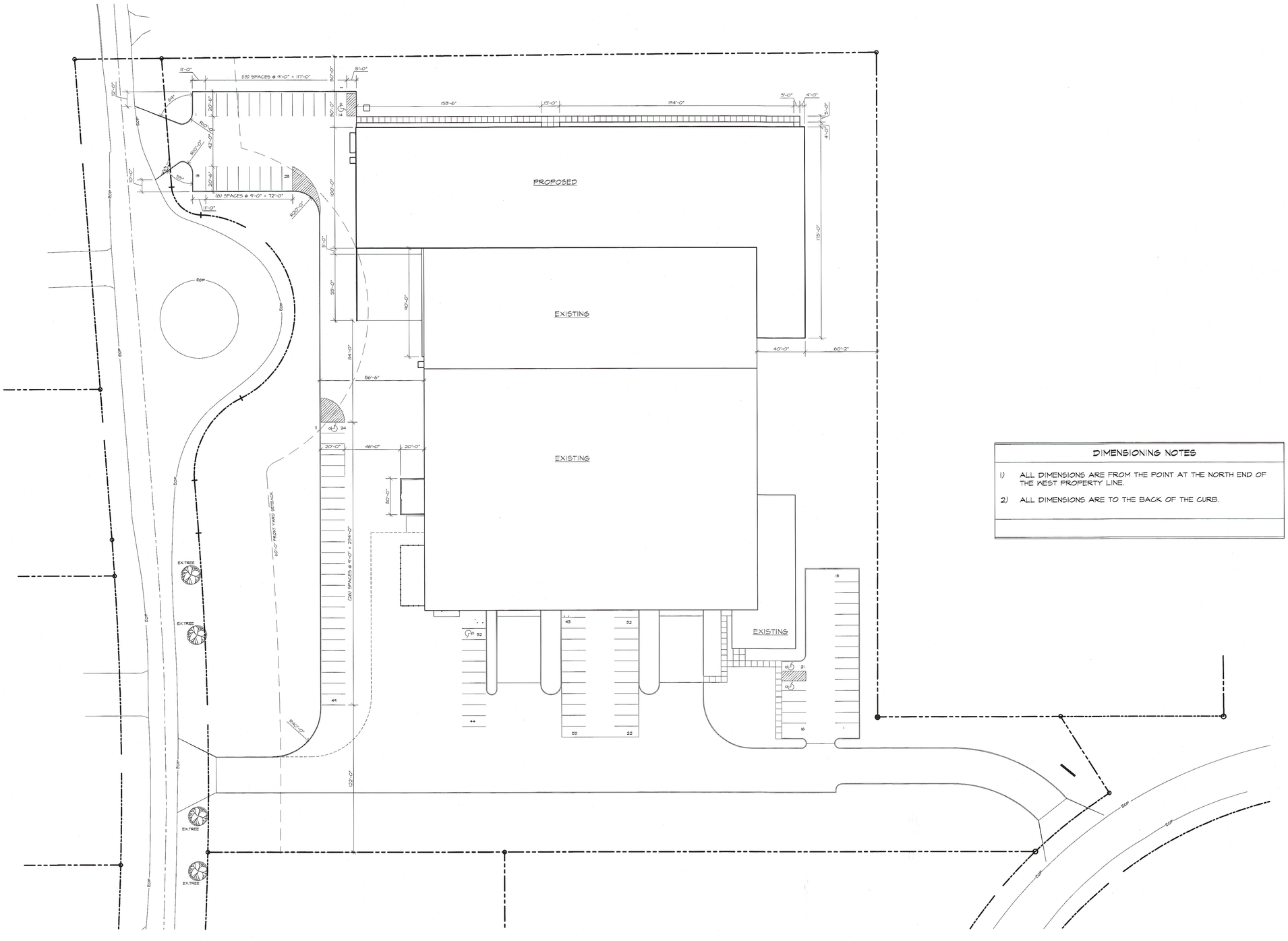

DIMENSIONING NOTES

1) ALL DIMENSIONS ARE FROM THE POINT AT THE NORTH END OF THE WEST PROPERTY LINE.

2) ALL DIMENSIONS ARE TO THE BACK OF THE CURB.

NORTH

DIMENSIONAL

SITE PLAN

SCALE 1" = 40'-0"

LOT SIZE 8.7491 ACRES

BENCHMARK ⊕

EXISTING SAN. MH "D"
RIM ELEV = 996.14'

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MASSILLON, OHIO 44646

SEAL

WILLIAM D. SLIWINSKI
E-63683

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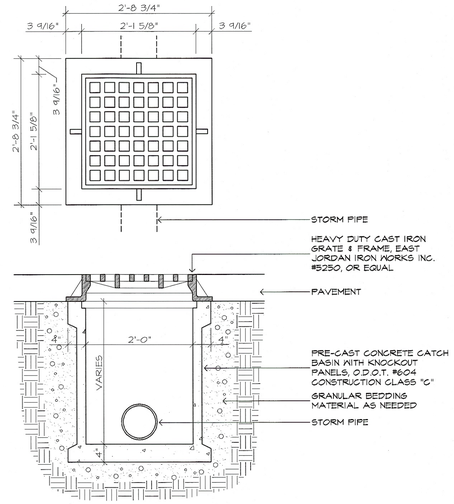
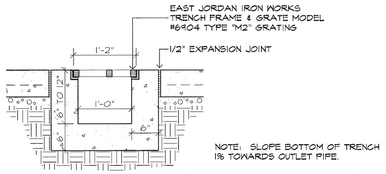


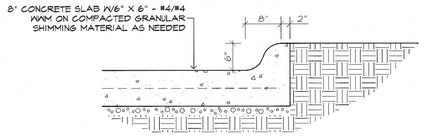
2' x 2' CATCH BASIN DETAIL

SCALE = NO SCALE



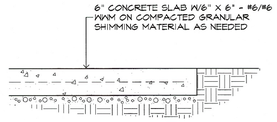
TRENCH DRAIN DETAIL

SCALE 3/4" = 1'-0"



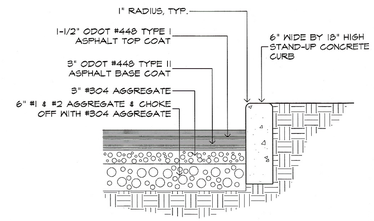
CONCRETE PAVEMENT & CURB DETAIL

SCALE = NO SCALE



CONCRETE PAVEMENT DETAIL

SCALE = NO SCALE



ASPHALT PAVEMENT & CURB DETAIL

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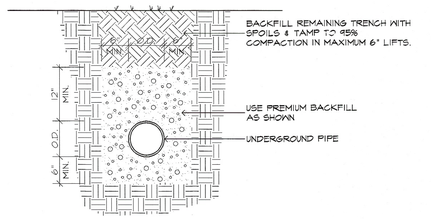
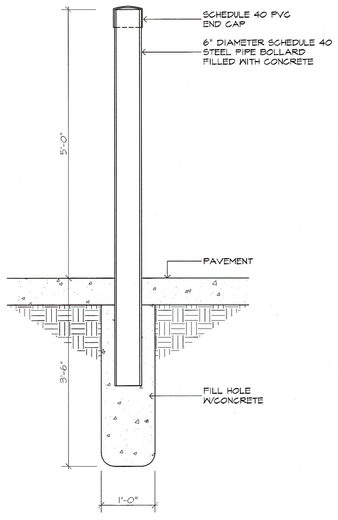


TRENCH DETAIL

SCALE = NO SCALE

VERIFY FINE AMOUNT WITH LOCAL AUTHORITY HAVING JURISDICTION (AHJ) BEFORE ORDERING SIGNAGE

VERIFY WITH OWNER FOR ANY OTHER SIGNAGE TO BE POSTED SUCH AS VEHICLES WILL BE TOWED ETC.



PIPE BOLLARD DETAIL

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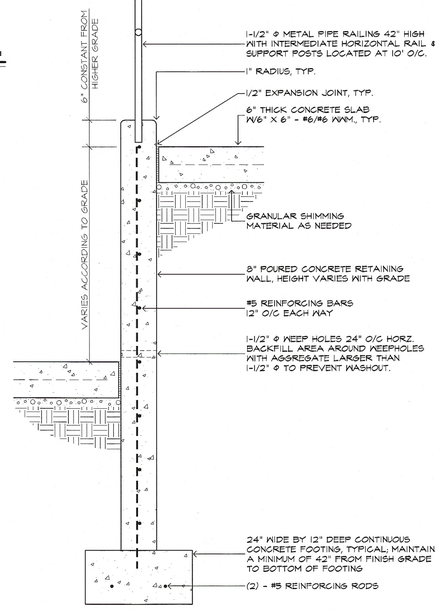
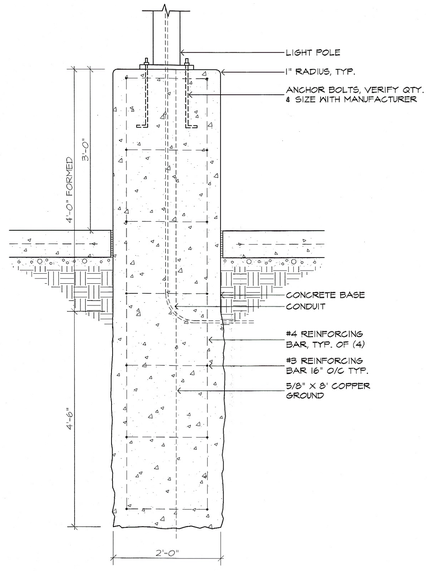


LOADING DOCK

RETAINING WALL DETAIL

SCALE 3/4" = 1'-0"



LIGHT POLE BASE DETAIL

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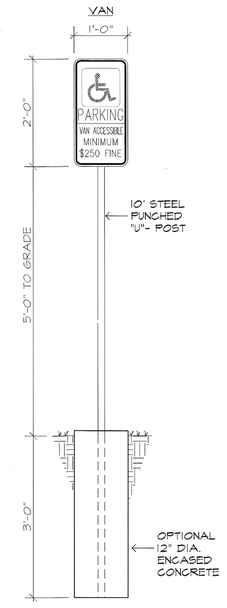

HC. PARKING SIGN DETAIL

SCALE 3/4" = 1'-0"

CONSTRUCTION SERVICES
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BUILDING ADDITION FOR
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480 NOVA DRIVE SE
MASSILLON, OHIO 44646

SEAL

STATE OF OHIO
WILLIAM D. SLIWINSKI
E-63683
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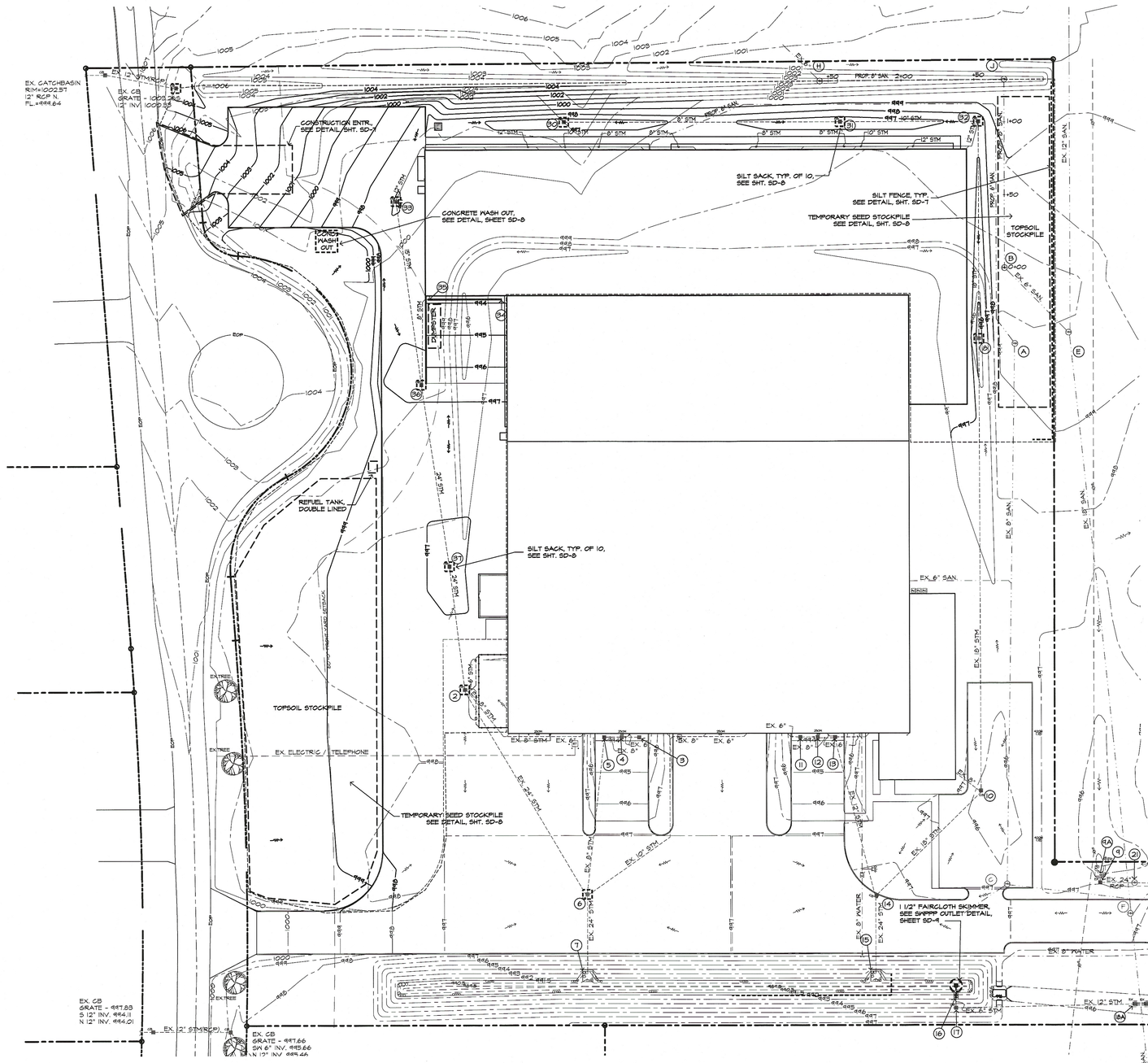
SWPPP NOTES:

1. THE CONTRACTOR SHALL PREVENT AND/OR REDUCE AND CONTROL SOIL EROSION RESULTING FROM THE PROPOSED IMPROVEMENTS. THE USE OF SILT FENCING, JUTE MATTING, TEMPORARY SEEDING, SILT CHECKS, INLET PROTECTION AROUND ALL CATCH BASINS, STABILIZED CONSTRUCTION ENTRANCE(S), ETC. WILL BE REQUIRED. SEDIMENT CONTROL STRUCTURES/DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL RAINWATER AND LAND DEVELOPMENT - OHIO'S STANDARDS FOR STORM WATER MANAGEMENT, LAND DEVELOPMENT AND URBAN STREAM PROTECTION. SEDIMENT CONTROL DEVICES MUST BE INSTALLED PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUED INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUED INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES. THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS SET FORTH ON THE APPROVED STROMWATER POLLUTION PREVENTION PLAN IF APPLICABLE, OR AS DETAILED ON THE CONSTRUCTION PLANS, AS SPECIFIED BY THE CITY OF MASSILLON.

2. CONSTRUCTION LIMITS ARE THE ENTIRE SITE, 8.1491 AC. DISTURBED AREA IS 3.62 AC.

3. AT THE COMPLETION OF THE PROJECT, A DETENTION AS-BUILT SURVEY IS REQUIRED TO MEET THE REQUIREMENTS OF THE MASSILLON CITY ENGINEER.



STORM SEWER STRUCTURE SCHEDULE

1. EXISTING CB (PLUG & ABAND.) TG = 998.75' INV = 993.50, EX. 18"W, EX. 8"SE, SEE SHT. SD-1
2. EXISTING CB (MODIFY CB) TG = 997.00 INV = 992.54 EX 8"SW, EX 18"E, EX 24"SW, NEW 24" E, NEW 6"S REMOVE PORTION EX. 18"E, CONST. NEW 24"E & 6"S
3. EXISTING CB TG = 993.93 INV = 992.50, EX. 6"N
4. EXISTING CB TG = 993.93 INV = 992.44, (2) EX. 6"S, EX. 8"N
5. EXISTING CB TG = 993.93 INV = 992.37, EX. 8"S&W
6. EXISTING CB TG = 996.00 INV = 991.75, EX. 24"NE & W, EX. 8"E, EX. 10"SE
7. EXISTING OUTLET INV = 991.50, EX. 24"E EX. HH-D HEADWALL, EX. 7'LxTWx1.5'D, TYP. C RIP RAP (6" STONE). EX. 3@51.xAVE. 9.2'WxO.5'D, NO. 1 & 2 STONE PROTECTION, LINING BOT. OF RETENTION BAS.
8. EXISTING CB (MODIFY CB) TG = 995.75 INV = 993.50, EX. 18"W, EX. 8"NE, NEW 18"E REMOVE PORTION EX. 8"NE, CONST. 18"E
9A. EXISTING PIPE INLET INV = 994.50±, EX. 12"W EX. 7'LxTWx1.5'D, TYP. C RIP RAP (6" STONE).
9. EXISTING CB TG = 997.00 INV = 993.00, EX. 12"E, EX. 24"S
10. EXISTING CB TG = 996.00 INV = 992.26, EX. 18"E&NW, EX. 8"NE
11. EXISTING CB TG = 993.93 INV = 992.50, EX. 6"N, EX. 8"S
12. EXISTING CB TG = 993.93 INV = 992.44, EX. 8"N&S
13. EXISTING CB TG = 993.93 INV = 992.20, EX. 8"N, EX. 6"N&S, EX. 12"W
14. EXISTING CB TG = 996.00 INV = 991.74, EX. 12"E, EX. 18"SE, EX. 24"W
15. EX. PIPE OUTLET INV = 991.50 EX. HH-D HEADWALL, EX. 7'LxTWx1.5'D, TYP. C RIP RAP (6" STONE).
16. EX. PIPE INLET (MODIFY INV.) EX. INV = 991.33, EX. 6"W NEW INV 991.50, EX. 6"N EX. GRATE AT EAST END OF PIPE.
17. EX. CB (MODIFY ORIFICE) TG = 994.60 INV = 991.31, EX. 6"E, EX. 12"S EX. ENDCAP AT WEST END OF 6" PIPE WITH EX. 2.50"ø ORIFICE. REPLACE ENDCAP WITH NEW 1.75"ø ORIFICE, INV = 991.31'
18A. EXISTING 5'X2' CB TG = 995.50 INV = 991.05, EX. 12"N, (4) EX. 6"S
18B. EX. 5'X2' CB TG = 995.50 INV = 991.05, (4) EX. 6"N, EX. 12"S
19. EXISTING CB TG = 995.15 INV = 990.88, EX. 12" N&W
20. EXISTING CB, TG = 995.06 INV = 991.51, EX. 15"SW INV = 990.81, EX. 18"SE, EX.12"E INV = 990.96, EX. 12"NE
21. EX. STM MH TOP OF RIM = 998.01 INV = 992.31', EX. 24" N&S
22. EXISTING CB TG = FIELD VERIFY INV = 990.66±, EX. 24"N INV = TG - 4.85', EX. 15"E INV = TG - 5.05', EX. 18"NW INV = TG - 5.10', EX. 21"S
30. PROPOSED CB TG = 996.25 INV = 994.50, 8"S
31. PROPOSED CB TG = 996.25 INV = 994.06', 8"N, 10"S
32. PROPOSED CB TG = 997.25 INV = 993.84, 10"N, 12"W, 18"W
33. PROPOSED CB TG = 996.90 INV = 994.65, 12"E, 15"W
34. START OF TRENCH DRAIN TG = 993.98 INV = 993.65 SEE DETAIL, SHT. SD-5
35. END OF TRENCH DRAIN TG = 993.98 INV = 993.28, 6"N, CONSTRUCT 6" FROM TRENCH DRAIN TO RET. WALL NORTH FACE, THEN CONVERT TO 8" STM
36. PROPOSED CB TG = 996.42 INV = 993.00, 8"E, 15"E, 24"W
37. PROPOSED CB TG = 996.50 INV = 992.75, 24" E&W

STORM SEWER SCHEDULE

FROM	TO	LENGTH	SIZE	SLOPE
30	31	190.0'	8"	0.28%
31	32	95.0'	10"	0.28%
32	8	149.0'	18"	0.28%
33	36	127.0'	15"	1.30%
35	36	61.0'	8"	0.41%
36	37	126.0'	24"	0.21%
37	2	85.0'	24"	0.22%

CONTACT INFORMATION

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PHONE: 330-244-2907
E-MAIL: dmiller@premierindustrial.net

SITE OPERATOR/CONTRACTOR
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PLAN CERTIFICATION

I, THE UNDERSIGNED, 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 MANAGED 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.

TOPOGRAPHICAL LEGEND

TC = TOP OF CURB	EXISTING POINT ELEVATION
TP = TOP OF PAVEMENT	NEW POINT ELEVATION
GRD = GRADE	EXISTING CONTOUR LINE ——100——
TG = TOP OF GRATE	NEW CONTOUR LINE ——100——
INV = INVERT	

NORTH

STORMWATER POLLUTION PREVENTION PLAN

SWPPP PLAN

SCALE 1" = 40'-0"

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P.O. BOX 206
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PHONE (614) 587-0486 OR
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BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICES

LOT SIZE 8.7491 ACRES

BENCHMARK
EXISTING SAN. MH "D"
RIM ELEV = 996.14'

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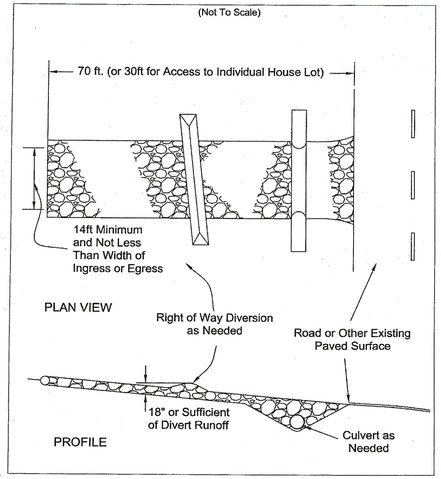
Specifications
for

Construction Entrance



Specifications
for

Construction Entrance

1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots).
3. Thickness -The stone layer shall be at least 6 inches thick for light duty entrances or at least 10 inches for heavy duty use.
4. Width -The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile -A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot-proof polymeric fibers and meet the following specifications:

Figure 7.4.1

Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	50 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	EOS < 0.6 mm.
Permittivity	1×10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert -A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. 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.
9. 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.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction-site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

Specifications
for

Permanent Seeding

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime—Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above-specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for 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 should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":

- From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
- From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
- Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
- Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials

- Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied 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 applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
- Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.

3. Straw and Mulch Anchoring Methods

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

- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
- Mulch Netting—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 manufacture or at the rate of 160 gallons per acre.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
- Wood Cellulose Fiber—Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

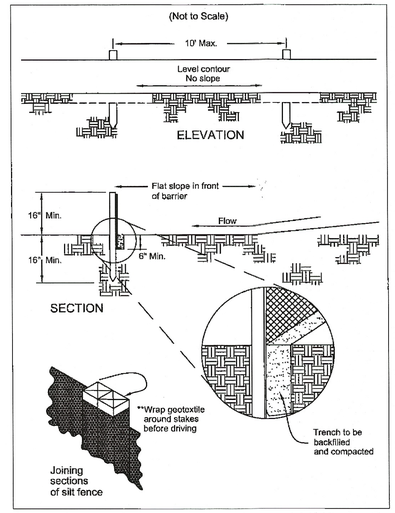
Table 7.10.2 Permanent Seeding

Seed Mix	Seeding Rate Lbs./acre	Seeding Rate Lbs./1,000 Sq. Feet	Notes:
General Use			
Creeping Red Fescue Domestic Ryegrass Kentucky Bluegrass	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	For close mowing & for waterways with <2.0 ft/sec velocity
Tall Fescue	40-50	1-1 1/4	
Turf-type (dwarf) Fescue	90	2 1/4	
Steep Banks or Cut Slopes			
Tall Fescue	40-50	1-1 1/4	
Crown Vetch Tall Fescue	10-20 20-30	1/4-1/2 1/2-3/4	Do not seed later than August
Flat Pea Tall Fescue	20-25 20-30	1/2-3/4 1/2-3/4	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40-50	1-1 1/4	
Turf-type (Dwarf) Fescue Kentucky Bluegrass	90 5	2 1/4 0.1	
Lawns			
Kentucky Bluegrass Perennial Ryegrass	100-120	2 2	
Kentucky Bluegrass Creeping Red Fescue	100-120	2 1-1/2	For shaded areas

Note: Other approved seed species may be substituted.

Specifications
for

Silt Fence



Specifications
for

Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence 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 that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (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 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground, (see details).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

Silt fences shall be inspected after each rainfall and at least daily during a prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for silt fence materials

1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM G 4355

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480 NOVA DRIVE SE
MASSILLON, OHIO 44646

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Specifications
for

Temporary Seeding

Table 7.8.1 Temporary Seeding Species Selection

Seeding Dates	Species	Lb./1000 ft2	Lb/Acre
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (4 Bushel) 40 40
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	55 142 17 17
	Oats Tall Fescue Annual Ryegrass	3 1 1	128 (3 bushel) 40 40
August 16th to November	Rye Tall Fescue Annual Ryegrass	3 1 1	112 (2 bushel) 40 40
	Wheat Tall Fescue Annual Ryegrass	3 1 1	120 (2 bushel) 40 40
	Perennial Rye Tall Fescue Annual Ryegrass	1 1 1	40 40 40
	Annual Ryegrass Perennial Ryegrass Creeping Red Fescue Kentucky Bluegrass	1.25 3.25 0.4 0.4	40 40 40
November 1 to Feb. 29	Use mulch only or dormant seeding		

Note: Other approved species may be substituted.

1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Specifications
for

Temporary Seeding

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.

2. Materials:

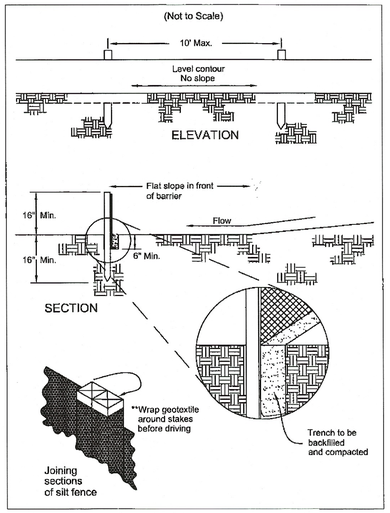
- Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./ 1,000 sq. ft. (2-3 bales)
- Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./ 1,000-sq.-ft.
- Other —Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.

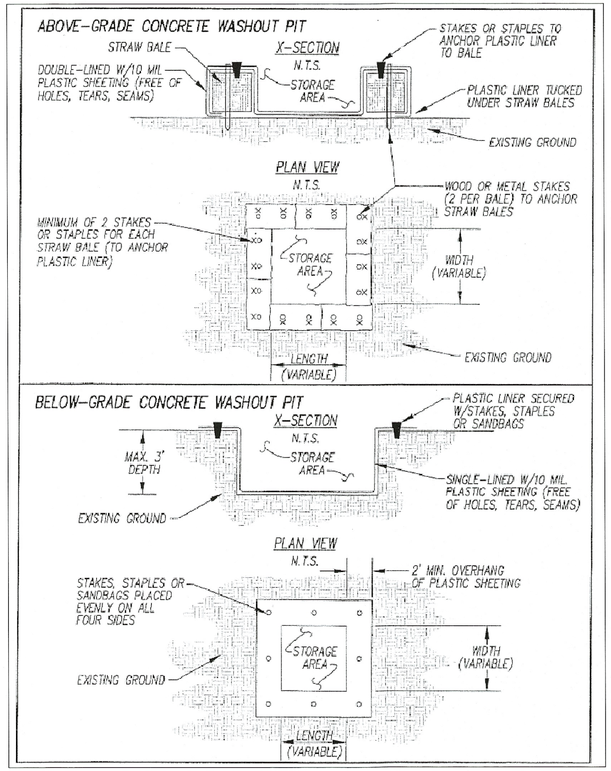
3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:

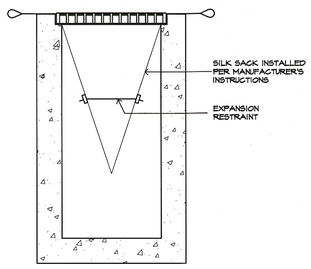
- Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
- Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
- Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Track or equivalent may be used at rates recommended by the manufacturer.
- Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a not dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal.

Specifications
for

Silt Fence







SILT SACK
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BUILDING ADDITION FOR
PREMIER BUILDING SOLUTIONS, INC.
480 NOVA DRIVE SE
MASSILLON, OHIO 44646

SEAL

STATE OF OHIO
WILLIAM D. SLIWINSKI
E-63683
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① DRAINAGE AREAS

NO.	A_{TOT} Ac	A_{GRASS} Ac	A_{PAVED} Ac	C_{GRASS} —	C_{PAVED} —	C_{AVE} —	D IN.	L FT.	TG FT.	INV FT.	COVER FT.	REMARKS
33	1.496	0.180	1.266	0.360	0.960	0.885	15"	127.0'	96.90	94.65	1.00'	
34	—	—	—			—	—	52.0'	93.98	93.65	0.16'	
35	0.121	0	0.121			0.960	6"&8"	61.0'	93.98	93.25	0.23'	USE 6.0" PIPE THRU RET WALL
36	0.179	0.113	0.066			0.581	24"	126.0'	96.42	93.00	1.40'	
37	0.782	0.314	0.468			0.719	24"	85.0'	96.50	92.73	1.77'	
2	0.772	0.259	0.513			0.759	EX. 24"	163.0'	97.00	92.54	2.46'	
6	1.686	0.301	1.385			0.854	EX. 24"	53.0'	96.00	91.75	2.25	
7	—	—	—			—	EX. 24"	—	94.50	91.56'	1.0'	
30	0.195	0.172	0.023			0.931	8"	190.0'	96.25'	94.50	1.00'	
31	0.212	0.191	0.021			0.919	10"	95.0'	96.25'	94.06	1.36'	
32	0.832	0	0.832			0.960	18"	149.0'	97.25'	93.84	1.50'	
8	0.685	0	0.685			0.960	EX 18"	310.0'	95.75'	93.50	0.75'	
10	0.367	0.018	0.349			0.931	EX. 18"	102.0'	96.00'	92.26'	2.24'	
14	0.932	0.131	0.801			0.876	EX 24"	53.0'	96.00'	91.74'	2.26'	
15	—	—	—			—	EX24"	—	94.50	91.50'	1.0'	
16	0.581	0.581	0			0.360	EX. 6"	7.0'	92.50'	91.50'	0.50'	
17	—	—	—			—	EX. 12"	123.0'	93.75	91.31'	1.44'	
18A	0.129	0.129	0			0.360	EX 12"	8.0'	95.50	91.06'	3.42'	DOES NOT FLOW THRU RET. BASIN
18B	0	0	0			0	EX. 12"	71.0'	95.50	91.03'	3.47'	
19	0.080	0.080	0			0.360	EX 12"	320'	95.15	90.88'	3.27'	DOES NOT FLOW THRU RET. BASIN
20	—	—	—			—	EX. 12"	—	—	90.81'	2.75'	

Σ=9.004 Σ=2.469 Σ=6.540 AVE = 0.796 Σ= 1805'

RETENTION BASIN AREAS:
A_{TOT} = 9.009 − 0.129 (CB18A) − 0.080 (CB19) = 8.800
A_{GRASS} = 2.469 − 0.129 − 0.080 = 2.260
A_{PAVED} = 6.540 − 0 − 0 = 6.540

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② DETENTION VOLUME, WQv, WQv ELEV., PRE & POST T_c

2.1) RETENTION BASIN VOLUME

ELEV (FT)	AREA (SF)	INCREM VOL. (CF)	CUM. VOL. (CF)
89.50	314	0	0
90.50	1912	1113	1113
91.50	3569	2741	3854
92.00	4789	2090	5943
93.00	7239	6014	11,957
94.00	9748	8494	20,451
95.00	12,375	11,062	31,512
96.00	15,089	13,730	45,242
97.00	17,856	16,470	61,712

2.2) WQv

SITE AREA = 8.7491 AC
RET. BASIN DRAIN. AREA = 8.800 Ac
DISTURBED AREA = 3.62 AC

$WQ_v = [0.8(0.75"/12)(8.800 \times 43,560^{SF}/_{AC})]$
$= 19,166$ CF

0.20 WQv = 3833 CF, ∴ SET PERMAN. WATER ELEV. = 91.50', PROV. VOL = 3854 CF

2.3) DETERM. WQv ELEV.; 1.20 WQv = 23,622 CF

ELEV	CUM. VOL.
94.00	20,451
WQv EL.=?	23,622 CF
95.00	31,512

$1.00\left[\times\left[\frac{(3171)}{1106}\right]\right] 11,061$

WQv ELEV. = 94.00' + (3171/1106)1.0
= 94.29'
USE 94.60' (PROV. VOL. = 27,088 CF)

2.4) LAG METHOD FOR T_c

POST: ΔH_2 = 1006 − 991.5 = 14.5', L_2 = 702', L_2 = 0.020661/1
Post T_c = 10.7 MIN.

PRE: ΔH_1 = 1006 − 991.5 = 14.5', L_1 = 723', S_1 = 0.020061/1
PRE T_c = 20.7 MIN.

③ DETENTION SUMMARY

f YRS	P IN.	PRE Q_{IN} CFS	POST Q_{IN} CFS	DETENT. Q_{OUT} CFS	PEAK ELEV FT	STORAGE CF	REMARKS (—)
1	2.15	3.26	17.87	0.61	94.87	29,869	FOR ALL POST $Q_i \le$ PRE Q_i; WHERE i = 1,2,5,10,25,50,100
2	2.35	4.29	20.15	1.01	95.00	31,592	
5	3.05	8.45	28.15	3.60	95.61	39,611	
10	3.45	11.09	32.72	5.06	96.00	45,275	
25	3.90	14.25	37.85	9.43	96.35	50,635	
50	4.45	18.31	44.10	16.48	96.68	56,172	
100	4.65	19.83	46.36	19.20	96.79'	58,028	

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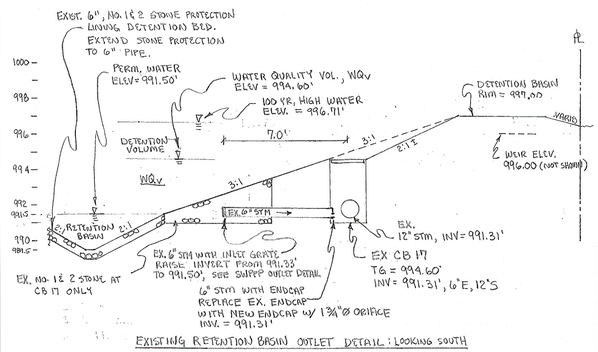
④ ORIFICE SIZE $Q_o = C_o \cdot A_o \cdot \sqrt{2gh_{ave}}$

$h_{AVE} = (94.60' - 91.50')/2 = 1.55'$ $Q_o = \frac{19,166^{CF}}{[48HR \times 3600^{S}/_{HR}]} = 0.1109$ CFS

$Q_o = C_o \cdot A_o \sqrt{2gh}$ → $A_o = \frac{Q_o}{C_o\sqrt{2gh}} = \frac{0.1109}{0.60\sqrt{2(32.2')(1.55')}} = 0.1850$ SF

$.785\,D_o^2 = A_o$ ∴ $D_o = \sqrt{\frac{A_o}{.785}} = \sqrt{\frac{0.1850}{.785}} = 0.153' = 1.84"$ SAY 1.75" Ø

⑤ EXISTING OUTLET STRUCTURE, CB 17



EXISTING RETENTION BASIN OUTLET DETAIL: LOOKING SOUTH
1" = 4'

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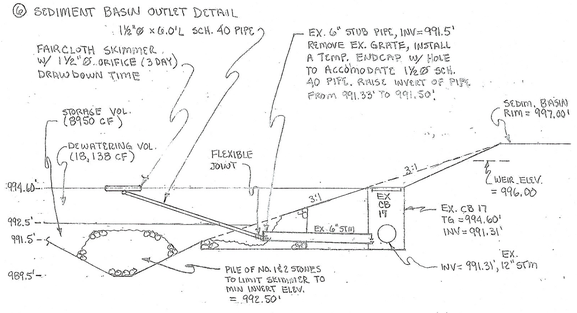
⑥ SEDIMENT BASIN OUTLET DETAIL



SWPPP SEDIMENT BASIN OUTLET DETAIL
1" = 4'

⑦ SEDIMENT BASIN CALCULATIONS

DISTURBED AREA = 8.749 Ac
DRAINAGE AREA = 8.800 Ac

REQ'D SEDIMENT BASIN VOL.:
3800 CF/AC × 8.800 = 24,640 CF

REQ'D SEDIMENT VOLUME:
1000 CF/AC × 8.800 Ac = 8800
USE ELEV = 92.50', VOL = 8950 CF

REQ'D DEWATERING VOLUME
1800 CF/AC × 8.800 Ac = 15,840
USE ELEV. = 94.60'
VOL = 27,088 − 8950 = 18,138 CF

ELEV	CUM. VOL.
89.50	0
90.50	1113
91.50	3854
92.00	5943
93.00	11,957
94.00	20,451
94.60	27,088

SWPPP NOTES:

1. Nature and type of Construction Activity. The project consist of the construction of a new 39,200 sf factory addition.

2. Total Site Area = 8.7491 AC. Total Disturbed Area = 3.62 AC. Detention Drainage Area = 8.800 AC.

3. Stormwater runoff coefficients: C & CN
   C_grass = 0.36 CN_grass = 79 Pre CN = 79
   C_paved = 0.96 CN_paved = 98 Post CN = 90
   C_ave = 0.796

4. Impervious Area = 6.540 AC, Total Site = 8.7491 AC, % Impervious = 74.7%

5. Existing Soil. Existing soil is:
   CpB (Chili silt loam, 2 to 6% slopes)
   WrB (Wheeling Silt Loam, 2 to 6%)
   WrC (Wheeling Silt Loam, 6 to 12%)

6. Prior Land Use. Undeveloped Industrial site.

7. Immediate Receiving Stream. Unnamed tributary to Tuscarawus River.

8. Limits of Construction. The limits of construction are indicated on SD-6 and also indicated by the intersection of existing and proposed contours.

9. See site plans for locations of erosion and sediment control practices. Erosion and sediment control practices consist of silt fence; sediment basin, construction entrance, permanent and temporary seeding, and silt sacks.

10. Permanent Detention Basin Drainage Area and Volume.
    A_total = 8.800 AC, A_grass = 2.260 AC, A_paved = 6.540 AC, Ave C = 0.796
    Required Detention Storage = 58028 CF, Provided Detention Storage = 61,712 CF,
    % Capacity = 58028/61,712 = 94.0 %.

11. Post Stormwater Quality Volume (WQv), Extended Detention Basin.
    WQv = 19166 CF, .20*WQv = 3833 CF, WQv Orifice = 1.75" diameter.

12. NOI Permit No. = To be determined, the permit was filed 4-22-15.

13. Sediment ponds and perimeter sediment controls shall be implemented as the first step of grading and within seven days from the start of grubbing and shall continue to function until upland areas are restabilized.

14. Disturbed areas which will remain unworked for a period of 14 days or greater shall be stabilized with seeding and mulching or other appropriate means within 7 days.
15. Contact Information.
    15.1 Owner: Derek Miller, Premier Building Solutions, Inc., 480 Nova Drive SE, Massillon OH 44646; Phone = 330-244-2907; email = dmiller@premierindustrial.net
    15.2 Site Operator/Contractor: Mark Streb, Campbell Construction, 1159 Blachleyville Rd., Wooster OH 44691; Phone = 330-262-5186; email = mark@campbell-construction.com
    15.3 Author SWP3: Bill Sliwinski PE, Campbell Construction, 1159 Blachleyville Rd., Wooster OH 44691; Phone = 330-262-5186; email = bill@campbell-construction.com
16. Estimate Start & Completion Date: Start = 5-15-15, Completion = 12-31-15.
17. Post-Construction BMP Rational. The existing retention basin is a pre-approved Extended Detention Basin.

Construction & Erosion Control Sequence.

No.	Days	Events
1.	0	Massillon Engineering Approval
2.	4	Construct Construction Entrance; Construct perimeter silt fence; Install silt sacks on existing CB's, as indicated on SW3P plan.
4.	3	Convert existing Retention Basin to a Sediment Basin. Install Faircloth skimmer system at Ex. CB 17. See Sediment Basin Outlet Detail.
3.	4	Strip topsoil and stockpile on site at locations indicated on drawings.
6.	2	Temporary seed topsoil stockpiles.
7.	21	Rough grade; Construct building pad;
8.	167	Construct the building.
9.	12	Construct proposed storm sewer system. Construct CB30 to 32 and connect to Ex. CB8. Construct CB33 to 37 and connect to Ex. CB 2. Construct horizontal leaders along building. Install silt sacks.
11.	14	Construct new pavement.
12.	10	Fine grade, landscape and seed. Permanently stabilize site with permanent grass seed. After site is 70% stabilized, remove temporary erosion control measures.
13.	3	Convert Sediment Basin to Permanent Detention Basin. Remove skimmer and install existing grate and new orifice.

Soil Stabilization. Stabilization of disturbed areas shall, at a minimum, be initiated in accordance with the time frames specified in the following tables.

Table 1: Permanent Stabilization

Area requiring permanent stabilization	Time frame to apply erosion controls
Any areas that will lie dormant for one year or more	Within seven days of the most recent disturbance
Any areas within 50 feet of a surface water of the state and at final grade	Within two days of reaching final grade
Any other areas at final grade	Within seven days of reaching final grade within that area

Table 2: Temporary Stabilization

Area requiring temporary stabilization	Time frame to apply erosion controls
Any disturbed areas within 50 feet of a surface water of the state and not at final grade	Within two days of the most recent disturbance if the area will remain idle for more than 14 days
For all construction activities, any disturbed areas that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state	Within seven days of the most recent disturbance within the area For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot(s).
Disturbed areas that will be idle over winter	Prior to the onset of winter weather

Where vegetative stabilization techniques may cause structural instability or are otherwise unobtainable, alternative stabilization techniques must be employed. Permanent and temporary stabilization are defined in Part VII.

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BUILDING ADDITION FOR
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NPDES REQUIREMENTS (N.R.)

The requirements of the Ohio EPA General Stormwater NPDES Permit for Construction Activities are summarized below. However, be aware that the Director of Ohio EPA has the authority to deny coverage under the general permit and require coverage under an individual permit for sensitive development sites or for chronically non-compliant developers. Under an individual permit, site-specific requirements may be more stringent than those found in the general permit and may include runoff monitoring criteria and pollutant discharge limits. Some watershed areas, such as the Big Darby Creek, may have different NPDES general permits with greater requirements, such as additional pollution or hydrologic controls or stormwater pollution prevention plan requirements. In any case, you are encouraged to consult the Ohio EPA, Division of Surface Water for the latest NPDES general permits information, copies can be downloaded from their website at *www.epa.state.oh.us/dsw/permits/gpfact.html.*

1.	**Administrative Requirements**
1.1	File the NOI with Ohio EPA at least 21 days prior to the start of any construction activities.
1.2	If project is within an urbanized area (UA) or area where there is local approval of sediment and erosion control plans, a copy of the NOI must also be submitted to the local approving agency.
1.3	No construction activities may begin until you receive a Director's Authorization letter granting coverage under the NPDES permit.
1.4	A copy of the NOI, Director's Authorization letter and stormwater pollution prevention plan (SWP3) must be kept on site during working hours.
1.5	SWP3 must be developed prior to the initiation of construction activities.
1.6	A copy of the SWP3 must be made available to Ohio EPA, MS4 operator or local agency responsible for reviewing and approving such plans within 10 days of written request.
1.7	Amend the SWP3 whenever there is a change in site design, construction, operation or maintenance that requires the installation of best management practices (BMPs) or modifications to existing BMPs.
1.8	While the SWP3 is not typically submitted to Ohio EPA at the time the NOI is filed, Ohio EPA may review the SWP3 at any time. If Ohio EPA requests changes to the SWP3 in writing, they must be made within 7 days of the request.
1.9	Maintain a written document acknowledging understanding of the SWP3 and responsibilities under the plan signed by all contractors and subcontractors involved in the implementation of the SWP3.

2.	**Requirements Regarding Erosion Controls**
2.1	BMPs, which preserve the existing natural site condition as much as feasible are required to be utilized in the SWP3, such as phased construction to minimize land disturbed at any one time, preserving riparian areas and leaving existing vegetation in place for as long as possible.
2.1	Stabilization of disturbed areas must be initiated within 7 days of reaching final grade.
2.3	Areas within 50 feet of a stream (including intermittent streams) must be stabilized within 2 days of the most recent disturbance.
2.4	Temporary stabilization of disturbed areas that will be reworked, but not for 21 days or more from the date they were last disturbed, must be initiated within 7 days of last disturbance.
2.5	Disturbed areas intended to be left idle over winter must be stabilized prior to the onset of winter weather, i.e., sustained snow cover or frozen ground conditions.
2.6	Special measures must be taken as necessary to stabilize drainage channels and stormwater outfalls.
2.7	Runoff must be diverted away from disturbed areas and steep slopes wherever practicable.

3.	**Requirements Regarding Sediment Controls**
3.1	Plan sediment controls for any area that will remain disturbed for 14 days or longer.
3.2	Sediment controls must pond runoff in order to be considered functional.
3.3	Sediment ponds (including temporarily modified permanent ponds) and perimeter sediment barriers must be installed as the first step of grading and within 7 days from the start of grubbing and remain functional until all upslope development areas are restabilized.
3.4	Sediment ponds must be utilized to control concentrated flows of runoff.
3.5	Sediment ponds must be implemented for all common drainage areas with 10 or more acres disturbed at one time and whenever the capacity of sediment barriers is exceeded.
3.6	Sediment ponds must provide a minimum storage volume of 67 cubic yards per acre of total contributing drainage area.
3.7	The length-to-width ratio between the inlet(s) and outlet(s) of sediment ponds must be 2:1 or longer. Baffles must be implemented to provide this ratio if the pond cannot be configured to do so.
3.8	Sediment ponds cannot be deeper than 5 feet.
3.9	No structural sediment controls may be located in a stream. As such, permanent storm water basins located "in-line" with a stream may not be utilized as a sediment pond. Sediment barriers may not be placed across stream channels.
3.10	Sediment barriers, such as silt fence or diversions, must be implemented to prevent silt from entering water resources that run through the property.
3.11	Sediment barriers must be implemented to protect adjacent properties.
3.12	Silt fence is only allowed to be used to control sheet flow runoff from limited drainage areas. The permissible drainage area per 100 linear feet of silt fence is dependent on the slope but is no more than 0.5 acre. Silt fence can not be used to control drainage areas with a slope of greater than 50%.
3.13	No more than 10 acres may drain to a diversion.
3.14	Inlet protection must be implemented to prevent sediment from entering the storm drain system, unless that system discharges to a sediment pond.

4.	**Requirements for Controls of Other Wastes**
4.1	No solid or liquid waste, including building materials or their packaging, shall be discharged in stormwater runoff.
4.2	Concrete trucks are not permitted to wash out directly into storm sewers, streams or drainage channels.
4.3	Off-site tracking of sediments by construction vehicles must be minimized.
4.4	Waste disposal via open burning is prohibited where not permitted under the State of Ohio opening burning laws.
4.5	Contaminated soils or soils where construction site chemicals have been spilled must be removed from the site and disposed of in accordance with federal, state and local regulations.
4.6	Stormwater that comes in contact with contaminated soils, or solid & industrial waste must be collected and disposed of as a wastewater.
4.7	Fuel tanks and drums or other containers holding construction site chemicals must be stored within a diked area.
4.8	Sediment-laden trench or groundwater must pass through a sediment-settling pond, or be dewatered in place using a sump pit, filter bag or other comparable method, prior to being discharged from the site.
4.9	Trench and ground water free from sediment or other pollutants may be discharged without treatment, provided this water does not become pollutant-laden by traversing over disturbed soils or other pollutant sources.

5.	**Requirements for Post-Construction Stormwater Management**
5.1	Describe post-construction BMPs and the technical basis for their selection. The rationale must address impacts on stream channel and floodplain morphology, hydrology and water quality. A mix of structural and non-structural BMPs should be chosen whenever possible.
5.2	The SWP3 must contain detail drawings for all structural post-construction BMPs.
5.3	An operating and maintenance plan for all structural post-construction BMPs must be developed by the permittee and presented to the post-construction site operator prior to termination of NPDES permit coverage. Maintenance plans must include measures for disposing of the pollutants that collect within the BMPs.
5.4	Structural post-construction BMPs are required for all projects that disturb 5 or more acres in the larger common plan of development or sale. Structural post-construction BMPs must be designed to capture and treat the Water Quality Volume (WVQ) plus an additional 20% of the WVQ.
5.5	Redevelopment projects are required to either reduce the existing, pre-construction impervious area of the site by 20% or capture and treat 20% of WVQ.
5.6	Linear projects, which do not creation new impervious surfaces, are exempt from post-construction storm- water management requirements, although they minimize the number and width of stream crossings.

The NPDES permit also places requirements on the maintenance of BMPs and requires an on-going evaluation of the site to assure compliance with the NPDES permit.

6.	**Maintenance Requirements**
6.1	All BMPs must be maintained in a functional condition until all upslope areas they control are permanently restabilized.
6.2	Qualified personnel (provided by the developer) must inspect all BMPs at least once every 7 days and within 24 hours of a 0.5" or greater rainfall within any 24-hour period and determine if the SWP3 has been properly implemented.
6.3	Written reports summarizing inspection results must be made available upon request. Reports must include: date of inspection, name and qualifications of the inspector, weather conditions, locations where in-stream or off-site sedimentation was observed, locations of BMPs needing maintenance, locations of BMPs failing to operate correctly or provide adequate protection, or location of areas in need of additional BMPs not in place at the time of inspection.
6.4	The reports must identify incidences of non-compliance with the NPDES permit. Where a report does not identify incidences of non-compliance, the report must contain a certification that the site is in compliance at the time of inspection.
6.5	Maintenance or repair of BMPs must be completed within 3 days of the date of the inspection that revealed they were deficient. For sediment ponds, repair or maintenance is required within 10 days of the date of the inspection.
6.6	When inspections reveal that a BMP is not effective and that another, more appropriate BMP is required, the SWP3 must be amended and the more appropriate BMP must be installed within 10 days of the inspection that revealed the deficiency.
6.7	When the inspection reveals that a BMP depicted on the SWP3 has not been installed, but is required to provide adequate control at the site, it must be installed prior to the next storm event, which produces runoff, but in no case later than 10 days from the date of inspection, which revealed the deficiency.
6.8	The reports must be maintained for three (3) years following the submittal of a Notice of Termination.

7.	**Permit Closure Requirements**
7.1	Once a site reaches final stabilization and construction activities have ceased, NPDES permit coverage is terminated by filing a notice of termination (NOT). The NOT must be filed within 45 days of reaching final stabilization.
7.2	Final stabilization is defined as establishing a vegetative ground cover of at least 70% growth density, or other means of permanent stabilization, over the entire area disturbed by construction activities.
7.3	Final stabilization also requires that all temporary sediment and erosion controls be removed from the property and all sediment that was trapped by those controls to be permanently stabilized to prevent further erosion.

Stormwater Pollution Prevention Plans (SWP3s)

The selection of Best Management Practices (BMPs) within the SWP3 must follow the recommendations in this manual or other accepted BMP standards manual acceptable to Ohio EPA. Typically, a SWP3 is a combination of a narrative, drawings, plan notes and inspection reports. A SWP3 must provide BMPs for (1) sediment and erosion control, (2) controls for pollutants other than sediments, and (3) post-construction stormwater management. The SWP3 is not complete until all three areas have been addressed. The SWP3 must contain the following information:

8.	**Narrative Information**
8.1	Description of the nature and type of construction activity, which will occur.
8.2	Total site area (acres) and site area expected to undergo construction activities (acres).
8.3	Runoff coefficients for the pre-construction and post-construction condition of the site.
8.4	The impervious area (acres) created as a result of development, including impervious areas created by others within the development.
8.5	The percent imperviousness created as a result of development.
8.6	Describe prior land uses including special considerations to be addressed as a result of those prior land uses. Include any existing data describing soils or quality of stormwater discharges.
8.7	Implementation schedule, which coordinates major construction operations with the implementation of erosion, sediment and stormwater management controls or operations.
8.8	Name and location of immediate receiving stream(s) or surface water(s) and the subsequent named receiving water(s).
8.9	Describe post-construction stormwater practices.
8.10	Inspection reports as required the NPDES permit (see subsection titled Maintenance Requirements above).

Specifications
for

Additional Construction Site Pollution Controls (ACSPC)

ACSPC 1. Construction personnel, including subcontractors who may use or handle hazardous or toxic materials, shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:

- Prevent spills
- Use products up
- Follow label directions for disposal
- Remove lids from empty bottles and cans when disposing in trash
- Recycle wastes whenever possible
- Don't pour into waterways, storm drains or onto the ground
- Don't pour down the sink, floor drain or septic tanks
- Don't bury chemicals or containers
- Don't burn chemicals or containers
- Don't mix chemicals together

2. **Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site.** Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.

3. **No construction related waste materials are to be buried on-site.** By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.

4. **Handling Construction Chemicals.** Mixing, pumping, transferring or other handling of construction chemicals such as fertilizer, lime, asphalt, concrete drying compounds, and all other potentially hazardous materials shall be performed in an area away from any watercourse, ditch or storm drain.

5. **Equipment Fueling and Maintenance,** oil changing, etc., shall be performed away from watercourses, ditches or storm drains, in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.

6. **Concrete Wash Water** shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged. For small projects, truck chutes may be rinsed away from any water conveyances.

7. **Spill Reporting Requirements:** Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.

8. **Contaminated Soils.** If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water run off associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.

9. **Open Burning.** No materials containing rubber, grease, asphalt, or petroleum products, such as tires, autoparts, plastics or plastic coated wire may be burned (OAC 3745-19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of 1000 to 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a 1000 feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbeques. Outside of restricted areas, open burning is permissible for landscape or land-clearing wastes (plant material, with prior written permission from Ohio EPA), and agricultural wastes, excluding buildings.

10. **Dust Control or dust suppressants** shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.

11. **Other Air Permitting Requirements:** Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.

12. **Process Waste Water/Leachate Management.** Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on-site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.

13. **A Permit To Install (PTI)** is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

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BUILDING ADDITION FOR
PREMIER BUILDING SOLUTIONS, INC.
480 NOVA DRIVE SE
MASSILLON, OHIO 44646

SEAL

STATE OF OHIO
WILLIAM D. SLIWINSKI
E-63683
REGISTERED
PROFESSIONAL ENGINEER

REVISIONS

FILE ..\CON\PAM

DRAWN BY

DATE 04-28-15

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Kathy Catazaro-Perry, Mayor
Massillon City of Champions
CITY OF MASSILLON ENGINEERING
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SANITARY NOTES

SANITARY SEWER SPECIFICATIONS

SANITARY SEWER CONSTRUCTION PROPOSED FOR THIS PROJECT SHALL CONFORM TO THE LATEST CITY OF MASSILLON STANDARDS AND CONSTRUCTION AND MATERIALS SPECIFICATIONS, TEN STATE STANDARDS, AND THE LATEST EDITION OF THE ODOT CMS, OR MODIFIED BY THE CONTRACT DRAWINGS. IF A CONFLICT ARISES BETWEEN SAID STANDARDS IT SHALL BE AT THE DISCRETION OF THE CITY OF MASSILLON ENGINEER AS TO WHICH STANDARD SHALL GOVERN. THE PROJECT CONTRACT DRAWINGS SHALL GOVERN UNLESS NOTED OTHERWISE.

SANITARY GRAVITY SEWER PIPE AND FITTINGS SHALL BE PVC SDR 35 CONFORMING TO ASTM D-3034 UNLESS OTHERWISE NOTED. PVC COMPOUNDS SHALL CONFORM TO ASTM D-1784 PVC PIPE AND FITTINGS SHALL HAVE BELL AND SPIGOT TYPE JOINTS CONFORMING TO ASTM D-3212 AND GASKETS CONFORMING TO ASTM F-477

BACKFILL IN SEWER TRENCHES SHALL CONFORM TO ODOT ITEM 603.10 AND BE PLACED IN LAYERS SUFFICIENT TO MEET THE COMPACTION REQUIREMENT OF 100% OF MAXIMUM LABORATORY DRY DENSITY PER ASTM D-698 AND THOROUGHLY COMPACTED WITH MACHINE MOUNDED COMPACTION EQUIPMENT. THE PLACING OF BACKFILL MATERIAL SHALL BE CONTINUED UNTIL THE TRENCH IS ENTIRELY FILLED AND COMPACTED WITH THE APPROVED GRANULAR MATERIAL TO THE GRADE CALLED FOR ON THE CONTRACT DRAWINGS. EXCAVATED MATERIAL CONFORMING TO ODOT ITEM 203 SHALL BE USED FOR BACKFILLING EXISTING STRUCTURES (AFTER REMOVAL) ONLY. CRUSHED GRAVEL CONFORMING TO GRADATION REQUIREMENTS OF ODOT ITEM 304 OR APPROVED EQUAL AS SHOWN IN ODOT TABLE 703-1 SHALL BE USED FOR BACKFILLING ALL SEWER TRENCH AREAS SHOWN ON THE PLANS AND AS DIRECTED BY THE CITY OF MASSILLON ENGINEER. FLOODING, JETTING, OR PUDDLING OF BACKFILL MATERIAL WILL NOT BE PERMITTED UNLESS APPROVED BY THE CITY OF MASSILLON ENGINEER. COMPACTION TESTING OF THE BACKFILL BY A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR.

SANITARY SEWERS SHALL BE AIR TESTED FOR LEAKAGE AND MANDREL TESTED FOR DEFLECTION. THE MAXIMUM ALLOWABLE PIPE DEFLECTION SHALL BE 5%.

SANITARY SEWER MANHOLE FRAMES SHALL CONFORM TO EAST JORDON TYPE MASSILLON 1048 OR APPROVED EQUAL.
SANITARY SEWER MANHOLE LIDS SHALL CONFORM TO EAST JORDON TYPE MASSILLON 1040AGS OR APPROVED EQUAL.

PRIOR TO FINAL PAYMENT FOR AND ACCEPTANCE OF SANITARY SEWER INSTALLATION THE RESULTS OF THE AIR PRESSURE TESTS, TELEVISION TESTS AND MADREL TESTS SHALL BE FORWARDED TO THE CITY OF MASSILLON ENGINEER.

DEFLECTION TESTING

MAXIMUM ALLOWABLE PIPE DEFLECTION (REDUCTION IN VERTICAL INSIDE DIAMETER) SHALL BE 5%. DEFLECTION TESTS OF PIPE SHALL BE PERFORMED NOT SOONER THAN 30 DAYS AFTER THE BACKFILL HAS BEEN PROPERLY PLACED AND BEFORE FINAL ACCEPTANCE. LOCATIONS WITH EXCESS DEFLECTION SHALL BE EXCAVATED AND REPAIRED BY RE-BEDDING OR REPLACEMENT OF THE PIPE AT THE CONTRACTOR'S EXPENSE. DEVICES FOR TESTING INCLUDE A DEFLECTOMETER METER, OR PROPERLY SIZED (60, NO-GO) MANDREL OR SEWER BALL. THE DEFLECTION TESTING MUST BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES. FOR THE PURPOSE OF DEFLECTION MEASUREMENTS, THE BASE INSIDE PIPE DIAMETERS WITHOUT DEFLECTION ARE PROVIDED IN TABLE A. THE MAXIMUM ALLOWABLE DEFLECTION SHALL BE APPLIED TO THE BASE INSIDE DIAMETER IN DETERMINING THE MINIMUM PERMISSIBLE DIAMETER. IT MUST BE EMPHASIZED THAT TO INSURE ACCURATE TESTING, THE LINES MUST BE THOROUGHLY CLEANED.

TABLE A
INSIDE DIAMETERS FOR DEFLECTION MEASUREMENTS
OF ASTM D 3034 SDR 35 / SDR 21 PVC SEWER PIPE

SIZE	SDR	AVG. O.D.	BASE I.D.	DEFLECTION MANDREL
6"	35	6.275	5.742	5.54
8"	35	8.400	7.665	7.28
10"	35	10.500	9.563	9.08
12"	35	12.500	11.361	10.79

TELEVISION TESTING

ALL SANITARY SEWERS, 8-INCH DIAMETER AND LARGER, MUST PASS AN INTERNAL TELEVISION INSPECTION. THE CONTRACTOR SHALL PROVIDE A COMPLETE INTERNAL INSPECTION DVD TO THE CITY OF MASSILLON ENGINEERING DEPARTMENT. THE RECORDING PROCEDURE SHALL BE IN ACCORDANCE WITH CITY OF MASSILLON ENGINEERING DEPARTMENT STANDARDS.

LEAKAGE TESTS

LEAKAGE TESTS SHALL BE PERFORMED WHICH MAY INCLUDE APPROPRIATE WATER OR LOW PRESSURE AIR TESTING. THE TESTING METHODS SELECTED SHOULD TAKE INTO CONSIDERATION THE RANGE IN GROUNDWATER ELEVATIONS DURING THE TEST AND ANTICIPATED DURING THE DESIGN LIFE OF THE SEWER COMPLETED AND ACCEPTED.

WATER (HYDROSTATIC) TEST

THE LEAKAGE EXFILTRATION OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY [9L/(MM OF PIPE DIAMETER KM D)] FOR ANY SECTION OF THE SYSTEM. AN EXFILTRATION OR INFILTRATION TEST SHALL BE PERFORMED WITH A MINIMUM POSITIVE HEAD OF 2 FEET (0.6 M).

AIR TESTING AS PER ASTM F1417

AIR TESTING WILL BE CONDUCTED AS THE PROJECT IS BEING CONSTRUCTED. AT NO TIME WILL MORE THAN 900 FEET OF PIPE BE INSTALLED BEFORE AIR TESTING IS PERFORMED. SEWAGE WILL NOT BE DIVERTED TO ANY SECTION OF PIPE, REGARDLESS OF LENGTH, UNTIL ALL TESTING IS COMPLETED AND ACCEPTED.

AFTER BACKFILLING A MANHOLE TO MANHOLE REACH OF SANITARY SEWER LINE, THE CONTRACTOR SHALL, AT HIS EXPENSE, CONDUCT THE LINE ACCEPTANCE TESTS. THE TESTS SHALL BE PERFORMED ACCORDING TO THE STATED PROCEDURES AND UNDER THE SUPERVISION OF THE CITY OF MASSILLON ENGINEER OR HIS REPRESENTATIVE.

EQUIPMENT USED SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS AND BE APPROVED BY THE CITY OF MASSILLON ENGINEER:

1. PNEUMATIC PLUGS SHALL HAVE A SEALING LENGTH EQUAL TO OR A GREATER THAN THE DIAMETER OF THE PIPE BEING INSPECTED.
2. PNEUMATIC PLUGS SHALL RESIST INTERNAL TEST PRESSURES WITHOUT REQUIRED EXTERNAL BRACING OR BLOCKING.
3. ALL AIR USED SHALL PASS THROUGH A SINGLE CONTROL PANEL.
4. THREE INDIVIDUAL HOSES SHALL BE USED FOR THE FOLLOWING CONNECTIONS:
   a. FROM CONTROL PANEL TO PNEUMATIC PLUGS FOR INFLATION.
   b. FROM CONTROL PANEL TO SEALED LINE FOR INTRODUCING THE LOW PRESSURE AIR.
   c. FROM SEALED LINE TO CONTROL PANEL FOR CONTINUALLY MONITORING AIR PRESSURE RISE IN THE SEALED LINE.

TEST EQUIPMENT TESTING PROCEDURES SHALL BE AS FOLLOWS:

ALL PNEUMATIC PLUGS SHALL BE SEAL TESTED BEFORE BEING USED IN THE ACTUAL TEST INSTALLATION. ONE LENGTH OF PIPE SHALL BE LAID ON THE GROUND AN SEALED AT BOTH ENDS WITH THE PNEUMATIC PLUGS TO BE CHECKED. THE SEALED PIPE SHALL BE PRESSURED TO 5 PSIG, THE PLUGS MUST HOLD AGAINST THIS PRESSURE WITHOUT HAVING TO BE BRACED.
AFTER A MANHOLE TO MANHOLE REACH OF PIPE HAS BEEN BACKFILLED AND CLEANED, AND THE PNEUMATIC PLUGS ARE CHECKED BY THE ABOVE PROCEDURE, THE PLUGS SHALL BE PLACED IN THE LINE AT EACH MANHOLE. LOW PRESSURE AIR SHALL BE SLOWLY INTRODUCED INTO THIS SEALED LINE UNTIL THE INTERNAL AIR PRESSURE REACHES APPROXIMATELY 4 PSI.

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SANITARY NOTES

CONTINUED: AIR TESTING AS PER ASTM F1417

AT LEAST TWO MINUTES SHALL BE ALLOWED FOR THE AIR PRESSURE TO STABILIZE. WHEN THE PRESSURE HAS STABILIZED AND IS AT OR ABOVE 3.5 PSIG, THE AIR HOSE FROM THE CONTROL PANEL TO THE AIR SUPPLY SHALL BE DISCONNECTED. THE PORTION OF THE LINE BEING TESTED SHALL BE TERMED "ACCEPTABLE" IF THE TIME REQUIRED IN MINUTES FOR THE PRESSURE TO DECREASE FROM 3.5 TO 2.5 PSIG (GREATER THEN THE AVERAGE BACK PRESSURE OF ANY GROUNDWATER THAT MAY BE OVER THE PIPE) SHALL NOT BE LESS THAN THE TIME SHOWN FOR THE GIVEN DIAMETERS IN THE FOLLOWING TABLE:

PIPE DIAMETER IN.	MINIMUM TIME MINUTES	LENGTH FOR MINUTES TIME, FT.	TIME FOR LONGER LENGTH, S	SPECIFICATION TIME LENGTH (L) SHOWN, MINUTES							
				100 FT.	150 FT.	200 FT.	250 FT.	300 FT.	350 FT.	400 FT.	450 FT.
4	3:46	597	0.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:36	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	198	3.416 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	6.342 L	14:10	14:10	17:46	22:15	26:42	31:09	35:36	40:04
18	17:0	133	7.692 L	17:00	19:13	25:38	32:09	38:27	44:52	51:16	57:41

IN AREAS WHERE GROUND WATER IS KNOWN TO EXIST, THE CONTRACTOR SHALL INSTALL A 1/2 INCH DIAMETER CAPPED PIPE NIPPLE APPROXIMATELY 10 INCHES LONG, THROUGH THE MANHOLE WALL ON TOP OF ONE OF THE SANITARY SEWER LINES ENTERING THE MANHOLE. THIS SHALL BE DONE AT THE TIME THE SANITARY SEWER LINE IS INSTALLED. IMMEDIATELY PRIOR TO THE PERFORMANCE OF THE LINE ACCEPTABILITY TEST, THE GROUND WATER SHALL BE DETERMINED BY REMOVING THE PIPE CAP, BLOWING AIR THROUGH THE PIPE NIPPLE IN THE GROUND SO AS TO CLEAR IT, AND THEN CONNECTING A CLEAR PLASTIC TUBE TO THE NIPPLE. THE PLASTIC TUBE SHALL BE VERTICAL AND A MEASUREMENT OF THE HEIGHT, IN FEET OF WATER OVER THE INVERT OF THE PIPE, SHALL BE TAKEN AFTER THE WATER HAS STOPPED RISING IN THIS PLASTIC TUBE. THE HEIGHT, IN FEET OF WATER OVER THE INVERT OF THE PIPE, SHALL BE TAKEN AFTER THE WATER HAS STOPPED RISING IN THIS PLASTIC TUBE. AIR TEST PRESSURE IS TO BE INCREASED BY 0.433 PSI FOR EACH FOOT THE GROUND WATER IS ABOVE THE INVERT OF THE SEWER LINE BEING TESTED. THE ALLOWABLE DROP OF ONE POUND AND THE TIMING OF THE TEST REMAIN THE SAME.

IF A LINE ACCEPTABILITY TEST IS BEING CONDUCTED ON MORE THAN ONE MANHOLE REACH OF PIPE, THE ENTIRE SECTION BEING TESTED SHALL MEET THE LINE ACCEPTABILITY REQUIREMENTS AS IF ONLY ONE (1) OF THE MANHOLE REACHES IN THE SECTION WERE BEING TESTED.

NEGATIVE AIR PRESSURE (VACUUM) TESTING OF MANHOLES AS PER ASTM C-1244

PREPARATION OF THE MANHOLE:

A. ALL LIFT HOLES SHALL BE PLUGGED.
B. ALL PIPES ENTERING THE MANHOLE SHALL BE TEMPORARILY PLUGGED, TAKING CARE TO SECURELY BRACE THE PIPES AND PLUGS TO PREVENT THEM FROM BEING DRAWN INTO THE MANHOLE.

PROCEDURE:

A. THE TEST HEAD SHALL BE PLACED AT THE TOP OF THE MANHOLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
B. A VACUUM OF 10 IN. OF MERCURY SHALL BE DRAWN ON THE MANHOLE, THE VALVE ON THE VACUUM LINE OF THE TEST HEAD CLOSED, AND THE VACUUM PUMP SHUT OFF. THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 IN OF MERCURY.
C. THE MANHOLE SHALL PASS IF THE TIME FOR THE VACUUM READING TO DROP FROM 10 IN. OF MERCURY TO 9 IN. OF MERCURY MEETS OR EXCEEDS THE VALUES INDICATED IN TABLE BELOW.

MINIMUM TEST TIMES FOR MANHOLES

DEPTH (FT)	DIAMETER, IN.								
	30	33	36	42	48	54	60	66	72
	TIME, IN SECONDS								
8	11	12	14	17	20	23	26	29	33
10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	39	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81

CLEAN WATER STATEMENT

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

RELATION TO WATER MAINS

SEWERS SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.

WORKING AREA

NO EXCAVATION WITH SIDE SLOPES STEEPER THAN 2:1 AND/OR DEEPER THAN 2', OPEN CASTINGS AND PIPES SHALL BE LEFT EXPOSED WHEN THE SITE IS UNATTENDED BY THE CONTRACTOR. THE CONTRACTOR SHALL SECURE ALL SUCH EXCAVATIONS, OPEN CASTINGS AND PIPES AGAINST UNAUTHORIZED ENTRY COVERING WITH STEEL PLATES, TEMPORARY BACKFILLING, FENCING AND SECURITY SERVICES SHALL BE INCLUDED IN THE PRICE BID FOR THE WORK.

FINAL APPROVAL

A VIDEO IN THE FORM OF DVD WILL BE MADE BY THE CONTRACTOR AND SUBMITTED TO THE CITY OF MASSILLON ENGINEER PRIOR TO THE PROJECT COMMENCING. AFTER THE FINAL INVOICE IS SUBMITTED THE SITE SHALL BE VIDEOED AGAIN BY THE CONTRACTOR. ANY DISCREPANCIES WILL BE RESOLVED PRIOR TO FINAL PAYMENT. AS BUILT DRAWINGS SHALL BE CREATED BY THE CONTRACTOR AND SUBMITTED TO THE CITY OF MASSILLON ENGINEER IN A CLEAR AND LEGENDABLE MANNER PRIOR TO FINAL INVOICE.
COST OF THIS WORK SHALL BE INCLUDED IN ITEM 623 CONSTRUCTION STAKING

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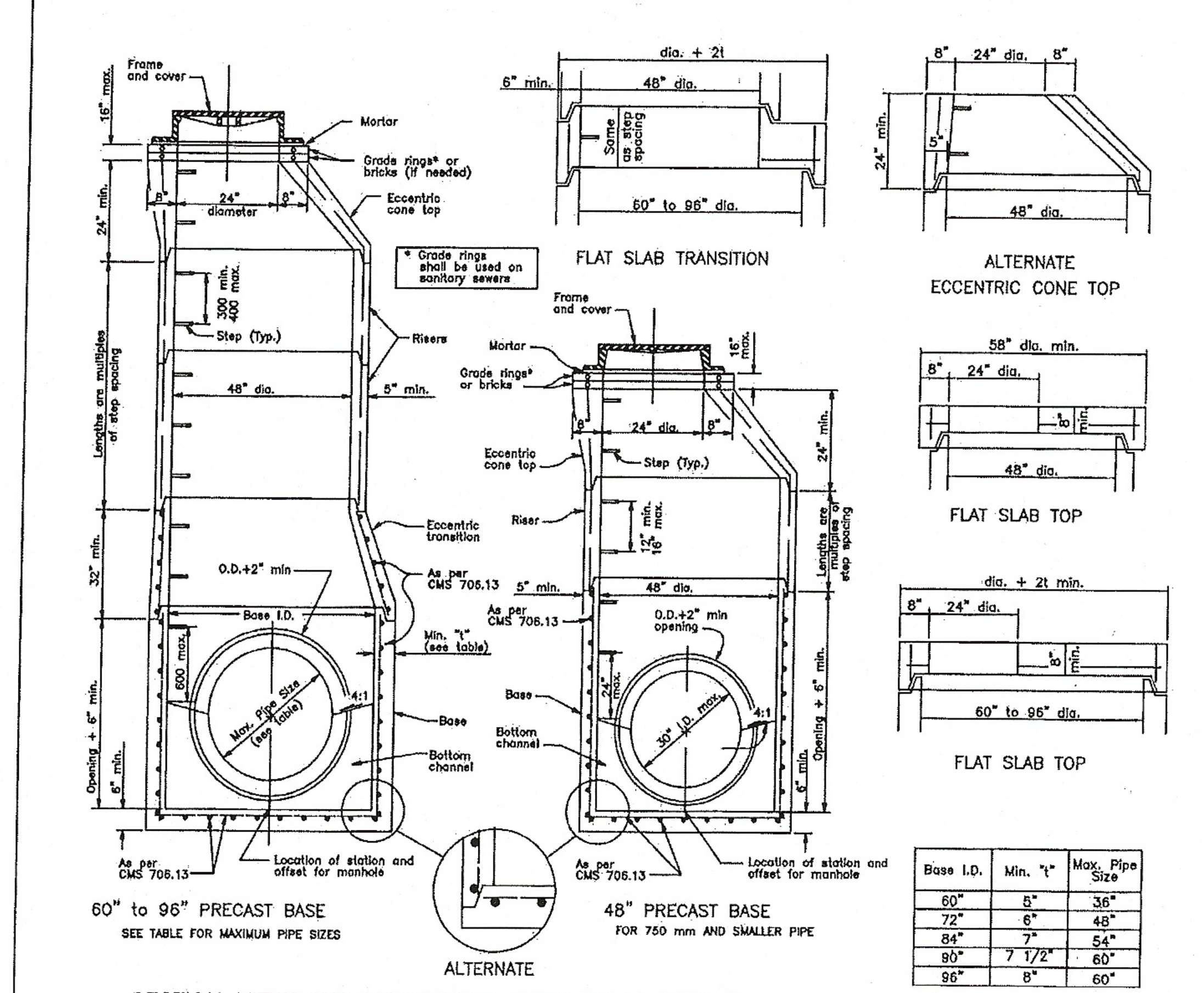
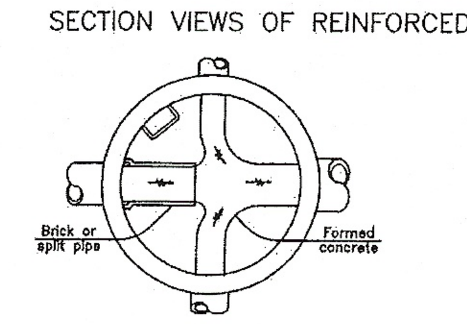
MANHOLE TYPE 3



Base I.D.	Min. "t"	Max. Pipe Size
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	60"



SECTION BELOW SPRING LINE
Showing method of turning side drain which enter the manhole at the flowline

NOTES

GENERAL: With normal soil and site conditions this standard precast manhole may be used for any required manhole depth.
Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION (OR REDUCER): This section shall be a flat slab unless an eccentric cone is specified.

BASE: Manhole No. 3 is shown with a monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when

Bottom channels may be formed of concrete, precast in the base or field constructed as shown

RISER SECTIONS: Openings for 18" and smaller inlet pipes may be either prefabricated, or cut in the field provided the sides of the pipe at the springline do not project into the manhole.

CONNECTIONS: Connections between precast manhole sections and pipes on sanitary sewers may be sealed with resilient connectors conforming to ASTM C 923.

JOINT SEAL: Seal between precast manhole sections on sanitary sewers shall be resilient and flexible gasket joints per CMS 706.11.

MATERIALS: Materials for bases and other precast sections, including reinforcement not specified hereon, shall comply with the requirements of CMS 706.13.

DROP PIPE: When specified on the plans, drop pipe shall be constructed as shown on MH-3.1M.

STEPS, FRAMES AND COVERS: Shall comply with the requirements set forth on MH-1.1M.

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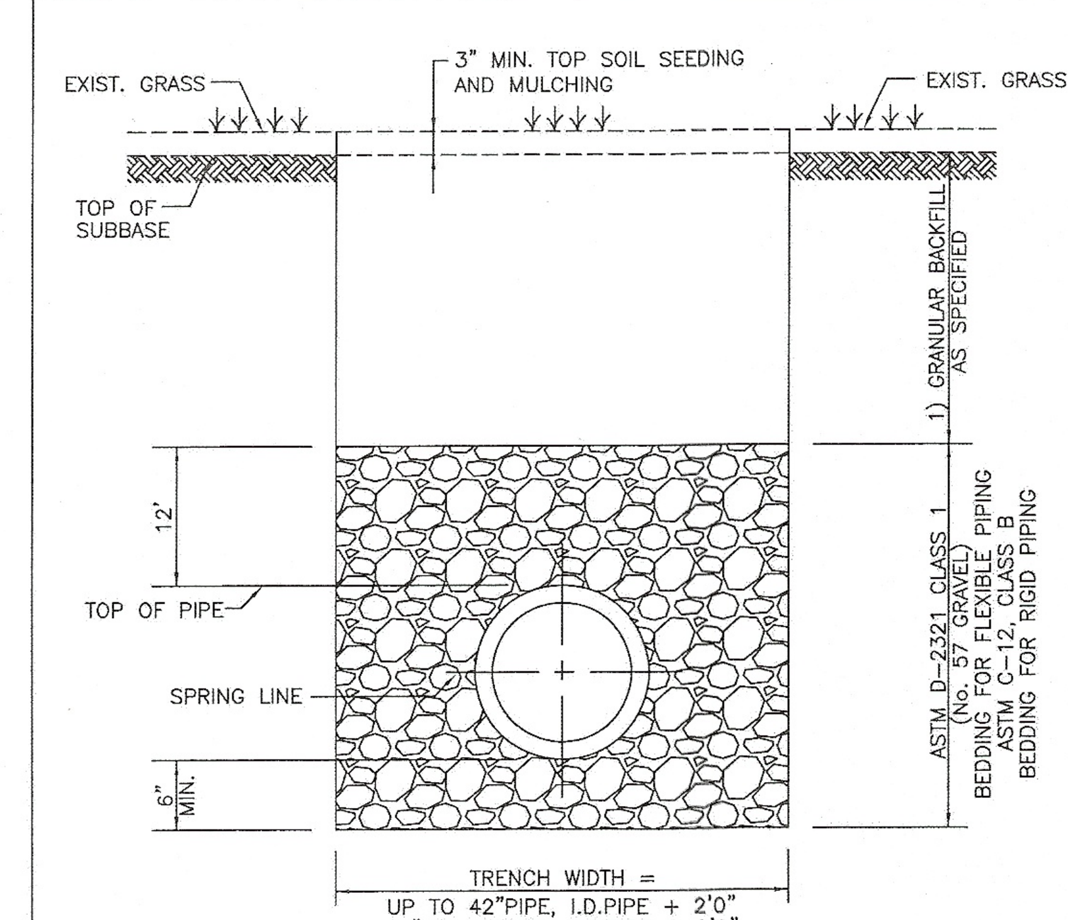
TRENCH DETAIL OUTSIDE ROADWAY



NOTES
1) EXCAVATED MATERIAL MAY BE USED IF FOUND TO BE IN ACCEPTABLE CONDITION AS DETERMINED BY THE CITY ENGINEER.

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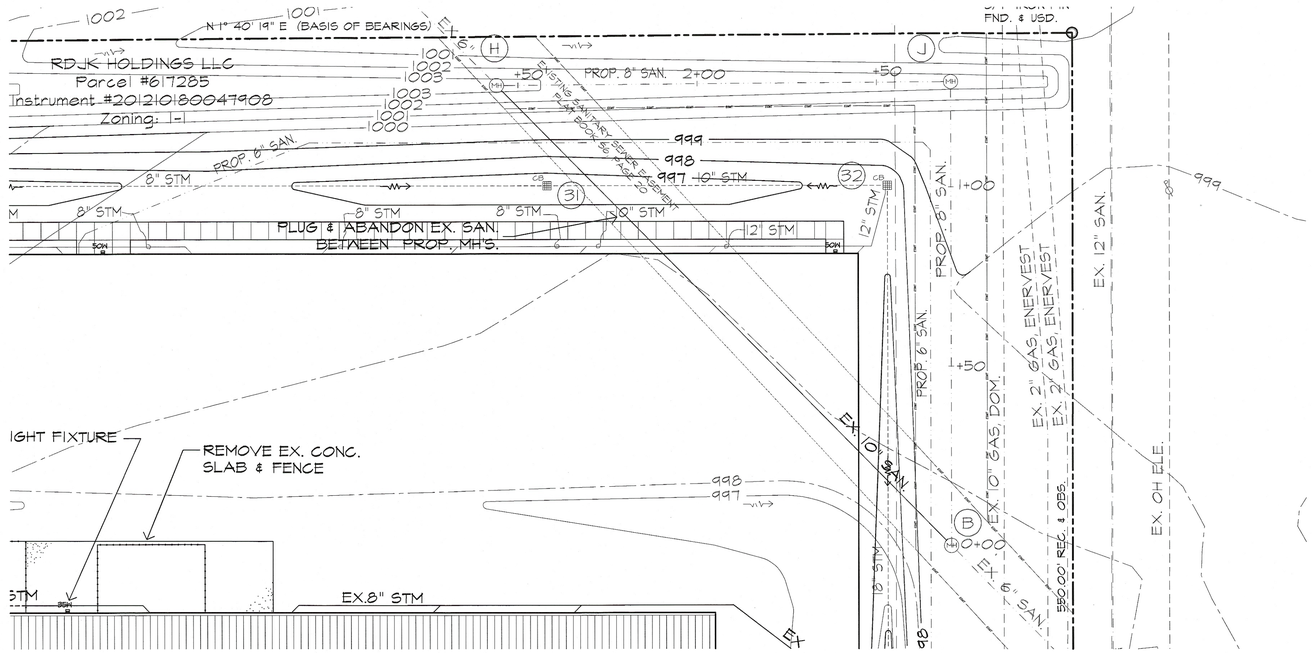
1 PARK CENTRE DR. WADSWORTH, OH 44281 330/336-8786

BUILDING ADDITION FOR
PREMIER BUILDING SOLUTIONS, INC.
480 NOVA DRIVE SE
MASSILLON, OHIO 44646

SEAL
STATE OF OHIO
WILLIAM D. SLIWINSKI
E-63683
REGISTERED
PROFESSIONAL ENGINEER

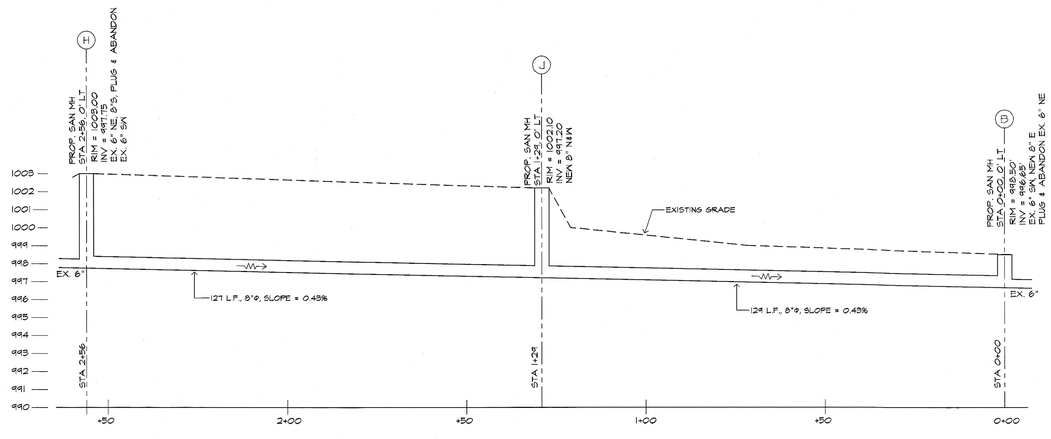
REVISIONS

FILE ..\CON\PAM
DRAWN BY
DATE 04-28-15
DRAWING NO. SD-11



SANITARY SEWER PLAN

SCALE 1" = 20'-0"



NOTES:

1. SANITARY SEWER LINES SHALL BE ASTM D-3034, SDR 35 PVC WITH GASKETED JOINTS.
2. MANHOLES SHALL BE A MINIMUM 48" DIAMETER PRECAST REINFORCED CONCRETE, ODOT 706.13 WITH RUBBER GASKETED JOINTS, STEPS, FRAME, & SOLID LID.
3. SEE SHEET SD-11 FOR DETAILS & NOTES.

SANITARY SEWER PROFILE

SCALE: 1" = 20'-0" HORIZONTAL
SCALE: 1" = 4'-0" VERTICAL

Campbell CONSTRUCTION
CONSTRUCTION SERVICES
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FACILITIES MAINTENANCE
DESIGN-BUILD SPECIALISTS · SINCE 1953
1159 BLACHLEYVILLE RD WOOSTER, OH 44691 330/262-5186
1PARK CENTRE DR. WADSWORTH, OH 44281 330/336-8786

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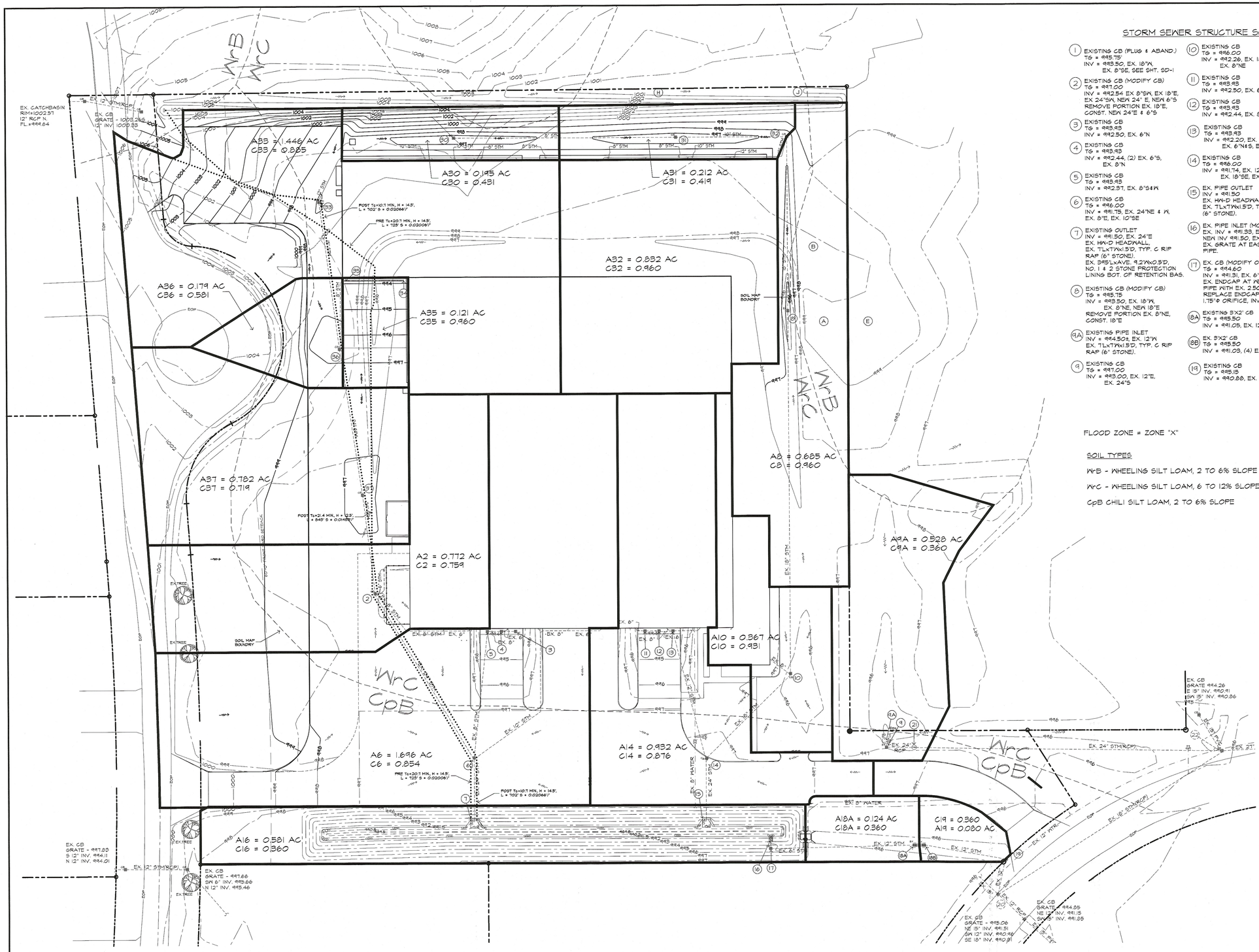

STORM SEWER STRUCTURE SCHEDULE

1. EXISTING CB (PLUG & ABAND.) TG = 995.75' INV = 993.50, EX. 18"W, EX. 8"SE, SEE SHT. SD-1
2. EXISTING CB (MODIFY CB) TG = 997.00 INV = 992.54 EX. 8"SW, EX 18"E, EX 24"SW, NEW 24" E, NEW 6"S REMOVE PORTION EX. 18"E, CONST. NEW 24"E & 6"S
3. EXISTING CB TG = 993.93 INV = 992.50, EX. 6"N
4. EXISTING CB TG = 993.93 INV = 992.44, (2) EX. 6"S, EX. 8"N
5. EXISTING CB TG = 993.93 INV = 992.37, EX. 8"SW
6. EXISTING CB TG = 996.00 INV = 991.75, EX. 24"NE & W, EX. 8"E, EX. 10"SE
7. EXISTING OUTLET INV = 991.50, EX. 24"E EX. HW-D HEADWALL, EX. 7'LX7'WX1.5'D, TYP. C RIP RAP (6" STONE). EX. 36'SLXAVE. 9.2'WX0.5'D, NO. 1 & 2 STONE PROTECTION LINING BOT. OF RETENTION BAS.
8. EXISTING CB (MODIFY CB) TG = 995.75 INV = 993.50, EX. 15"W, EX. 8"NE, NEW 18"E REMOVE PORTION EX. 8"NE, CONST. 18"E
9. EXISTING PIPE INLET INV = 994.50±, EX. 12"W EX. 7'LX7'WX1.5'D, TYP. C RIP RAP (6" STONE).
10. EXISTING CB TG = 996.00 INV = 992.26, EX. 18"E&NW, EX. 8"NE
11. EXISTING CB TG = 993.93 INV = 992.50, EX. 6"N, EX. 8"S
12. EXISTING CB TG = 993.93 INV = 992.44, EX. 8"N&S
13. EXISTING CB TG = 993.93 INV = 992.20, EX. 8"N, EX. 6"N&S, EX. 12"W
14. EXISTING CB TG = 996.00 INV = 991.74, EX. 12"E, EX. 15"SE, EX. 24"W
15. EX. PIPE OUTLET INV = 991.50 EX. HW-D HEADWALL, EX. 7'LX7'WX1.5'D, TYP. C RIP RAP (6" STONE).
16. EX. PIPE INLET (MODIFY INV.) EX. INV. = 991.33, EX. 6"N NEW INV 991.50, EX. 6"N EX. GRATE AT EAST END OF PIPE.
17. EX. CB (MODIFY ORIFICE) TG = 994.60 INV = 991.31, EX. 6"E, EX. 12"S EX. ENDCAP AT WEST END OF PIPE WITH EX. 2.50"ø ORIFICE. REPLACE ENDCAP WITH NEW 1.75"ø ORIFICE, INV = 991.31'
- 18A. EXISTING 3'X2' CB TG = 995.50 INV = 991.05, EX. 12"N, (4) EX. 6"S
- 18B. EX. 3'X2' CB TG = 995.50 INV = 991.03, (4) EX. 6"N, EX. 12"S
19. EXISTING CB TG = 995.15 INV = 990.88, EX. 12" N&W
20. EXISTING CB, TG = 995.06 INV = 991.31, EX. 15"SW INV = 990.81, EX. 18"SE, EX.12"E INV = 990.96, EX. 12"NE
21. EX. STM MH TOP OF RIM = 998.01 INV = 992.31', EX. 24" N&S
22. EXISTING CB TG = FIELD VERIFY INV = 990.66±, EX. 24"N INV = TG - 4.93', EX. 15"E INV = TG - 5.05', EX. 18"NW INV = TG - 5.10', EX. 27"S
30. PROPOSED CB TG = 996.25 INV = 994.50, 8"S
31. PROPOSED CB TG = 996.25 INV = 994.06', 8"N, 10"S
32. PROPOSED CB TG = 997.25 INV = 993.84, 10"N, 12"W, 18"W
33. PROPOSED CB TG = 996.90 INV = 994.65, 12"E, 15"W
34. START OF TRENCH DRAIN TG = 993.98 INV = 993.65 SEE DETAIL, SHT. SD-5
35. END OF TRENCH DRAIN TG = 993.98 INV = 993.25, 6"N, CONSTRUCT 6" FROM TRENCH DRAIN TO RET. WALL NORTH FACE, THEN CONVERT TO 8" STM
36. PROPOSED CB TG = 996.42 INV = 993.00, 8"E, 15"E, 24"W
37. PROPOSED CB TG = 996.50 INV = 992.75, 24" E&W

FLOOD ZONE = ZONE "X"

SOIL TYPES

WrB - WHEELING SILT LOAM, 2 TO 6% SLOPE

WrC - WHEELING SILT LOAM, 6 TO 12% SLOPE

CpB CHILI SILT LOAM, 2 TO 6% SLOPE

STORM SEWER SCHEDULE

FROM	TO	LENGTH	SIZE	SLOPE
30	31	190.0'	8"	0.23%
31	32	95.0'	10"	0.23%
32	8	144.0'	18"	0.23%
33	36	127.0'	15"	1.30%
35	36	61.0'	8"	0.41%
36	37	126.0'	24"	0.21%
37	2	85.0'	24"	0.22%

TOPOGRAPHICAL LEGEND

TC = TOP OF CURB	EXISTING POINT ELEVATION
TP = TOP OF PAVEMENT	NEW POINT ELEVATION
GRD = GRADE	EXISTING CONTOUR LINE ——100——
TG = TOP OF GRATE	NEW CONTOUR LINE ——100——
INV = INVERT	

NORTH

DRAINAGE MAP

SCALE 1" = 40'-0"

LOT SIZE 8.7491 ACRES

BENCHMARK

EXISTING SAN. MH "D"
RIM ELEV = 996.14'

THE OIL AND GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
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