
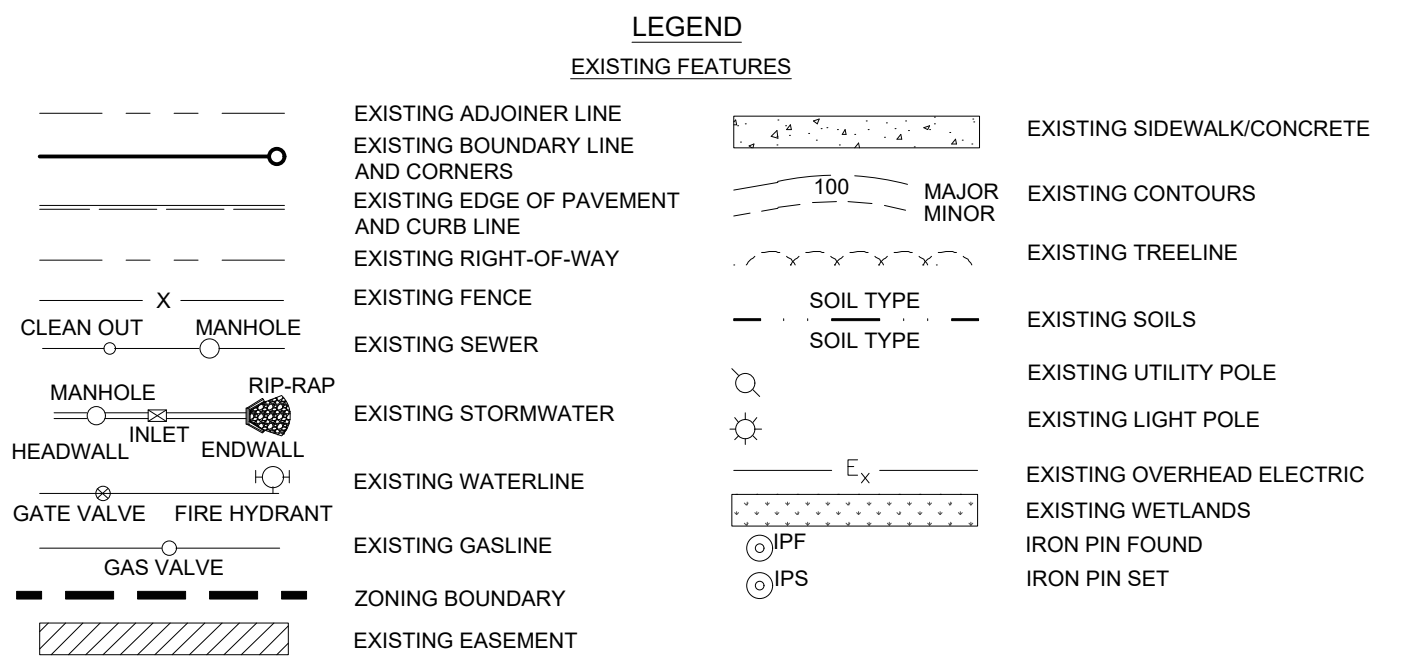




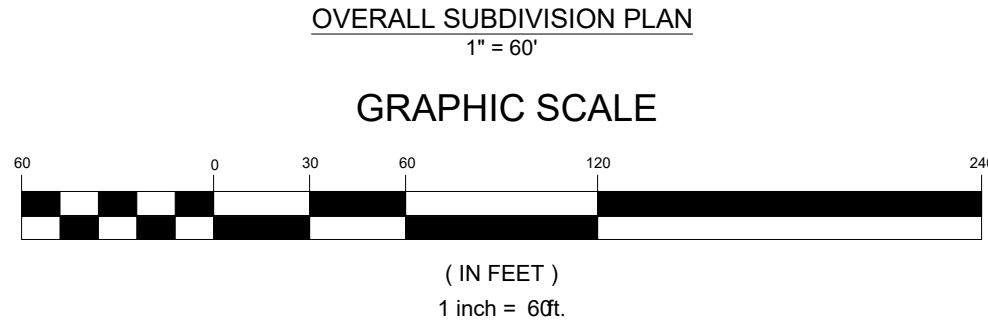
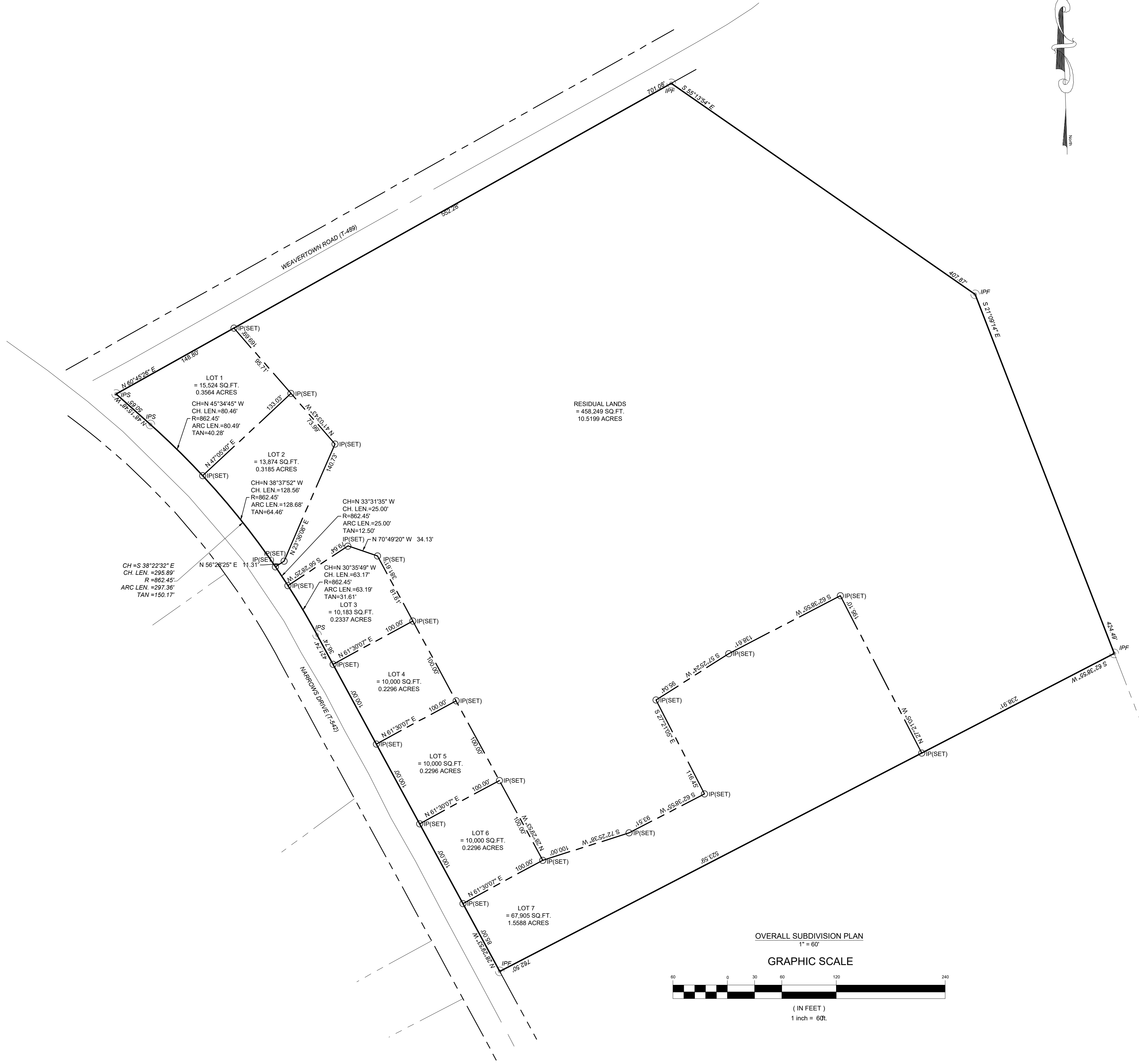


Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
BeB	Bedington Shaly Silt Loam	1.6	B	13.0%	0'- 72"	No
BKd	Berks Channery Silt Loam	2.8	B	23.4%	0'- 36"	No
BKc	Berks Channery Silt Loam	0.9	B	7.8%	0'- 36"	No
CkA	Clarkburg Silt Loam	2.4	C	20.0%	0'- 84"	No
Me	Melvin Variant Silt Loam	1.9	D	15.8%	Yes	No
W	Water	1.1	N/A	9.1%	N/A	N/A
WeD	Weikert Channery Silt Loam	0.3	D	2.1%	0'- 15"	No
WeW	Weikert Shaly Silt Loam	1.1	D	9.1%	0'- 17"	No



**CHRISTIAN ENGINEERING**  
717-954-4513  
602 Cornwell Road, Lebanon, PA 17042  
Lebanon, PA 17042  
[www.christiandesigning.com](http://www.christiandesigning.com)  
Overall Existing  
Conditions Plan





LEGEND			
EXISTING FEATURES			
	EXISTING ADJOINTER LINE		EXISTING SIDEWALK/CONCRETE
	EXISTING BOUNDARY LINE AND CORNERS		EXISTING CONTOURS
	EXISTING EDGE OF PAVEMENT AND CURB LINE		EXISTING TREELINE
	EXISTING RIGHT-OF-WAY		EXISTING SOILS
	EXISTING FENCE		EXISTING UTILITY POLE
	EXISTING SEWER		EXISTING LIGHT POLE
	EXISTING STORMWATER		EXISTING OVERHEAD ELECTRIC
	EXISTING WATERLINE		EXISTING WETLANDS
	EXISTING GASLINE		IRON PIN FOUND
	ZONING BOUNDARY		IRON PIN SET
	EXISTING EASEMENT		
PROPOSED FEATURES			
	PROPOSED BUILDING SETBACK		PROPOSED DOMESTIC WATERLINE
	PROPOSED BOUNDARY LINE AND CORNERS		PROPOSED GASLINE
	PROPOSED EDGE OF PAVEMENT AND CURB LINE		PROPOSED CONCRETE/SIDEWALK
	PROPOSED RIGHT-OF-WAY		PROPOSED CONTOURS
	PROPOSED FENCE		PROPOSED TREELINE
	PROPOSED SEWER		PROPOSED UTILITY POLE
	PROPOSED STORMWATER		PROPOSED LIGHT POLE
	IRON PIN TO BE SET		PROPOSED STANDARD PAVING

PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
FOR  
WHISPERING PINES - NARROWS DRIVE  
NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA

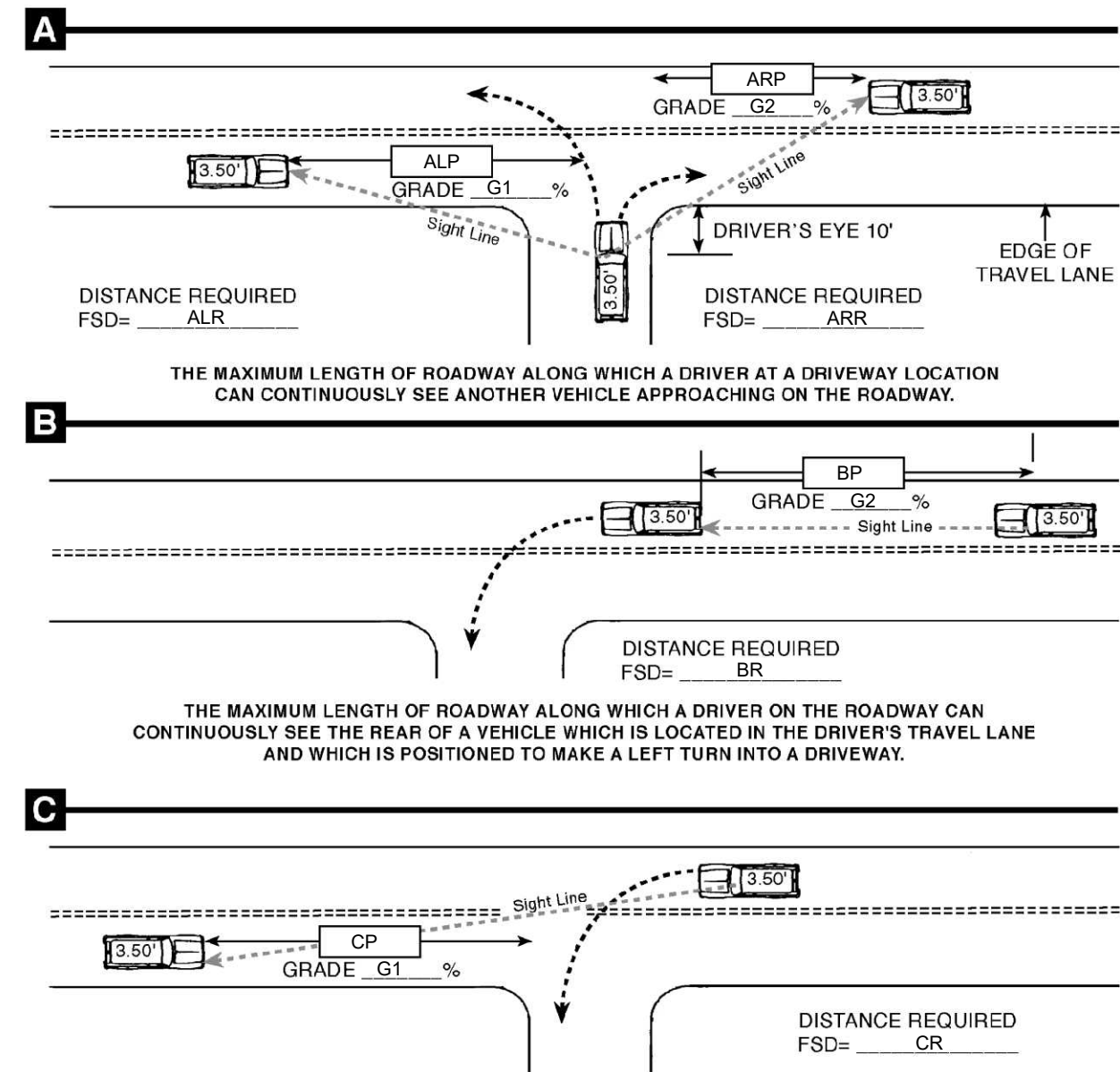
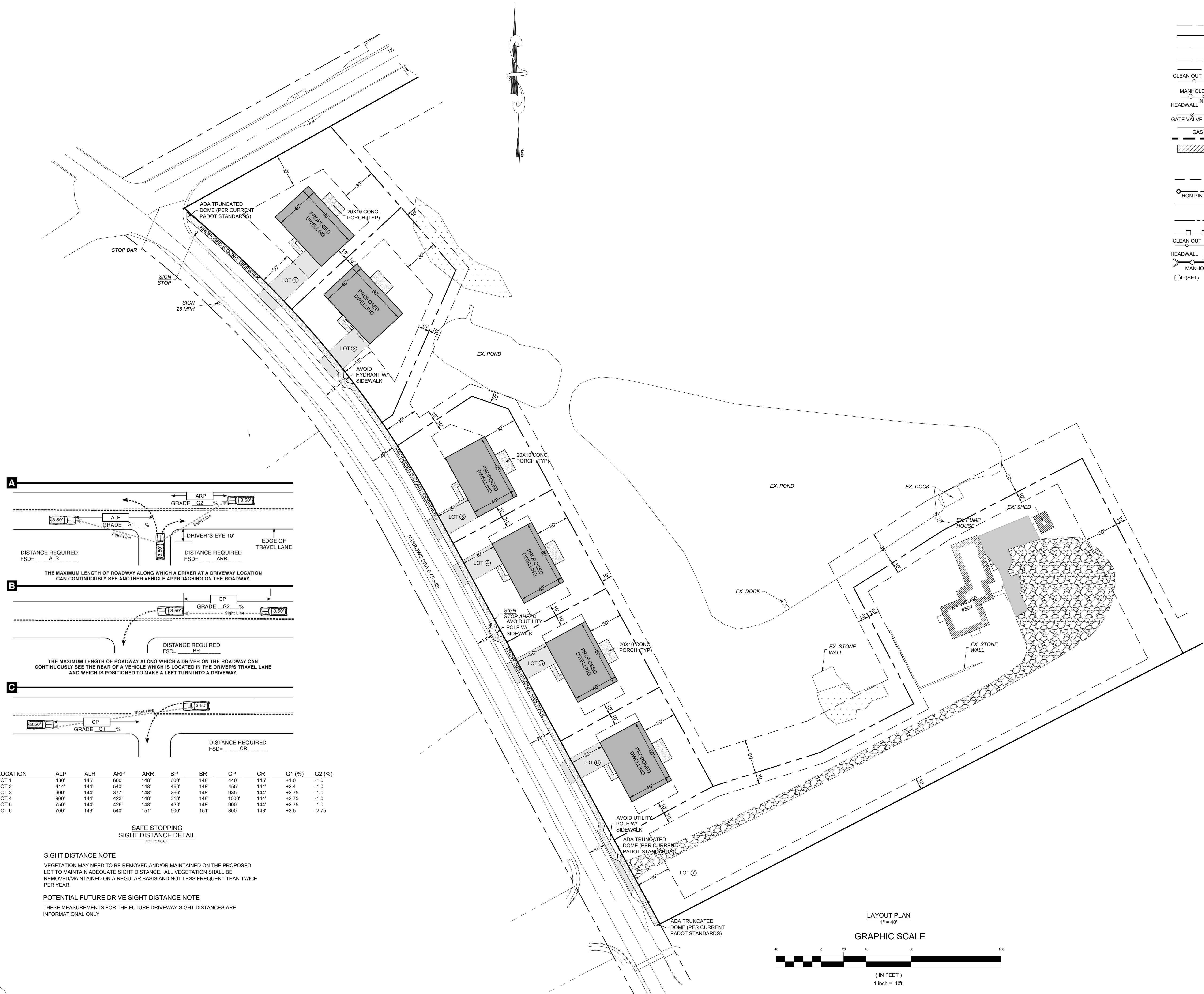
DECEMBER 30, 2025

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602 Cornwal Road | Lebanon, PA 17042  
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Overall Subdivision Plan  
3 OF 15



M:\Project Files\CH6 - Chrisland Eng Projects\CH6.25.2 - Krail Narrows Drive\DWG\PREL\FINAL LD PLAN.dwg 12/31/2025 9:37 AM



LOCATION	ALP	ALR	ARP	ARR	BP	BR	CP	CR	G1 (%)	G2 (%)
LOT 1	430'	145'	600'	148'	600'	148'	440'	145'	+1.0	-1.0
LOT 2	414'	144'	540'	148'	490'	148'	455'	144'	+2.4	-1.0
LOT 3	900'	144'	377'	148'	260'	148'	935'	144'	+2.75	-1.0
LOT 4	900'	144'	423'	148'	313'	148'	1000'	144'	+2.75	-1.0
LOT 5	750'	144'	426'	148'	430'	148'	900'	144'	+2.75	-1.0
LOT 6	700'	143'	540'	151'	500'	151'	800'	143'	+3.5	-2.75





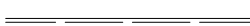





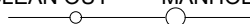

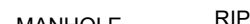

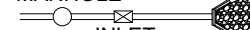

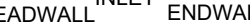

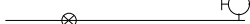
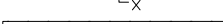

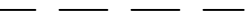


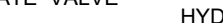

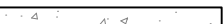

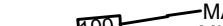


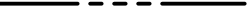

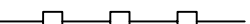



SAFE STOPPING  
SIGHT DISTANCE DETAIL  
NOT TO SCALE

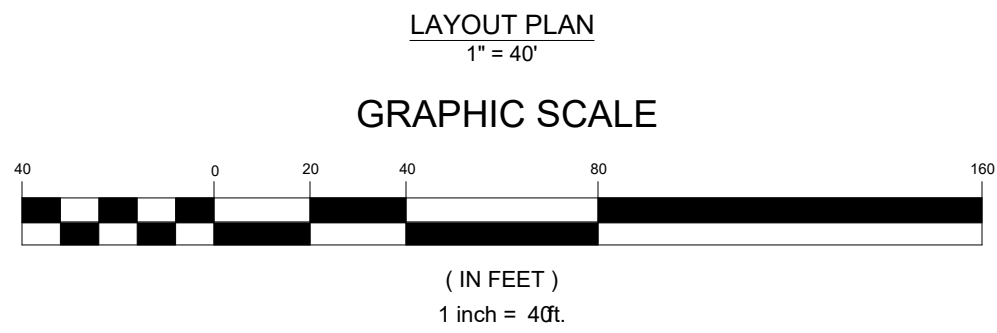
SIGHT DISTANCE NOTE

VEGETATION MAY NEED TO BE REMOVED AND/OR MAINTAINED ON THE PROPOSED LOT TO MAINTAIN ADEQUATE SIGHT DISTANCE. ALL VEGETATION SHALL BE REMOVED/MAINTAINED ON A REGULAR BASIS AND NOT LESS FREQUENT THAN TWICE PER YEAR.

POTENTIAL FUTURE DRIVE SIGHT DISTANCE NOTE

THESE MEASUREMENTS FOR THE FUTURE DRIVEWAY SIGHT DISTANCES ARE INFORMATIONAL ONLY

LEGEND			
EXISTING FEATURES			
	EXISTING ADJOINER LINE		EXISTING SIDEWALK/CONCRETE
	EXISTING BOUNDARY LINE AND CORNERS		EXISTING CONTOURS
	EXISTING EDGE OF PAVEMENT AND CURB LINE		EXISTING TREELINE
	EXISTING RIGHT-OF-WAY		EXISTING SOILS
	EXISTING FENCE		EXISTING UTILITY POLE
	EXISTING SEWER		EXISTING LIGHT POLE
	EXISTING STORMWATER		EXISTING OVERHEAD ELECTRIC
	EXISTING WATERLINE		EXISTING WETLANDS
	EXISTING GASLINE		IRON PIN FOUND
	ZONING BOUNDARY		IRON PIN SET
	EXISTING EASEMENT		
PROPOSED FEATURES			
	PROPOSED BUILDING SETBACK		PROPOSED DOMESTIC WATERLINE
	PROPOSED BOUNDARY LINE AND CORNERS		PROPOSED GASLINE
	PROPOSED EDGE OF PAVEMENT AND CURB LINE		PROPOSED CONCRETE/SIDEWALK
	PROPOSED RIGHT-OF-WAY		PROPOSED CONTOURS
	PROPOSED FENCE		PROPOSED TREELINE
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	PROPOSED STORMWATER		PROPOSED LIGHT POLE
	IRON PIN TO BE SET		PROPOSED STANDARD PAVING



PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
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NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA

CHRISTLAND ENGINEERING  
1717-934-6513  
602 Cornwell Road, Lebanon, PA 17042  
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DECEMBER 30, 2025

Layout Plan  
4 OF 13



EASEMENT NOTES:

1. A STORMWATER MANAGEMENT CONVEYANCE EASEMENT SHALL BE LOCATED AROUND EACH CONVEYANCE FACILITY (I.E. SHALES, PIPES, ETC.) AND SHALL BE TWENTY (20) FEET IN WIDTH. THE EASEMENT SHALL EXTEND TEN (10) FEET FROM THE CENTERLINE OF THE CONVEYANCE FACILITY.
2. A STORMWATER MANAGEMENT EASEMENTS SHALL BE LOCATED AROUND EACH STORMWATER MANAGEMENT FACILITY (I.E. DETENTION BASINS, INFILTRATION TRENCHES, RAIN GARDENS, ETC.) AND SHALL ENCOMPASS ALL COMPONENTS OF THE FACILITY.
3. ALL PONDS AND WETLANDS SHALL BE SURROUNDED BY A RIPARIAN BUFFER STRIP OF A MINIMUM TWENTY-FIVE (25) FEET IN WIDTH. STREAMS SHALL BE BORDERED BY A RIPARIAN BUFFER STRIP, A MINIMUM OF TWENTY-FIVE (25) FEET OR THE WIDTH OF THE FLOOD PLAIN, WHICHEVER IS GREATER.
4. THE GRANTOR, FOR ITSELF, ITS SUCCESSORS, AND ASSIGNS, AUTHORIZES THE TOWNSHIP AND ITS AUTHORIZED REPRESENTATIVES TO ENTER UPON THE PREMISES TO INSPECT THE FACILITIES LOCATED WITHIN THE EASEMENT.
5. ALL FACILITIES LOCATED WITHIN THE ABOVE MENTIONS EASEMENTS SHALL BE SUBJECT TO THE PROVISIONS OF THE STORMWATER MAINTENANCE AND OWNERSHIP PROGRAM.

EASEMENT PLAN  
1" = 40'

GRAPHIC SCALE



( IN FEET )  
1 inch = 40ft.

LEGEND

EXISTING FEATURES

	EXISTING ADJOINTER LINE		EXISTING SIDEWALK/CONCRETE
	EXISTING BOUNDARY LINE AND CORNERS		EXISTING CONTOURS
	EXISTING EDGE OF PAVEMENT AND CURB LINE		EXISTING TREELINE
	EXISTING RIGHT-OF-WAY		EXISTING SOILS
	EXISTING FENCE		EXISTING UTILITY POLE
	EXISTING SEWER		EXISTING LIGHT POLE
	EXISTING STORMWATER		EXISTING OVERHEAD ELECTRIC
	EXISTING WATERLINE		EXISTING WETLANDS
	EXISTING GASLINE		IRON PIN FOUND
	ZONING BOUNDARY		IRON PIN SET
	EXISTING EASEMENT		

PROPOSED FEATURES

	PROPOSED BUILDING SETBACK		PROPOSED DOMESTIC WATERLINE
	PROPOSED BOUNDARY LINE AND CORNERS		PROPOSED GASLINE
	PROPOSED EDGE OF PAVEMENT AND CURB LINE		PROPOSED CONCRETE/SIDEWALK
	PROPOSED RIGHT-OF-WAY		PROPOSED CONTOURS
	PROPOSED FENCE		PROPOSED TREELINE
	PROPOSED SEWER		PROPOSED UTILITY POLE
	PROPOSED STORMWATER		PROPOSED LIGHT POLE
	IRON PIN TO BE SET		PROPOSED STANDARD PAVING
			PROPOSED DRAINAGE EASEMENT
			PROPOSED UTILITY EASEMENT

PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
FOR  
WHISPERING PINES - NARROWS DRIVE  
NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA



DECEMBER 30, 2025

Easement Plan  
5  
OF 15

BY  
DATE

REVISION



EASEMENT NOTES:

1. A STORMWATER MANAGEMENT CONVEYANCE EASEMENT SHALL BE LOCATED AROUND EACH CONVEYANCE FACILITY (I.E. SHALES, PIPES, ETC.) AND SHALL BE TWENTY (20) FEET IN WIDTH. THE EASEMENT SHALL EXTEND TEN (10) FEET FROM THE CENTERLINE OF THE CONVEYANCE FACILITY.
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EASEMENT PLAN  
1" = 40'

GRAPHIC SCALE

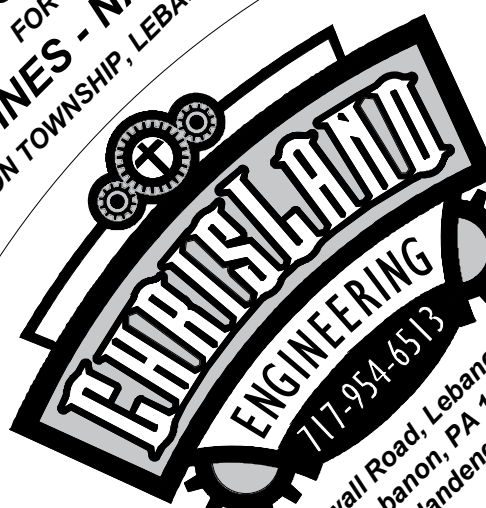


( IN FEET )  
1 inch = 40ft.

LEGEND

	EXISTING ADJOINER LINE		EXISTING SIDEWALK/CONCRETE
	EXISTING BOUNDARY LINE AND CORNERS		EXISTING CONTOURS
	EXISTING EDGE OF PAVEMENT AND CURB LINE		EXISTING TREELINE
	EXISTING RIGHT-OF-WAY		EXISTING SOILS
	EXISTING FENCE		EXISTING UTILITY POLE
	EXISTING SEWER		EXISTING LIGHT POLE
	EXISTING STORMWATER		EXISTING OVERHEAD ELECTRIC
	EXISTING WATERLINE		EXISTING WETLANDS
	EXISTING GASLINE		IRON PIN FOUND
	ZONING BOUNDARY		IRON PIN SET
	EXISTING EASEMENT		
PROPOSED FEATURES			
	PROPOSED BUILDING SETBACK		PROPOSED DOMESTIC WATERLINE
	PROPOSED BOUNDARY LINE AND CORNERS		PROPOSED GASLINE
	PROPOSED EDGE OF PAVEMENT AND CURB LINE		PROPOSED CONCRETE/SIDEWALK
	PROPOSED RIGHT-OF-WAY		PROPOSED CONTOURS
	PROPOSED FENCE		PROPOSED TREELINE
	PROPOSED SEWER		PROPOSED UTILITY POLE
	PROPOSED STORMWATER		PROPOSED LIGHT POLE
	IRON PIN TO BE SET		PROPOSED STANDARD PAVING
			PROPOSED RIPARIAN BUFFER EASEMENT

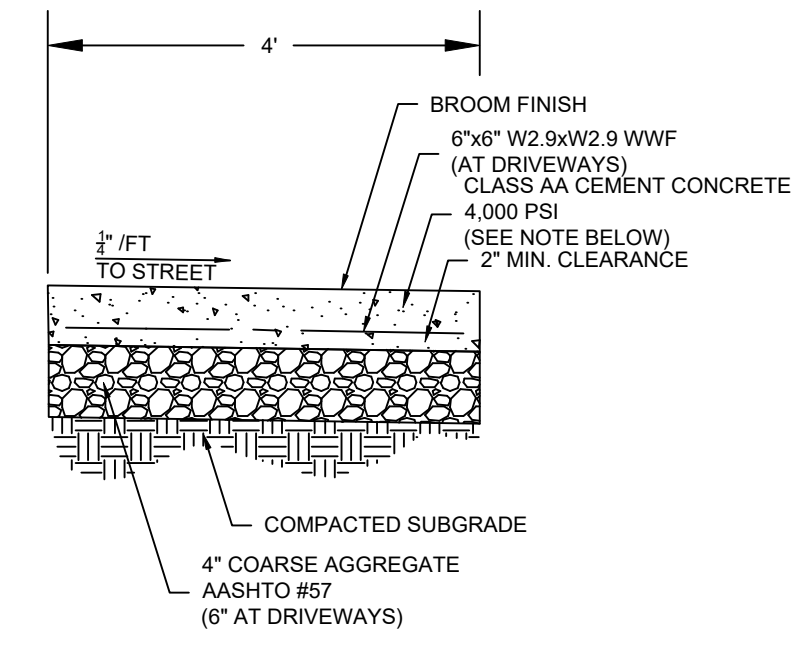
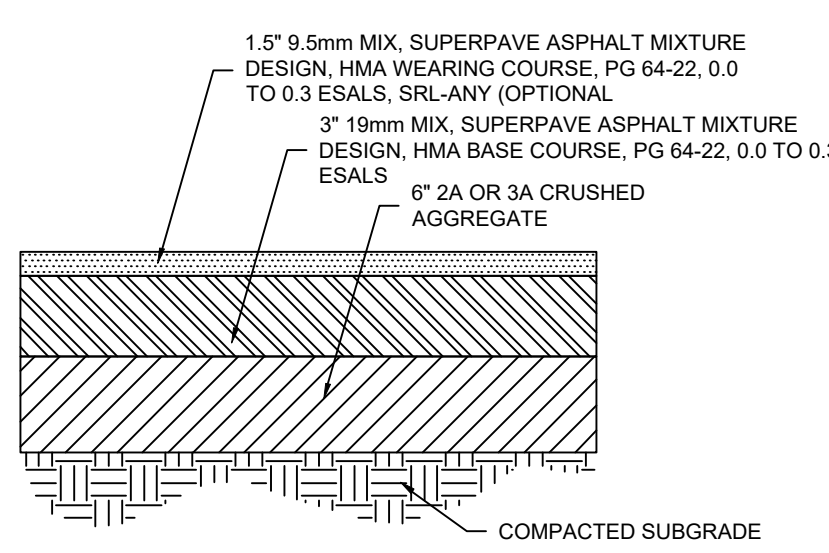
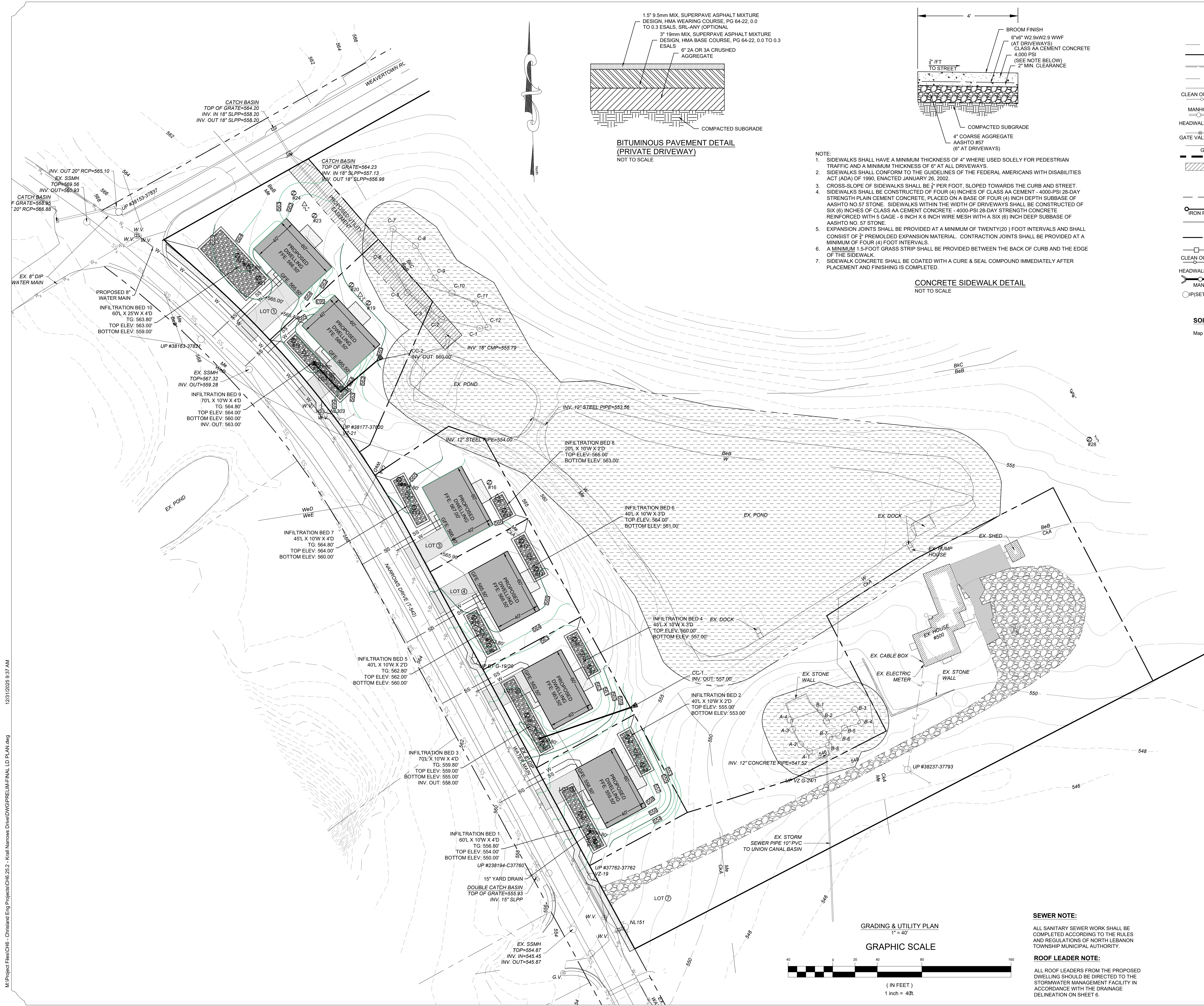
PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
FOR  
WHISPERING PINES - NARROWS DRIVE  
NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA



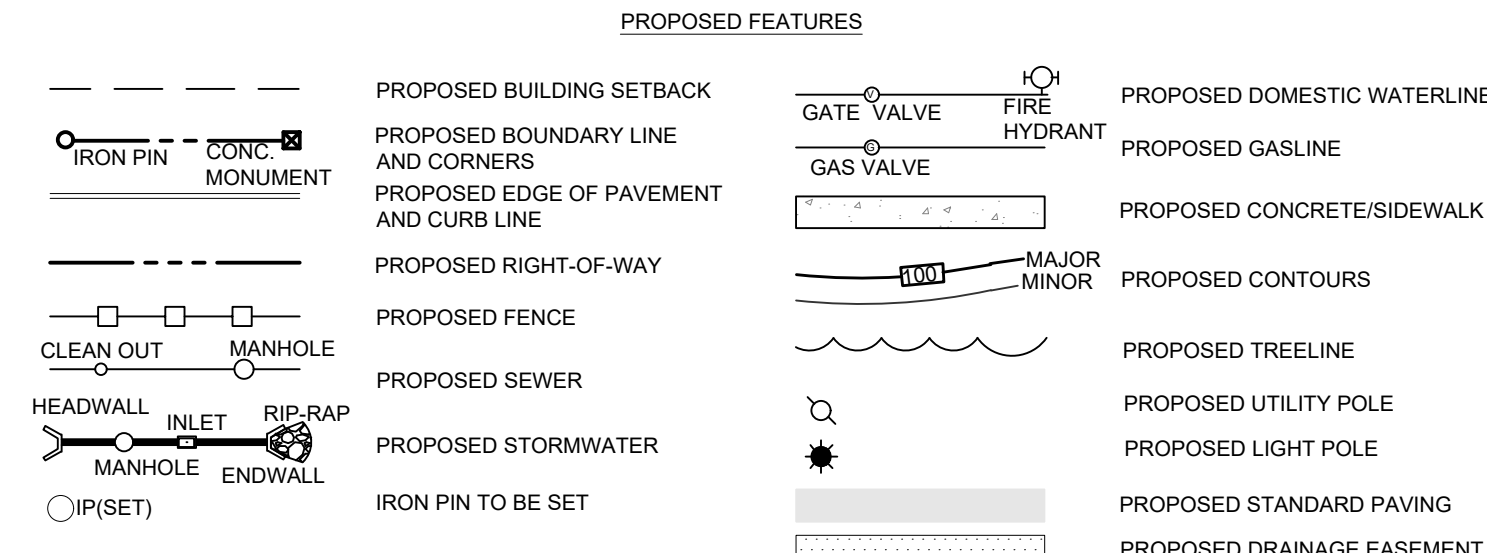
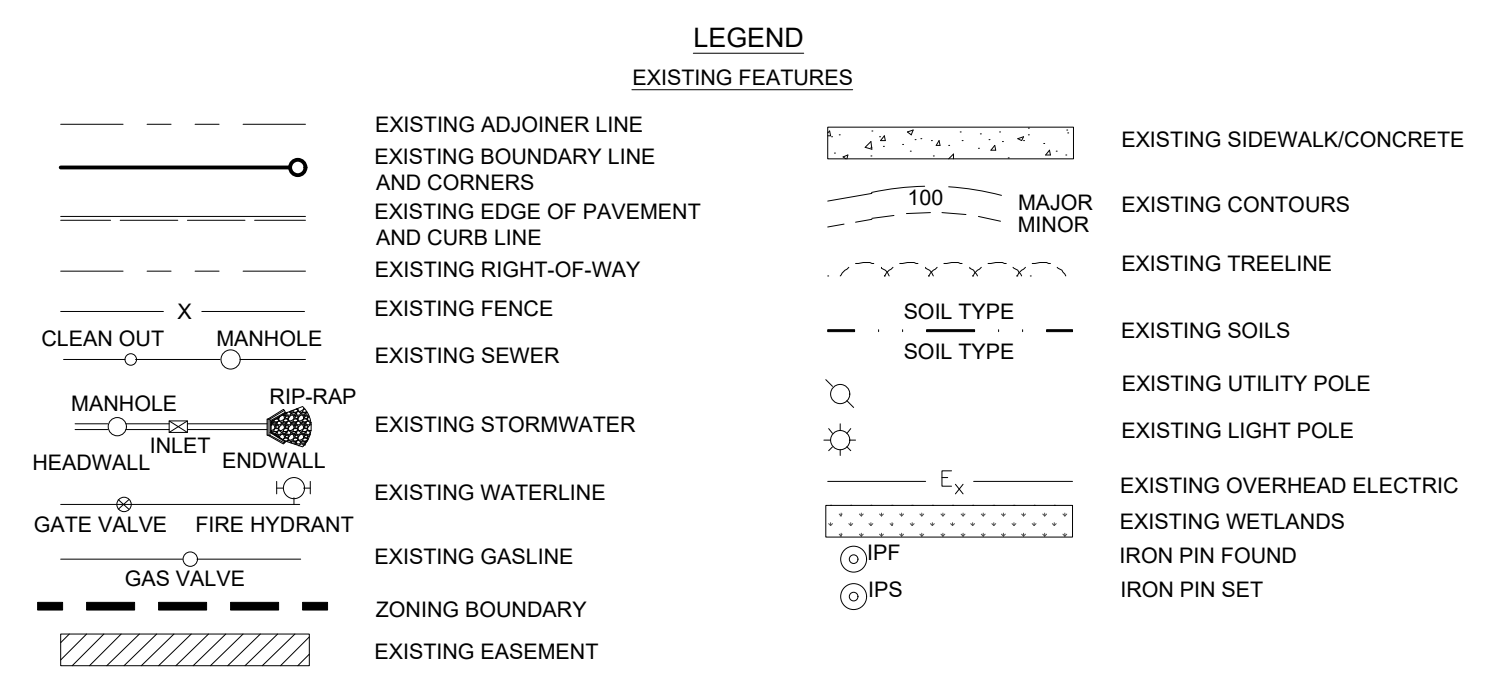
DECEMBER 30, 2025

Easement Plan  
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OF 15





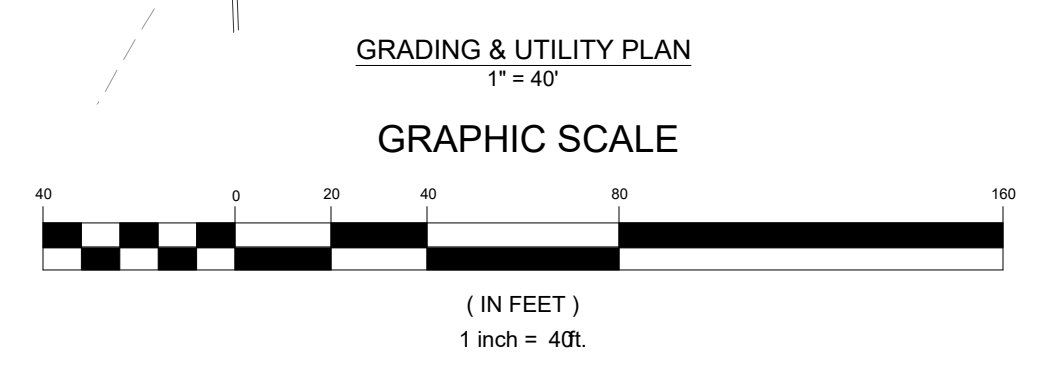
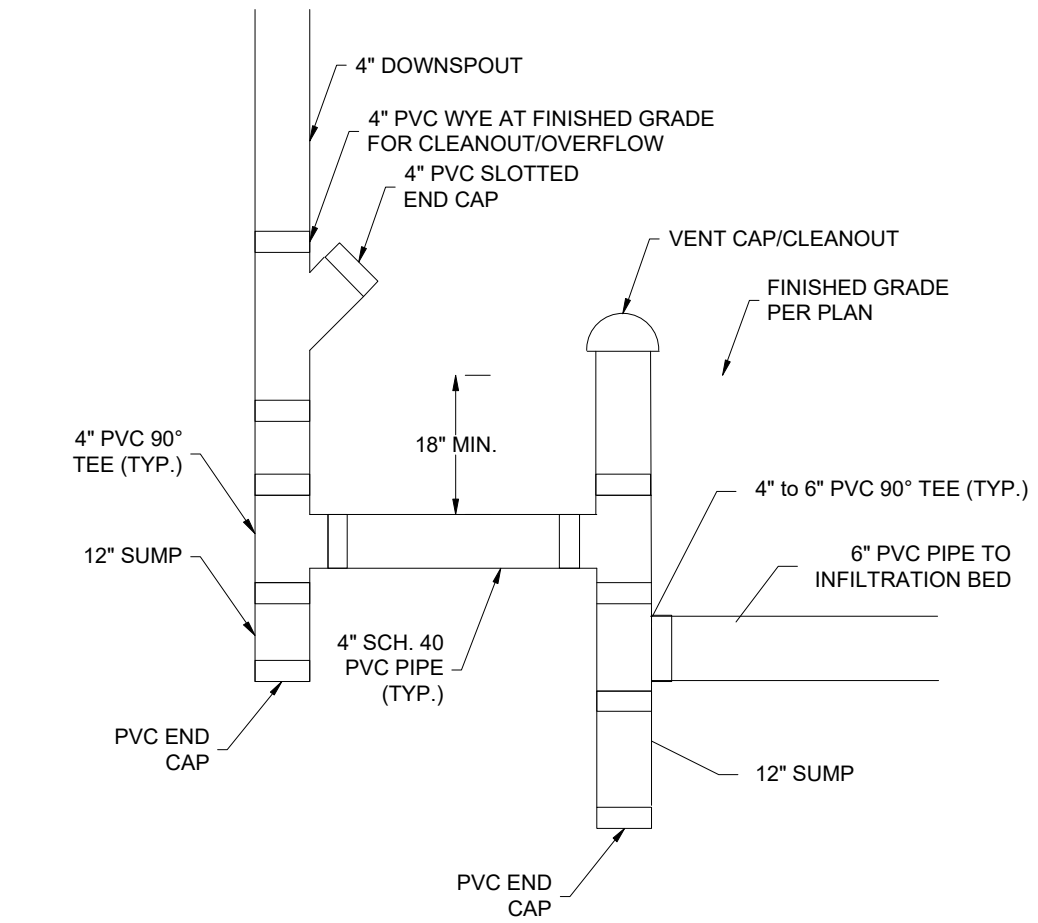
- NOTE:
1. SIDEWALKS SHALL HAVE A MINIMUM THICKNESS OF 4" WHERE USED SOLELY FOR PEDESTRIAN TRAFFIC AND A MINIMUM THICKNESS OF 6" AT ALL DRIVEWAYS.
  2. SIDEWALKS SHALL CONFORM TO THE GUIDELINES OF THE FEDERAL AMERICANS WITH DISABILITIES ACT (ADA) OF 1990, ENACTED JANUARY 26, 2002.
  3. CROSS-SLOPE OF SIDEWALKS SHALL BE 1" PER FOOT, SLOPED TOWARDS THE CURB AND STREET.
  4. SIDEWALKS SHALL BE CONSTRUCTED OF FOUR (4) INCHES OF CLASS AA CEMENT 4000-PSI 28-DAY STRENGTH PLAIN CEMENT CONCRETE, PLACED ON A BASE OF FOUR (4) INCH DEPTH SUBBASE OF AASHTO NO.57 STONE. SIDEWALKS WITHIN THE WIDTH OF DRIVEWAYS SHALL BE CONSTRUCTED OF SIX (6) INCHES OF CLASS AA CEMENT CONCRETE - 4000-PSI 28-DAY STRENGTH CONCRETE REINFORCED WITH 5 GAGE - 6 INCH X 6 INCH WIRE MESH WITH A SIX (6) INCH DEEP SUBBASE OF AASHTO NO. 57 STONE.
  5. EXPANSION JOINTS SHALL BE PROVIDED AT A MINIMUM OF TWENTY(20 ) FOOT INTERVALS AND SHALL CONSIST OF 1/2\"/>
  6. A MINIMUM 1.5-FOOT GRASS STRIP SHALL BE PROVIDED BETWEEN THE BACK OF CURB AND THE EDGE OF THE SIDEWALK.
  7. SIDEWALK CONCRETE SHALL BE COATED WITH A CURE & SEAL COMPOUND IMMEDIATELY AFTER PLACEMENT AND FINISHING IS COMPLETED.



SOIL CHART:

Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
BeB	Bedington Shaly Silt Loam	1.6	B	13.0%	0" - 72"	No
BkC	Berks Channery Silt Loam	2.8	B	23.4%	0" - 36"	No
BkD	Berks Channery Silt Loam	0.9	B	7.6%	0" - 36"	No
CkA	Clarksburg Silt Loam	2.4	C	20.0%	0" - 84"	No
Me	Melvin Variant Silt Loam	1.9	D	15.8%	0" - 60"	Yes
W	Water	1.1	N/A	9.1%	N/A	N/A
WdD	Weikert Channery Silt Loam	0.3	D	2.1%	0" - 15"	No
WeW	Weikert Shaly Silt Loam	1.1	D	9.1%	0" - 17"	No

- CRITICAL STAGES OF CONSTRUCTION
- NORTH LEBANON TOWNSHIP (717-273-7132) AND CHRSLAND ENGINEERING (717-954-6513) SHALL BE CONTACTED FOR INSPECTION AT THE FOLLOWING CRITICAL STAGES OF CONSTRUCTION.
- INFILTRATION BED
1. AT THE COMPLETION OF ROUGH GRADING OF THE BOTTOM OF THE INFILTRATION BED.
  2. AT THE COMPLETION OF GEOTEXTILE PLACEMENT PRIOR TO PLACEMENT OF THE STONE.
  3. AT THE COMPLETION OF THE INSTALLATION OF THE STONE AND GEOTEXTILE PRIOR TO BACKFILLING.
  4. AT THE COMPLETION OF BACKFILLING AND STABILIZATION.
  5. WHEN ALL TRIBUTARY AREAS ARE SUFFICIENTLY STABILIZED.



- SEWER NOTE:
- ALL SANITARY SEWER WORK SHALL BE COMPLETED ACCORDING TO THE RULES AND REGULATIONS OF NORTH LEBANON TOWNSHIP MUNICIPAL AUTHORITY.
- ROOF LEADER NOTE:
- ALL ROOF LEADERS FROM THE PROPOSED DWELLING SHOULD BE DIRECTED TO THE STORMWATER MANAGEMENT FACILITY IN ACCORDANCE WITH THE DRAINAGE DELINEATION ON SHEET 6.

PRELIMINARY/FINAL SUBDIVISION & LAND DEVELOPMENT PLAN FOR WHISPERING PINES - NARROWS DRIVE NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA

DECEMBER 30, 2025

ENGINEERING 717-954-6513

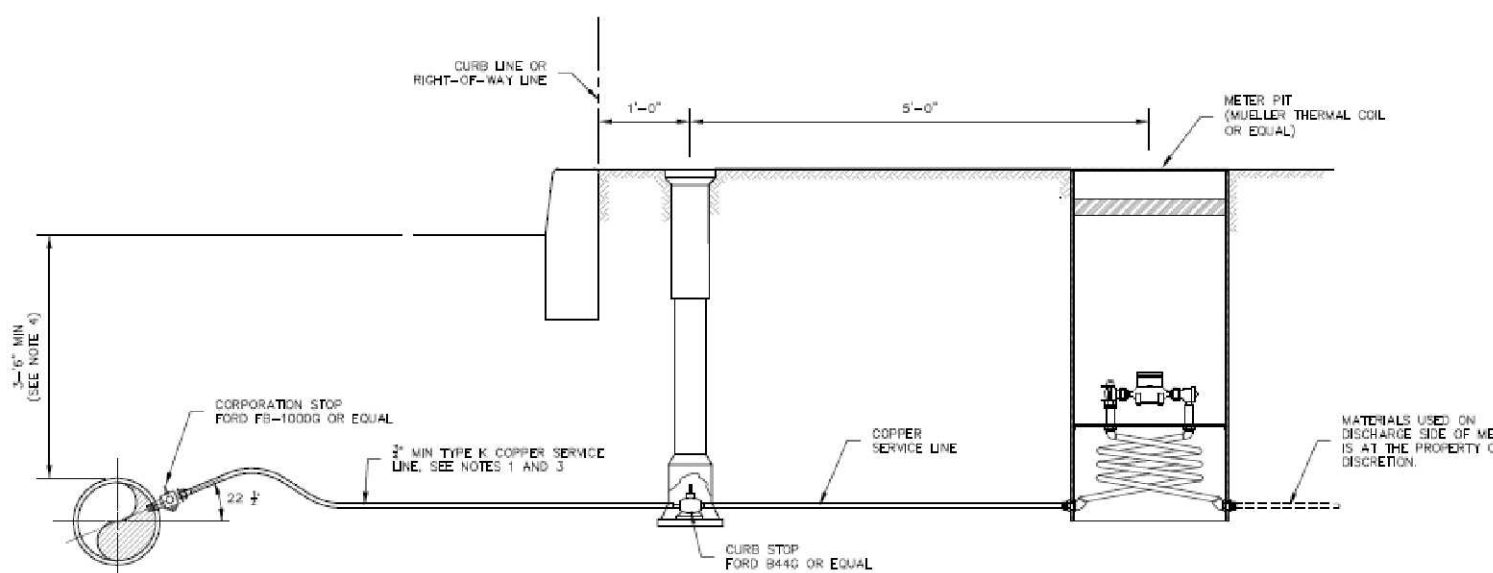
602 Cornwall Road, Lebanon, PA 17042

www.chrislandengineering.com

Grading & Utility Plan

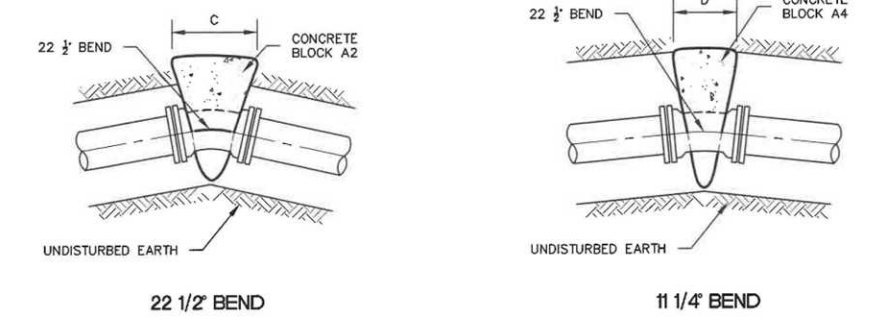
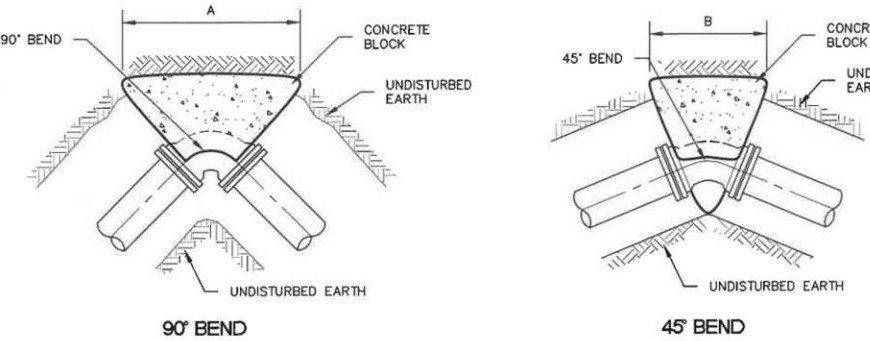
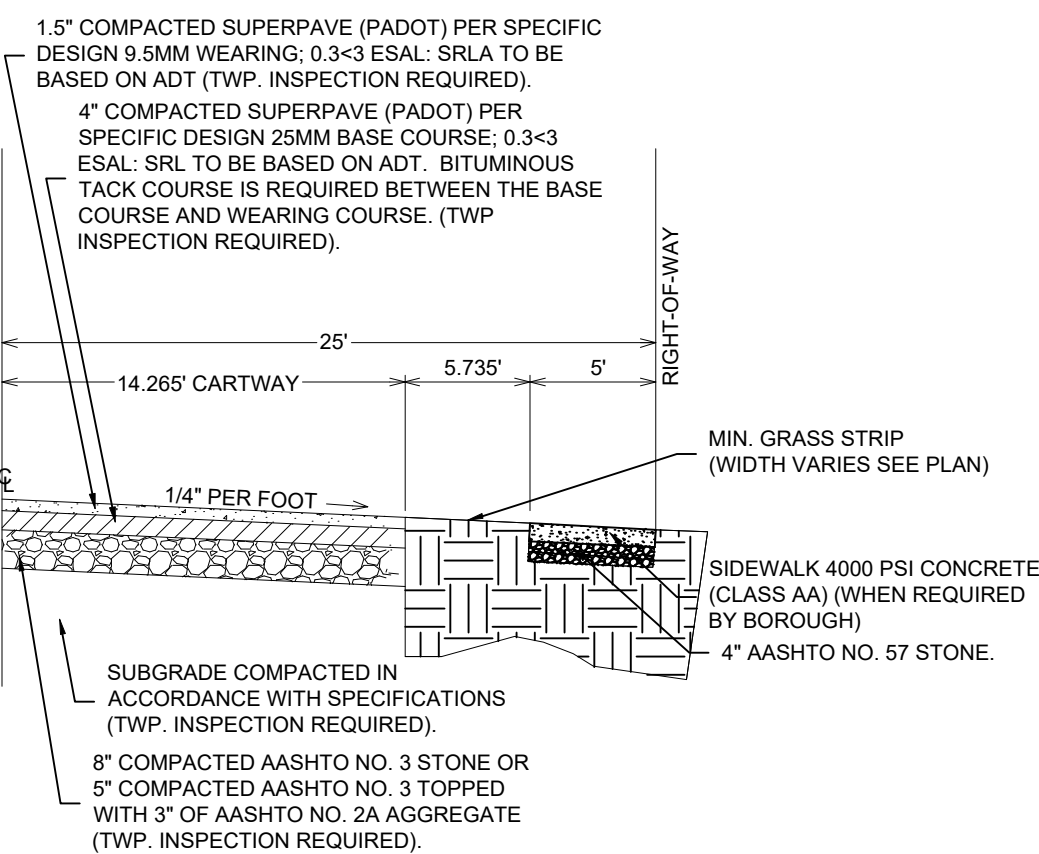
7 OF 15





TYPICAL WATER SERVICE CONNECTION w/METER PIT DETAIL

N.T.S.

REACTION BACKING DETAILS  
NOT TO SCALE

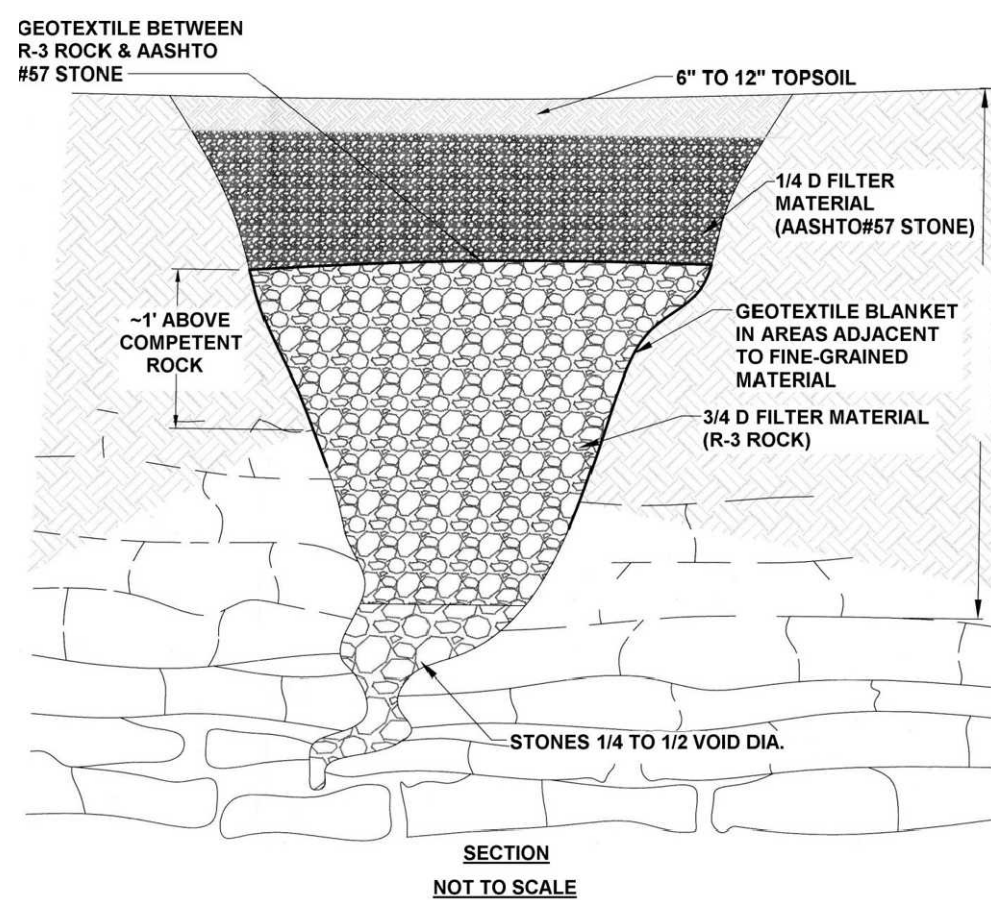
1. ALL SPECIFIED MATERIAL THICKNESS IS FULLY COMPACTED DEPTH.
2. MAXIMUM GRADES OUTSIDE OF RIGHT-OF-WAY SHALL NOT EXCEED 2:1 FOR CUT AND 3:1 FOR FILL.
3. ALL SPECIFIED MATERIAL THICKNESS IS FULLY COMPACTED DEPTH.
4. ROADWAY SUBBASE, AGGREGATE, PAVING, CURBING, SIDEWALK, ETC. LOCATED WITHIN THE BOROUGH RIGHT-OF-WAY SHALL REQUIRED BOROUGH AND COUNTY INSPECTION.

STREET CROSS-SECTION  
WITH SIDEWALK  
NOT TO SCALE

PIPE DIA (INCHES)	BEST PRESSURE (PSI)	A	B	C	D
24	150	11'-0"	6'-0"	3'-0"	1'-8"
20	150	8'-0"	4'-0"	2'-0"	1'-4"
16	150	6'-0"	3'-0"	2'-0"	1'-0"
12	150	5'-0"	2'-0"	1'-3"	1'-0"
10	150	4'-0"	2'-0"	1'-6"	1'-0"
8	150	3'-0"	2'-0"	1'-0"	1'-0"
6	150	2'-0"	1'-0"	1'-0"	1'-0"
4	150	2'-0"	1'-0"	1'-0"	1'-0"

## NOTES:

1. REACTION BACKING DIMENSIONS HAVE BEEN CALCULATED USING A SOIL BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT AND TEST PRESSURES AS NEEDED.
2. ALL FITTINGS SHALL BE MECHANICAL JOINT AND HAVE WEDGE ACTION FOLLOWER GLANDS INSTALLED TO MANUFACTURERS SPECIFICATIONS, EXCEPT IN RESTRAINED JOINT AREAS.
3. ALL CONCRETE SHALL BE HIGH EARLY STRENGTH.

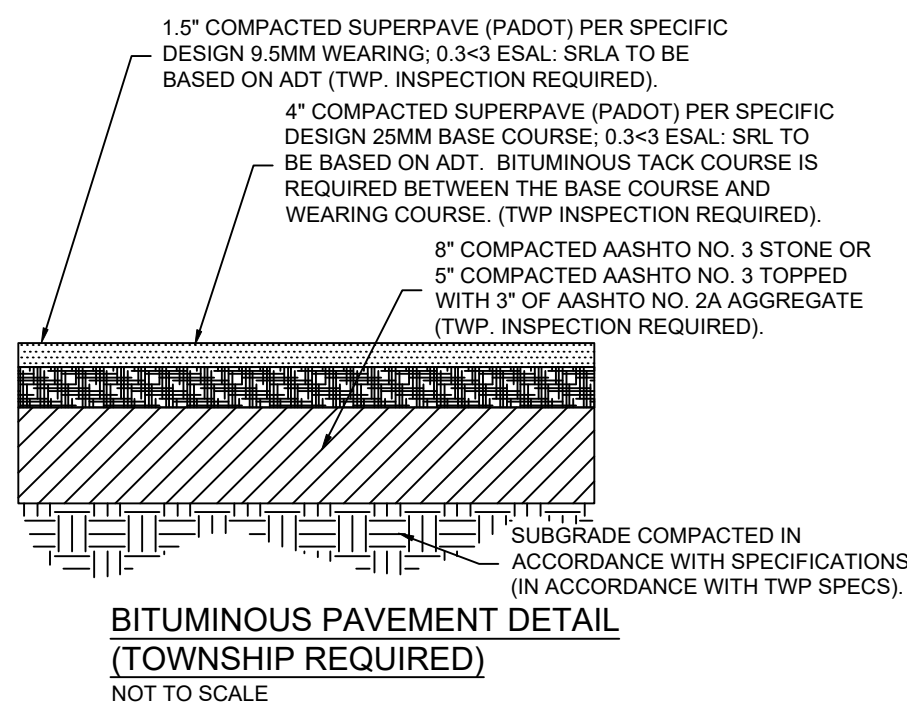
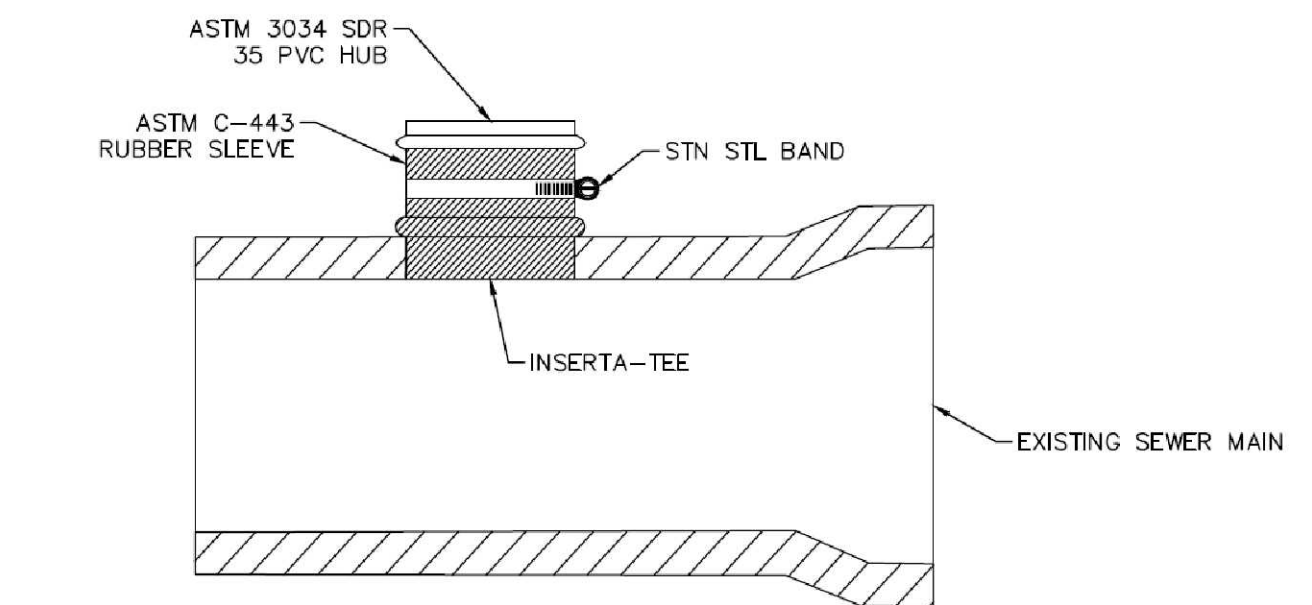


## NOTES:

1. IF A SINKHOLE DEVELOPS, DUE TO THE VARIABLE NATURE OF SINKHOLES, IT SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER.
2. THE ABOVE DETAIL MAY BE MODIFIED AS DEEMED NECESSARY BY A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER.
3. LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS. OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
4. STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.

\*ALL SINKHOLE MITIGATION MEASURES SHALL BE APPROVED BY A QUALIFIED GEOLOGIST OR GEOTECHNICAL ENGINEER PRIOR TO THE IMPLEMENTATION OF A REPAIR\*

SINKHOLE REPAIR DETAIL

BITUMINOUS PAVEMENT DETAIL  
(TOWNSHIP REQUIRED)  
NOT TO SCALE

## NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING EXISTING SEWER MAIN AT PROPOSED CONNECTION POINT AS REQUIRED FOR INSTALLATION OF NEW INSERTA-TEE.
2. CONTRACTOR SHALL PREPARE EXCAVATION INCLUDING PROVIDING SHORING IF NEEDED ACCORDING TO OSHA REGULATIONS AND TO SATISFACTION OF NLMA.
3. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS REQUIRED.
4. NLMA SHALL BE RESPONSIBLE FOR MACHINE DRILLING NEW OPENING INTO EXISTING MAIN AND INSTALLING NEW INSERTA-TEE AT DEVELOPER'S COST.
5. CONTRACTOR SHALL CONNECT TO INLET SIDE OF INSERTA-TEE AND CONTINUE SEWER EXTENSION PER SITE PLAN AND DETAILS INCLUDED ON DRAWINGS.
6. CONTRACTOR SHALL COORDINATE CONNECTION TO EXISTING SEWER MAIN WITH NLMA.
7. INSERTA-TEES ARE ONLY PERMITTED FOR USE FOR CONNECTING TO EXISTING MAINS AND FOLLOWING APPROVAL BY NLMA.

INSERTA-TEE DETAIL  
NOT TO SCALE

## THE VADLE® CURB BOX LOCK

MOST CURB STOPS AND CURB BOXES INSTALLATION INSTRUCTION:

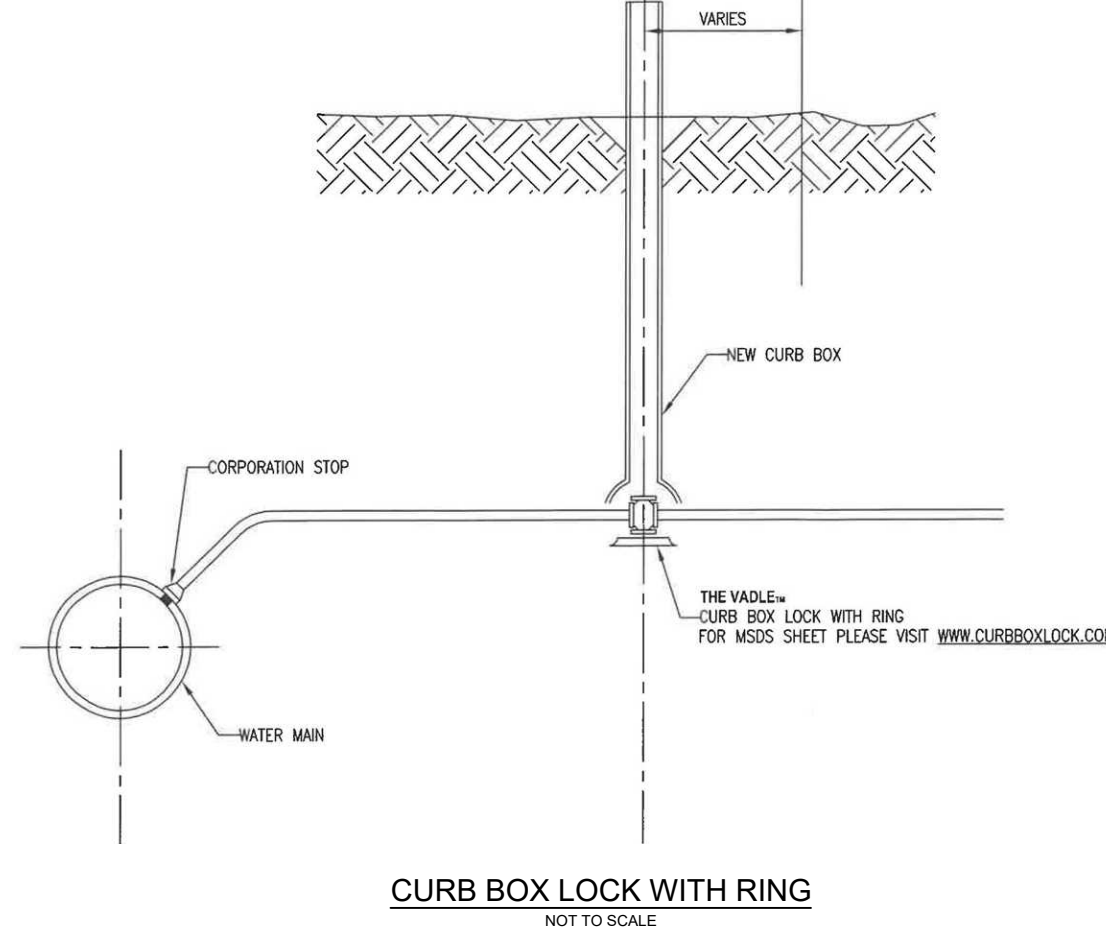
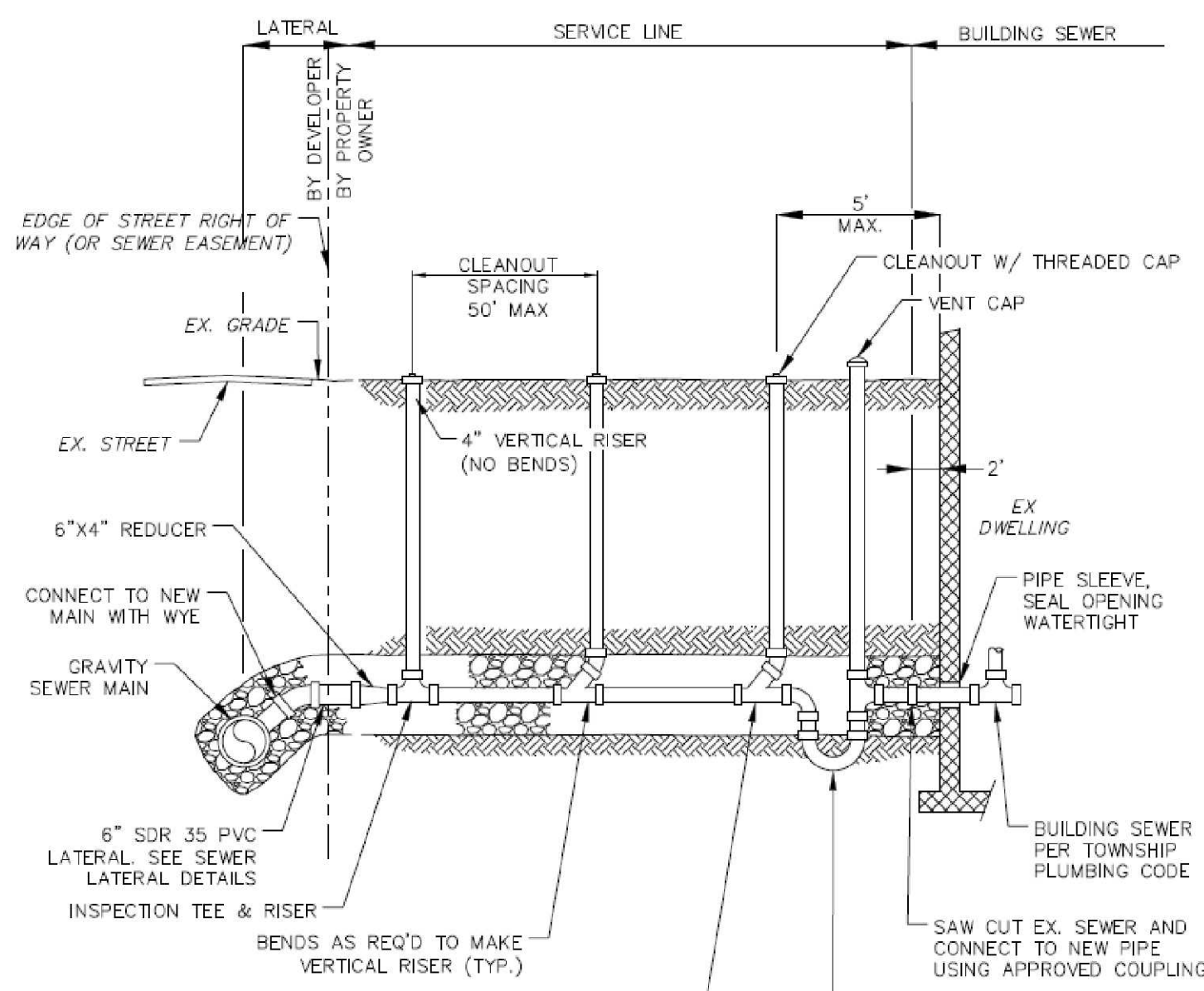
- 1) WHEN INSTALLING MOST CURB STOPS SIMPLY PLACE THE VADLE® ON A PROPERLY PREPARED SUB BASE UNDER THE CURB STOP.
- 2) IF THE AUTO-TEST RING FITS OVER THE KEY OF THE CURB STOP, THEN PUSH THE RING INTO THE VALVE-UNTIL IT LOCKS INTO PLACE (WITH THE 3 MILLER MARKS OR ORANGE MARKS MAKE SURE THE TAB ON THE SIDE OF THE KEY IS ON THE SIDE OF THE CENTERING RING WITH THE CUT-OUT IN IT AND PRESS DOWN UNTIL THE RING IS RESTING ON THE CURB STOP. THE RING WILL LOCK ONTO THE CURB STOP).
- 3) SOME CURB STOPS HAVE A CONE SHAPED DESIGN, PLACE THE LARGER END OF THE VALVE BODY IN THE LARGER SIDE OF THE VALVE-.
- 4) PLACE THE CURB BOX OVER THE VALVE-.
- 5) FINALLY BACK FILL ON ALL SIDES IN EQUAL LIFTS.

ALL CURB BOXES WITH THE VADLE® PLACED UPSIDE DOWN:

- 1) WHEN INSTALLING A 1" (200) INVERTED KEY OR A 1" (200) INVERTED PLUG CURB STOP, SIMPLY TURN THE VADLE® UPSIDE DOWN AND PUSH INTO THE GROUND SECURELY UNDER THE CURB STOP.
- 2) THEN SET THE VALVE ON THE VADLE® AND PUT THE CURB BOX OVER THE VALVE.
- 3) THESE TWO CURB STOPS FIT SECURELY IN THE CURB BOX. THE VADLE® SERVES AS A STABLE BASE AND FOUNDATION IN THIS APPLICATION.

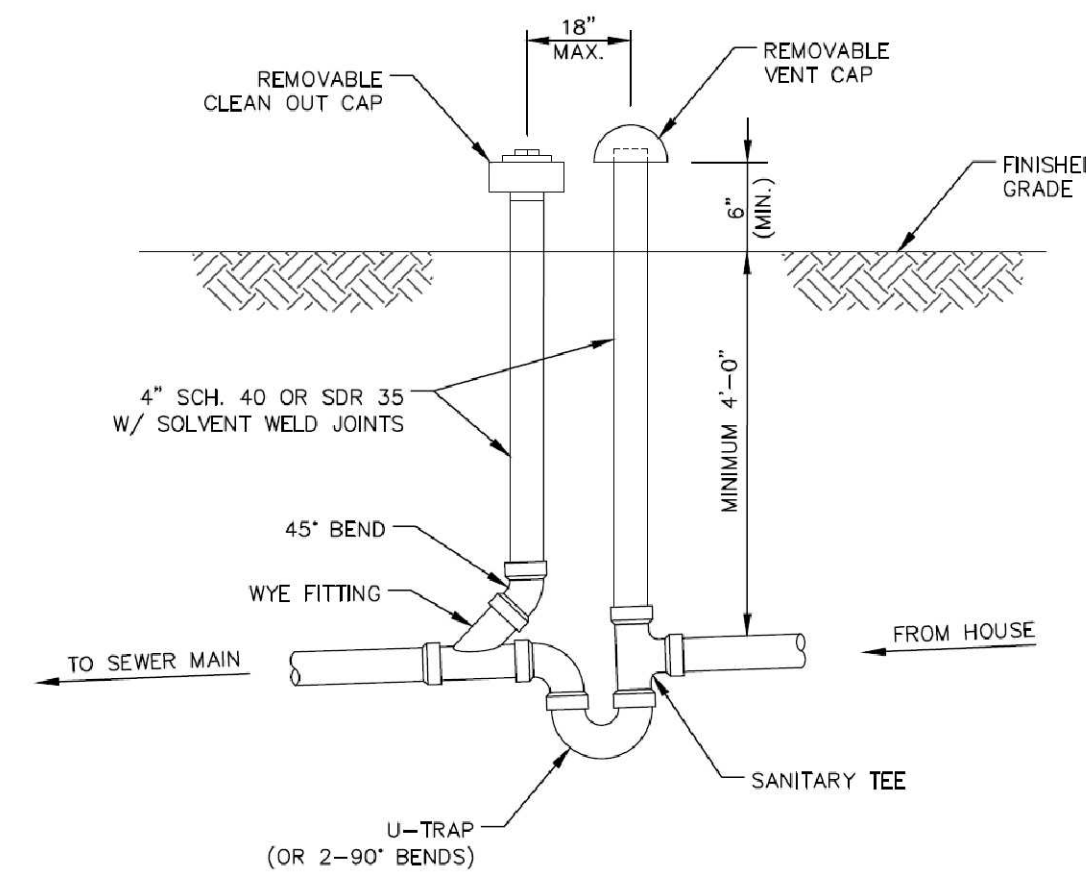
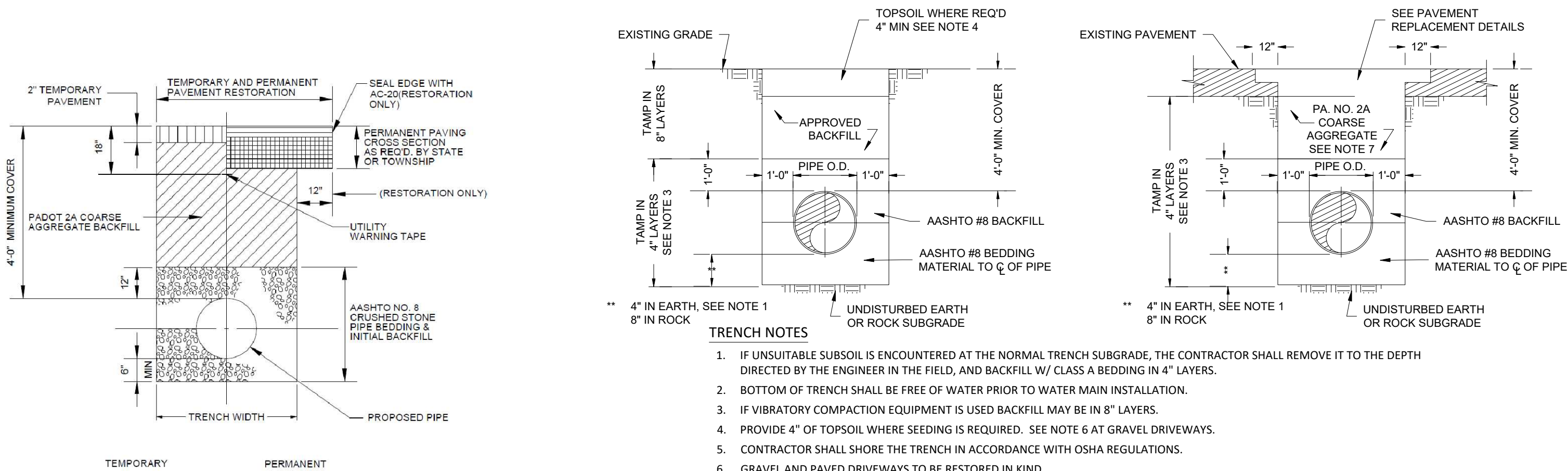
SOFT OR UNSTABLE GROUND:

- 1) WHEN INSTALLING IN CONDITIONS WITH SOFT OR UNSTABLE GROUND, THE VADLE® CAN BE SECURED TO A LARGER BASE SUCH AS A BRICK OR A STEPPING STONE.
- 2) SIMPLY SCREW THE VADLE® DOWN ONTO A LARGER BASE WITH ANY FORM OF ANCHORING SCREWS TO CREATE A SOLID SECURE FOUNDATION.

CURB BOX LOCK WITH RING  
NOT TO SCALE

## NOTES:

1. PROVIDE 6" OF AASHTO NO. 8 (18) STONE BELOW PIPE AND 12" ABOVE PIPE (TYPICAL ENTIRE LENGTH OF LATERAL).
2. MINIMUM SLOPE 1% (1/8" PER FT)
3. MINIMUM DEPTH OF COVER = 4 FT
4. PIPE MATERIALS:  
SERVICE LINE - PVC SDR 35 (PUSH-ON JOINTS)  
- PVC SCH 40, SOLVENT WELD
5. NO SEWER SERVICE LINE VENT CAPS SHALL BE INSTALLED WITHIN A 100 YEAR FLOOD PLAIN OR WITHIN FLOOD PRONE AREAS.
6. NO VENT CAPS OR CLEANOUTS SHALL BE INSTALLED IN DRIVEWAYS OR OTHER PAVED AREAS UNLESS SPECIFICALLY APPROVED BY NLMA.

GRAVITY SERVICE LINE  
INSTALLATION DETAIL  
NOT TO SCALETYPICAL TRAP &  
VENT ASSEMBLY  
NOT TO SCALE(TYPICAL FOR STATE HIGHWAYS, AND  
TOWNSHIP ROADS, SHOULDER & DRIVEWAYS)

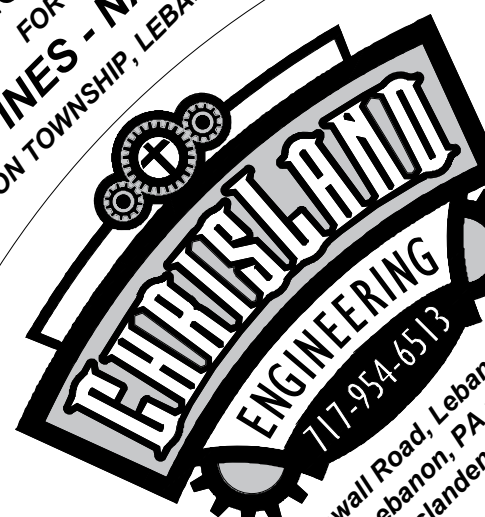
TRENCH RESTORATION DETAIL

## TRENCH NOTES

1. IF UNSUITABLE SUBSOIL IS ENCOUNTERED AT THE NORMAL TRENCH SUBGRADE, THE CONTRACTOR SHALL REMOVE IT TO THE DEPTH DIRECTED BY THE ENGINEER IN THE FIELD, AND BACKFILL W/ CLASS A BEDDING IN 4" LAYERS.
2. BOTTOM OF TRENCH SHALL BE FREE OF WATER PRIOR TO WATER MAIN INSTALLATION.
3. IF VIBRATORY COMPACTION EQUIPMENT IS USED BACKFILL MAY BE IN 8" LAYERS.
4. PROVIDE 4" OF TOPSOIL WHERE SEEDING IS REQUIRED. SEE NOTE 6 AT GRAVEL DRIVEWAYS.
5. CONTRACTOR SHALL SHORE THE TRENCH IN ACCORDANCE WITH OSHA REGULATIONS.
6. GRAVEL AND PAVED DRIVEWAYS TO BE RESTORED IN KIND.
7. COMPACT BACKFILL IN TRENCHES INSIDE TOWNSHIP ROW PER TOWNSHIP REQUIREMENTS.
8. ALL PAVING RESTORATION TO BE IN ACCORDANCE WITH NORTH LEBANON TOWNSHIP REQUIREMENTS.
9. PERMANENT RESTORATION IS REQUIRED WITHIN 90 DAYS (OR AS SOON AS POSSIBLE IF TRENCH IS INITIALLY RESTORED BETWEEN OCTOBER 30 AND APRIL 1).

TYPICAL TRENCH DETAIL  
NOT TO SCALE

PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
FOR  
WHISPERING PINES - NARROWS DRIVE  
NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA



Site & Utility Details  
www.christlandengineering.com

8 OF 15

DECEMBER 30, 2025

REVISION

DATE BY





M:\Project Files\CH6 - Chrisland Eng Projects\CH6.25.2 - Krall Narrows Drive\DWG\PRELIM-FINAL LD PLAN.dwg

DATE BY

## REVISION

15



SUBSURFACE INFILTRATION BED

A SUBSURFACE INFILTRATION BED GENERALLY CONSISTS OF A VEGETATED, HIGHLY PERVIOUS SOIL MEDIA UNDERLAIN BY A UNIFORMLY GRADED AGGREGATE (OR ALTERNATIVE) BED FOR TEMPORARY STORAGE AND INFILTRATION OF STORMWATER RUNOFF. SUBSURFACE INFILTRATION BEDS ARE IDEALLY SUITED FOR EXPANSIVE, GENERALLY FLAT OPEN SPACES, SUCH AS LAWNS, MEADOWS, AND PLAYFIELDS, WHICH ARE LOCATED DOWNHILL FROM NEARBY IMPERVIOUS AREAS. SUBSURFACE INFILTRATION BEDS CAN BE STEPPED OR TERRACED DOWN SLOPING TERRAIN PROVIDED THAT THE BASE OF THE BED REMAINS LEVEL. STORMWATER RUNOFF FROM NEARBY IMPERVIOUS AREAS (INCLUDING ROOFTOPS, PARKING LOTS, ROADS, WALKWAYS, ETC.) CAN BE CONVEYED TO THE SUBSURFACE STORAGE MEDIA, WHERE IT IS THEN DISTRIBUTED VIA A NETWORK OF PERFORATED PIPING. THE STORAGE MEDIA FOR SUBSURFACE INFILTRATION BEDS TYPICALLY CONSISTS OF CLEAN-WASHED, UNIFORMLY GRADED AGGREGATE. HOWEVER, OTHER STORAGE MEDIA ALTERNATIVES ARE AVAILABLE.

CONSTRUCTION SEQUENCE

1. DUE TO THE NATURE OF CONSTRUCTION SITES, SUBSURFACE INFILTRATION SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD, IF POSSIBLE. (INFILTRATION BEDS MAY BE USED AS TEMPORARY SEDIMENT BASINS OR TRAPS AS DISCUSSED ABOVE).
2. INSTALL AND MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES (AS PER THE PENNSYLVANIA EROSION AND SEDIMENTATION CONTROL PROGRAM MANUAL) DURING CONSTRUCTION.
3. THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.
4. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHOULD BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE (OR EQUIVALENT) AND LIGHT TRACTOR. ALL FINE GRADING SHOULD BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT LEVEL GRADE.
5. EARTHEN BERMS (IF USED) BETWEEN INFILTRATION BEDS SHOULD BE LEFT IN PLACE DURING EXCAVATION. THESE BERMS DO NOT REQUIRE COMPACTION IF PROVEN STABLE DURING CONSTRUCTION.
6. INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES.
7. GEOTEXTILE AND BED AGGREGATE SHOULD BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF STRUCTURES. GEOTEXTILE SHOULD BE PLACED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF GEOTEXTILE SHOULD OVERLAP A MINIMUM OF 16 INCHES. IT SHOULD ALSO BE SECURED AT LEAST 4 FEET OUTSIDE OF BED IN ORDER TO PREVENT ANY RUNOFF OR SEDIMENT FROM ENTERING THE STORAGE BED. THIS EDGE STRIP SHOULD REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO BEDS ARE STABILIZED AND VEGETATED. AS THE SITE IS FULLY STABILIZED, EXCESS GEOTEXTILE ALONG BED EDGES CAN BE CUT BACK TO THE EDGE OF THE BED.
8. CLEAN-WASHED, UNIFORMLY GRADED AGGREGATE SHOULD BE PLACED IN THE BED IN MAXIMUM 8-INCH LIFTS. EACH LAYER SHOULD BE LIGHTLY COMPACTED, WITH CONSTRUCTION EQUIPMENT KEPT OFF THE BED BOTTOM AS MUCH AS POSSIBLE.
9. APPROVED SOIL MEDIA SHOULD BE PLACED OVER INFILTRATION BED IN MAXIMUM 6-INCH LIFTS.
10. SEED AND STABILIZE TOPSOIL.
11. DO NOT REMOVE INLET PROTECTION OR OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

MAINTENANCE ISSUES

SUBSURFACE INFILTRATION IS GENERALLY LESS MAINTENANCE INTENSIVE THAN OTHER PRACTICES OF ITS TYPE. GENERALLY SPEAKING, VEGETATION ASSOCIATED WITH SUBSURFACE INFILTRATION PRACTICES IS LESS SUBSTANTIAL THAN PRACTICES SUCH AS RECHARGE LATERALS AND THEREFORE REQUIRES LESS MAINTENANCE. MAINTENANCE ACTIVITIES REQUIRED FOR THE SUBSURFACE BED ARE SIMILAR TO THOSE OF ANY INFILTRATION SYSTEM AND FOCUS ON REGULAR SEDIMENT AND DEBRIS REMOVAL. THE FOLLOWING REPRESENTS THE RECOMMENDED MAINTENANCE EFFORTS:

1. ALL ROCK "THROATS" SHOULD BE INSPECTED AND CLEANED AT LEAST 2 TIMES PER YEAR TO ENSURE THE "THROAT" WILL NOT BECOME CLOGGED WITH LEAVES AND DEBRIS, SPECIFICALLY DURING THE FALL.
2. THE OVERLYING VEGETATION OF SUBSURFACE INFILTRATION FEATURES SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
3. VEHICULAR ACCESS ON PAVED DRIVES WHERE SUBSURFACE INFILTRATION FACILITIES ARE LOCATED BENEATH THEM IS PERMITTED.

SPECIFICATIONS

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS, BUT ARE BY NO MEANS EXCLUSIVE OR LIMITING.

1. STONE FOR INFILTRATION BEDS SHALL BE 2-INCH TO 1-INCH UNIFORMLY GRADED COARSE AGGREGATE, WITH A WASH LOSS OF NO MORE THAN 0.5%, AASHTO SIZE NUMBER 3 PER AASHTO SPECIFICATIONS, PART 1, 19TH ED., 1998, OR LATER AND SHALL HAVE VOIDS 40% AS MEASURED BY ASTM-C29.
2. NON-WOVEN GEOTEXTILE SHALL CONSIST OF NEEDLED NON-WOVEN POLYPROPYLENE FIBERS AND MEET THE FOLLOWING PROPERTIES: A. GRAB TENSILE STRENGTH (ASTM-D4632) 120 LBS B. MULLEN BURST STRENGTH (ASTM-D3786) 225 PSI C. FLOW RATE (ASTM-D4491) 95 GAL/MIN/F2 D. UV RESISTANCE AFTER 500 HRS (ASTM-D4365) 70% E. HEAT-SET OR HEAT-CALENDARED FABRICS ARE NOT PERMITTED ACCEPTABLE TYPES INCLUDE MIRAFI 140N, AMOCO 4547, AND GEOTEX 451.
3. PIPE SHALL BE CONTINUOUSLY PERFORATED, SMOOTH INTERIOR, WITH A MINIMUM INSIDE DIAMETER OF 6-INCHES. HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL MEET AASHTO M252, TYPE S OR AASHTO M294, TYPE S.
4. STORM DRAIN INLETS AND STRUCTURES
  - a. CONCRETE CONSTRUCTION: CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH SECTION 1001, PENNDOT SPECIFICATIONS, 1990 OR LATEST EDITION.
  - b. PRECAST CONCRETE INLETS AND MANHOLES: PRECAST CONCRETE INLETS MAY BE SUBSTITUTED FOR CAST-IN-PLACE STRUCTURES AND SHALL BE CONSTRUCTED AS SPECIFIED FOR CAST-IN-PLACE. PRECAST STRUCTURES MAY BE USED IN ONLY THOSE AREAS WHERE THERE IS NO CONFLICT WITH EXISTING UNDERGROUND STRUCTURES THAT MAY NECESSITATE REVISION OF INVERTS. TYPE M STANDARD PENNDOT INLET BOXES WILL BE MODIFIED TO PROVIDE MINIMUM 12 INCH SUMP STORAGE AND BOTTOM LEACHING BASINS, OPEN TO GRAVEL SUMPS IN SUB-GRADE, WHEN SITUATED IN THE RECHARGE BED.
  - c. ALL PVC CATCH BASINS/CLEANOUTS/INLINE DRAINS SHALL HAVE H-10 OR H-20 RATED GRATES, DEPENDING ON THEIR PLACEMENT (H-20 IF VEHICULAR LOADING).
  - d. STEEL REINFORCING BARS OVER THE TOP OF THE OUTLET STRUCTURE SHALL CONFORM TO ASTM A615, GRADES 60 AND 40.
  - e. PERMANENT TURF REINFORCEMENT MATTING SHALL BE INSTALLED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.

		1 (P.L.S. IN LBS/AC)	2 (LBS/ACRE)	3 (TONS/ACRE)	
TEMPORARY	ANNUAL RYE	174	50-50-50 N-P-K	1 AG GRADE	OCTOBER 30
PERMANENT	FINE FESCUES	60	100-200-200 N-P-K	6 AG GRADE	AUGUST 30 AND OCTOBER 30
	KENTUCKY BLUEGRASS	90	100-200-200 N-P-K	6 AG GRADE	
	PERENNIAL RYEGRASS	25	100-200-200 N-P-K	6 AG GRADE	
ATHLETIC FIELDS	KENTUCKY BLUEGRASS	150	100-200-200 N-P-K	6 AG GRADE	AUGUST 30 AND OCTOBER 30
	PERENNIAL RYEGRASS	25	100-200-200 N-P-K	6 AG GRADE	
SWALE	F.M. BROWN CONSERVE LOW MAINTENANCE BASIN	20	100-200-200 N-P-K	6 AG GRADE	AUGUST 30 AND OCTOBER 30
STEEP SLOPES					
NURSE CROP	ANNUAL RYE	64	50-50-50 N-P-K	1 TON/AC AG GRADE*	OCT. 15
PERMANENT	BIRDSFOOT TREFOIL PLUS	10	100-200-200 N-P-K	1 TON/AC AG GRADE*	MARCH 15 AND OCT. 15
	PLUS TALL FESCUE	30	100-200-200 N-P-K	1 TON/AC AG GRADE*	

1. PLS IS PURE LIVE SEED. PLS IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. TO SECURE THE ACTUAL PLANTING RATE, DIVIDE THE POUNDS PLS BY THE PLS PERCENTAGE SHOWN ON THE SEED TAG OR AS PREVIOUSLY DISCUSSED. THUS, IF THE PLS CONTENT OF FINE FESCUES IS 50%, DIVIDE 7 PLS BY 0.50 TO OBTAIN 140 POUNDS OF SEED PER ACRE.
2. LIMING RATE SHALL BE IN ACCORDANCE WITH SOIL TEST RESULTS. APPLY 6 TONS OF AGRICULTURAL GRADE LIMESTONE/AC OF LAND DISTURBED BY DIVERSIONS AND DAMS.  
- ALL SEEDED AREAS SHALL BE MULCHED WITH STRAW APPLIED AT A RATE OF 3 TONS/ACRE. MULCH TO BE ANCHORED WITH WOOD CELLULOSE FIBER @ 750 LBS/AC.  
- ALL DIVERSIONS, CHANNELS, SED TRAPS AND STOCKPILES MUST BE STABILIZED IMMEDIATELY.

SEEDING AND FERTILIZER SPECIFICATIONS

NOT TO SCALE

POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) STANDARD NOTES

PCSM REQUIREMENTS

A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ONSITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPs, STRUCTURALLY ENGINEERED BMPs, OR OTHER BMPs AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

THE PCSM PLAN, INSPECTION REPORTS, AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs LOCATED ON THE PROPERTY.

PERMIT TERMINATION

UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY AND INSTALLATION OF BMPs IN ACCORDANCE WITH AN APPROVED PLAN, THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:

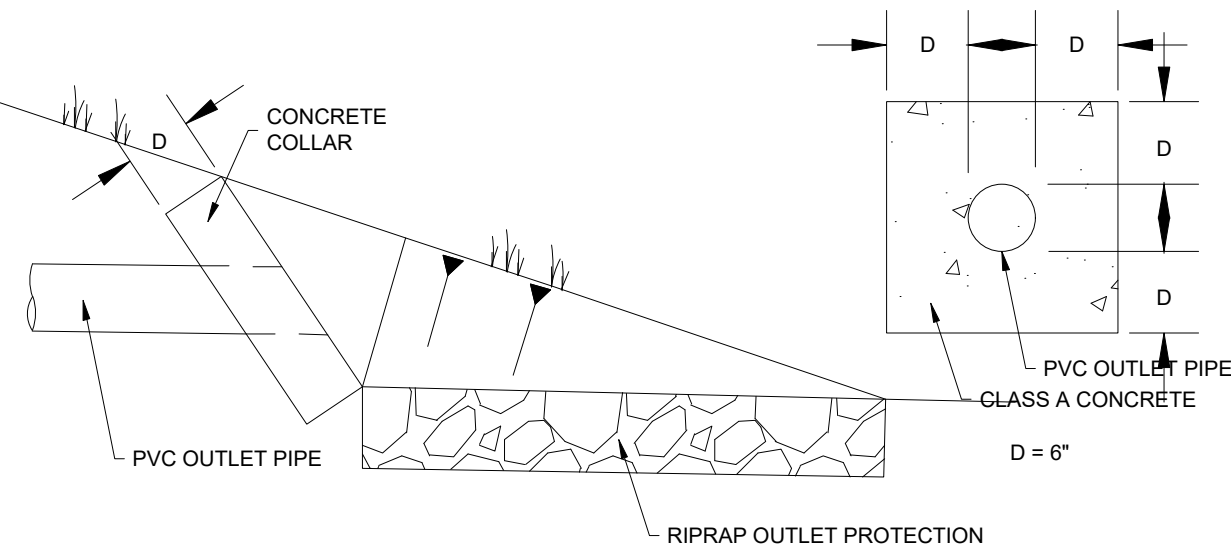
- (1) THE FACILITY NAME, ADDRESS AND LOCATION
- (2) THE OPERATOR NAME AND ADDRESS
- (3) THE NPDES PERMIT NUMBER
- (4) THE REASON FOR PERMIT TERMINATION
- (5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM
- (6) COPY OF LEGAL INSTRUMENT: FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPs AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION.
- (7) FINAL CERTIFICATION: THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:

"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA. C.S.A. §4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE HAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

- (1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
- (2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs.

NORTH LEBANON TOWNSHIP INFILTRATION PRACTICES (SUBSURFACE BEDS, DRY WELLS, SEEPAGE PITS & TRENCHES) O&M NOTES:

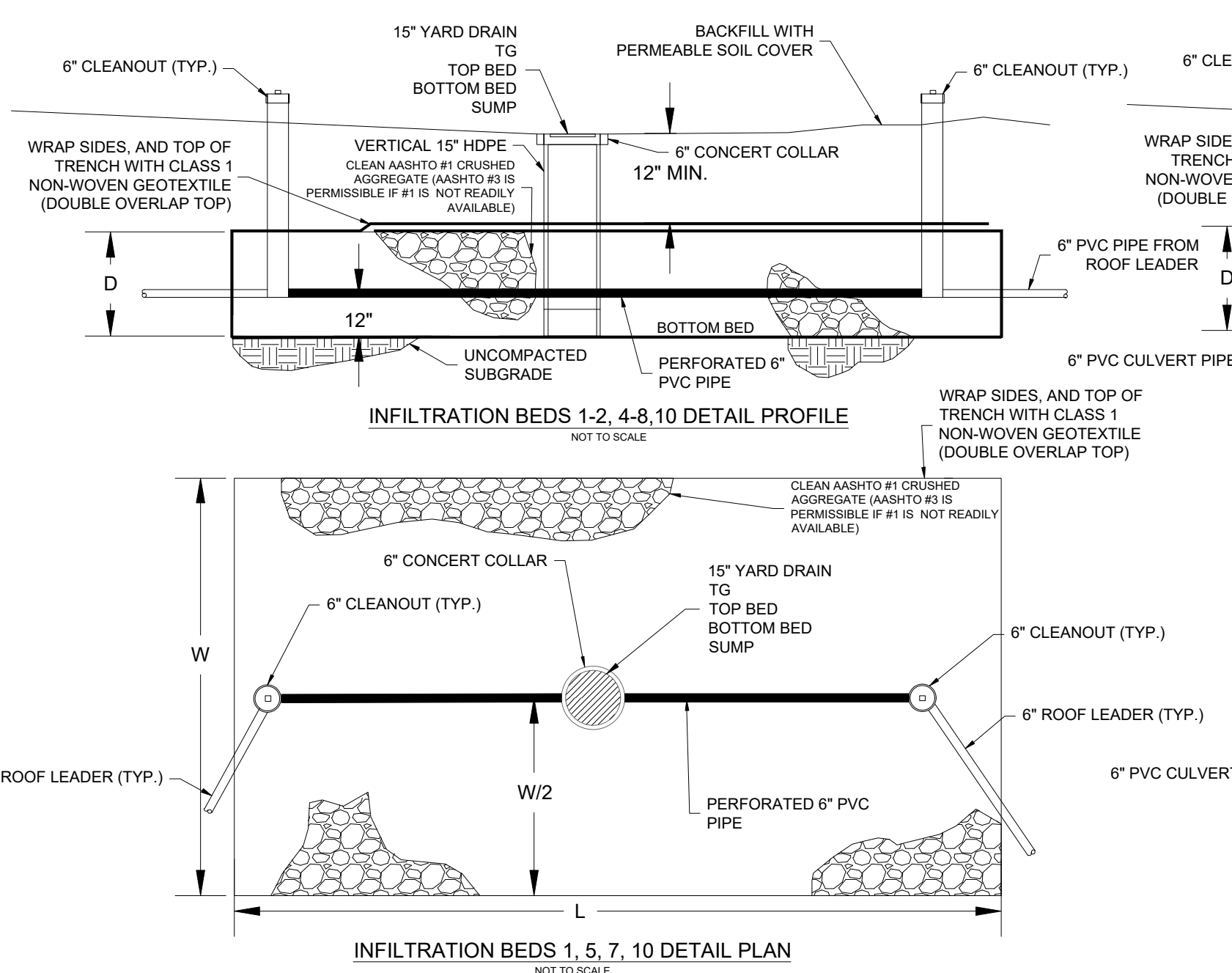
1. REGULARLY CLEAN OUT ROOF GUTTER SYSTEMS WHICH ARE CONNECTED TO INFILTRATION FACILITY.
2. CLEAN AND/OR REPLACE FILTER SCREENS THAT INTERCEPT ROOF RUNOFF AS NECESSARY.
3. CATCH BASINS, INLETS, AND CLEANOUTS UPGRADENT OF THE INFILTRATION FACILITIES SHOULD BE INSPECTED AND CLEANED AS NECESSARY OR AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS OF GREATER THAN ONE (1) INCH OF RAIN.
4. VEGETATION ALONG THE SURFACE OF THE INFILTRATION FACILITY SHALL BE MAINTAINED IN GOOD CONDITION, MOW TO ENSURE SAFETY, AESTHETICS, PROPER FACILITY OPERATION, AND TO SUPPRESS WEEDS AND INVASIVE VEGETATION. DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY. MOW ONLY WHEN THE AREA IS DRY TO AVOID RUTTING.
5. CARE SHALL BE TAKEN TO AVOID COMPACTION BY MOWERS. VEHICULAR ACCESS ON THE SURFACE ABOVE THE INFILTRATION AREA SHALL BE PROHIBITED.
6. RESEED BARE AREAS USING NATIVE GRASS SPECIES. INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SOIL IS EXPOSED, OR EROSION CHANNELS ARE FORMING.
7. IT MAY BE NECESSARY TO WATER THE VEGETATION ABOVE THE INFILTRATION FACILITY DURING DRY PERIODS TO MAINTAIN VEGETATIVE HEALTH.
8. INSPECTIONS OF THE INFILTRATION FACILITIES SHALL BE CONDUCTED WITHIN 48 HOURS AFTER EVERY STORM EVENT OF GREATER THAN ONE (1) INCH OF RAIN, OR FOUR TIMES PER YEAR AT A MINIMUM.
  - A. INSPECT AND CORRECT EROSION PROBLEMS, SUBSIDENCE, SINKHOLES, DAMAGE TO VEGETATION, AND THE GROWTH OF UNWANTED OR INVASIVE VEGETATION.
  - B. VERIFY THAT ALL WATER IN THE FACILITY HAS DRAINED DOWN WITHIN 72 HOURS AFTER THE RAINFALL EVENT. IF DRAW-DOWN TIMES ARE EXCEEDING 72 HOURS, DRAIN THE FACILITY VIA PUMPING AND CLEAN OUT ANY PERFORATED PIPING OR OTHER STORAGE STRUCTURES. IF SLOW DRAINAGE PERSISTS, THE FACILITY MAY REQUIRE REPLACEMENT.
  - C. ALL STRUCTURES EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT, INCLUDING CATCH BASINS, INLETS, CLEANOUTS, PIPES AND OTHER STORAGE STRUCTURES SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION. SEDIMENT ACCUMULATION SHALL BE ADDRESSED WHEN SEDIMENT IS GREATER THAN 3 INCHES DEEP. DISPOSE OF SEDIMENT AND DEBRIS IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  - D. INSPECT ALL PIPES, CATCH BASINS, INLETS, CLEANOUTS AND OUTLET STRUCTURES FOR DEFICIENCIES AND REPAIR OR REPLACE IF REQUIRED. COMMON DEFICIENCIES INCLUDE BROKEN CONCRETE, CRUSHED OR RUSTED PIPES, MISSING GROUT, OR BLOCKAGES CAUSED BY LITTER OR FOREIGN MATERIALS.
  - E. NOTIFY MUNICIPAL OFFICIALS IF THERE IS EVIDENCE OF WATER CONTAMINATION OR HAZARDOUS MATERIAL SPILLS.
  - F. ACCESS SHALL BE GRANTED TO ALL AUTHORIZED LOCAL, STATE, AND FEDERAL AGENCIES FOR BMP INSPECTIONS AT REASONABLE TIMES AND WITH REASONABLE FREQUENCY.
10. WRITTEN REPORTS DOCUMENTING ALL INSPECTIONS, REPAIRS, AND MAINTENANCE ACTIVITIES SHALL BE MAINTAINED ON SITE BY THE PROPERTY OWNER AT ALL TIMES.



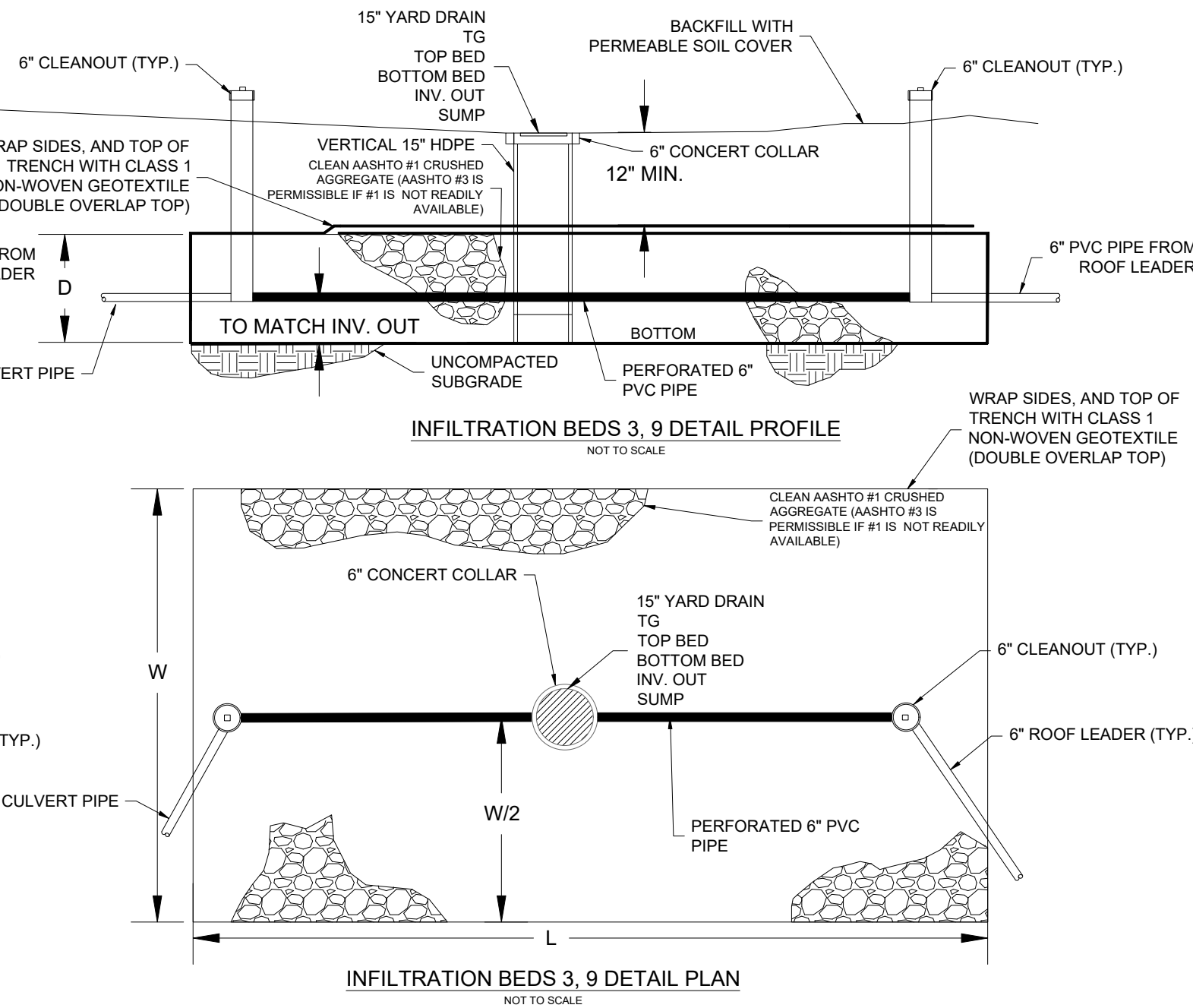
OUTLET NO.	PIPE DIA., D <sub>o</sub> (in)	TAILW ATER CONDI TION	L <sub>a</sub> (ft)	W (ft)	Q (cfs)	V (fps)	RIPRAP (R-?)	DEPTH (ft)
CC-1	6	Min	8	10	0.18	1.46	3	1
CC-2	6	Min	8	10	0.25	2.40	3	1

CONCRETE COLLAR DETAIL

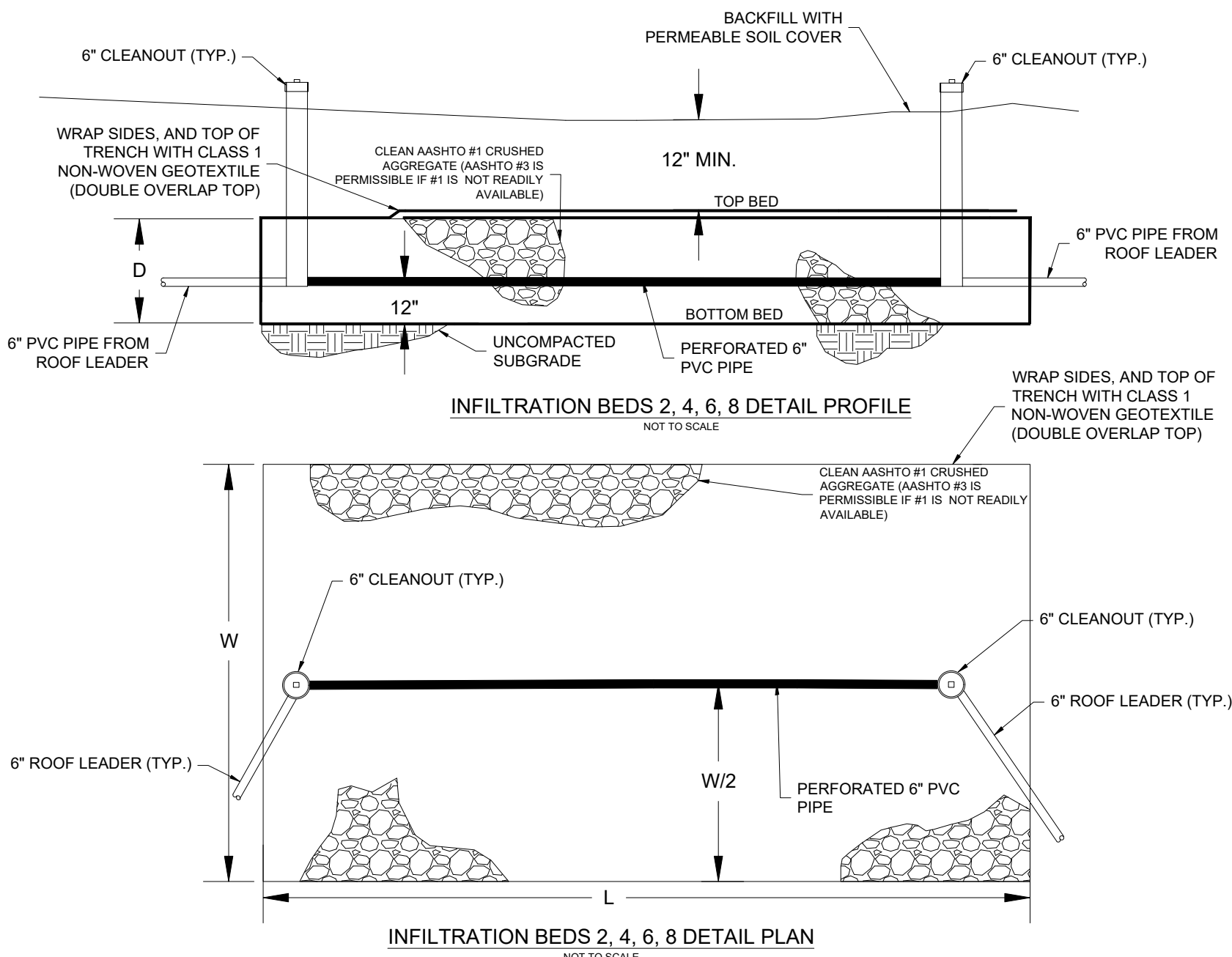
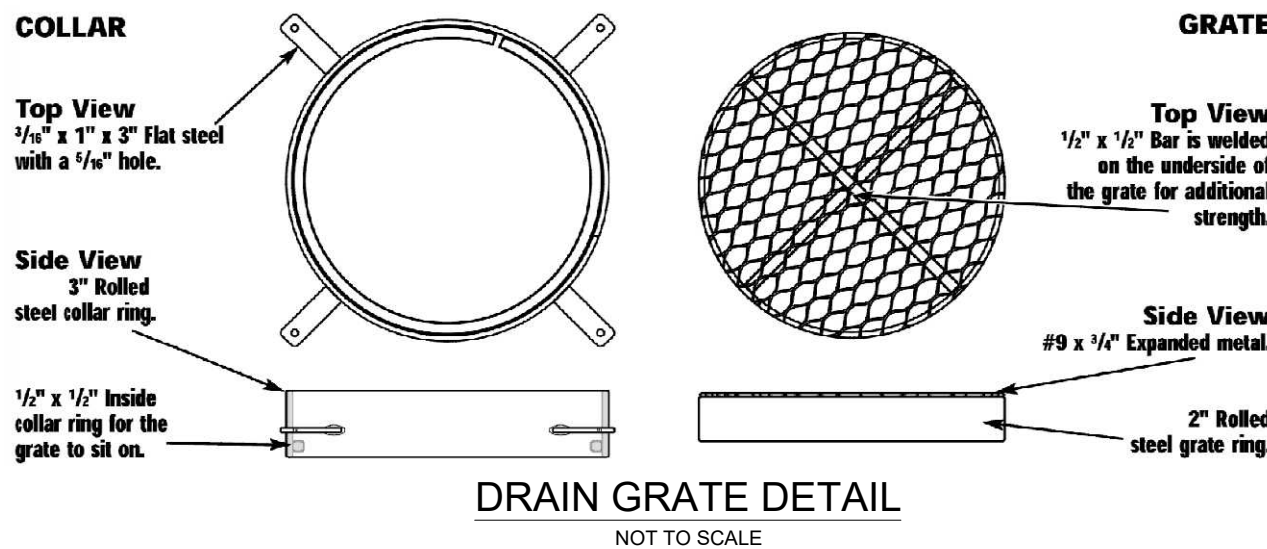
NOT TO SCALE



BMP NAME	Width 'W' (ft)	Length 'L' (ft)	Depth 'D' (ft)	Bottom Elevation (ft)	Top Elevation (ft)	Top of Grate 'TG' (ft)	Sump Elevation (ft)
Bed 1	10	60	4	550.00	554.00	556.80	550.00
Bed 5	10	40	2	560.00	562.00	562.80	560.00
Bed 7	10	45	4	450.00	560.00	564.00	564.80
Bed 10	25	60	4	559.00	563.00	563.80	559.00



BMP NAME	Width 'W' (ft)	Length 'L' (ft)	Depth 'D' (ft)	Bottom Elevation (ft)	Top Elevation (ft)	Top of Grate 'TG' (ft)	Sump Elevation (ft)	Invert Outlet Elevation (ft)
Bed 3	10	70	4	555.00	559.00	559.80	555.00	558.00
Bed 9	10	70	4	560.00	564.00	564.80	560.00	563.00



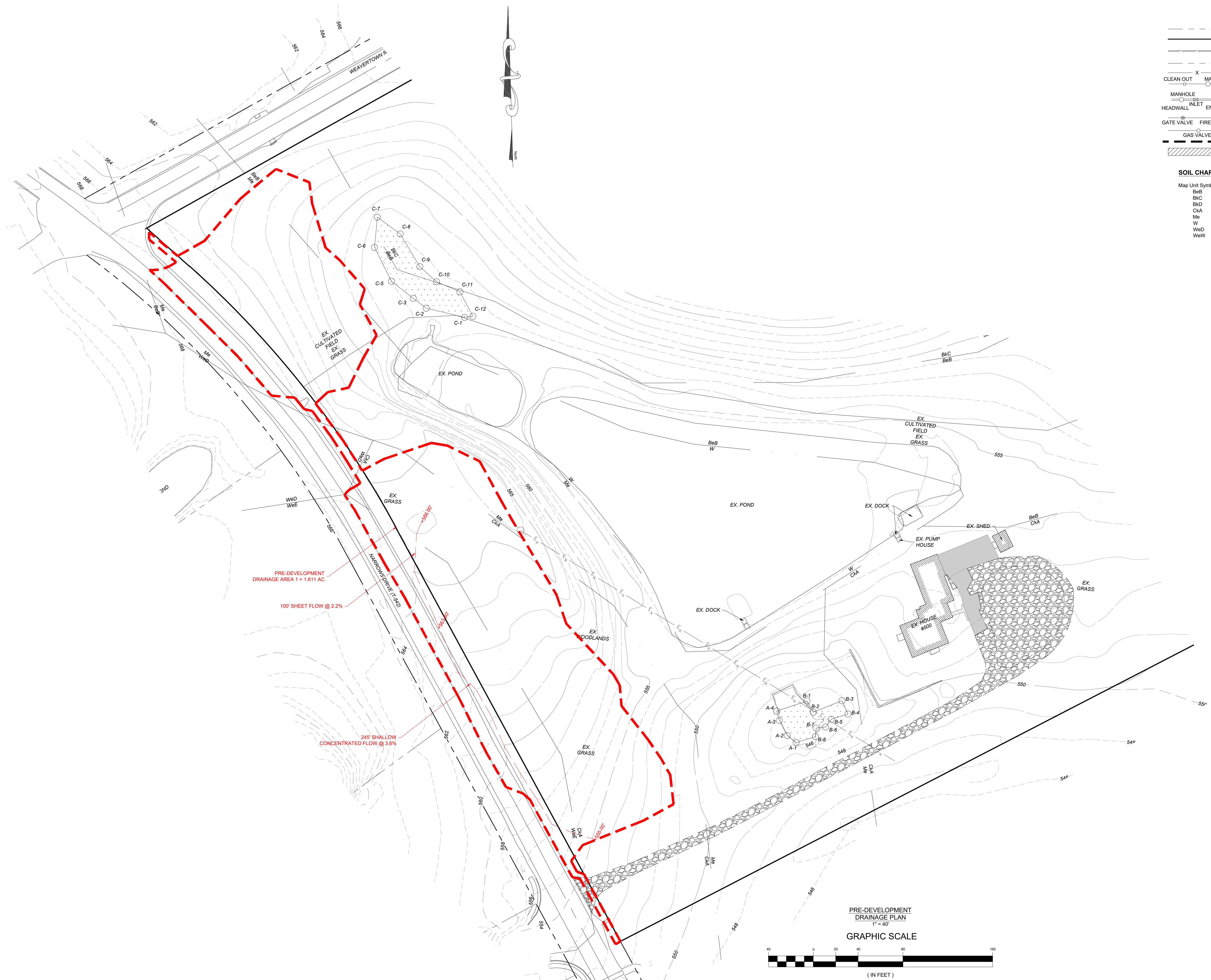
BMP NAME	Width 'W' (ft)	Length 'L' (ft)	Depth 'D' (ft)	Bottom Elevation (ft)	Top Elevation (ft)
Bed 2	10	40	2	553.00	555.00
Bed 4	10	40	3	557.00	560.00
Bed 6	10	40	3	561.00	564.00
Bed 8	10	20	2	563.00	565.00

PRELIMINARY/FINAL SUBDIVISION & LAND DEVELOPMENT PLAN FOR WHISPERING PINES - NARROWS DRIVE NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA



PCSM2 OF 15





**EXISTING FEATURES**

EXISTING ADJOINER LINE

EXISTING BOUNDARY LINE AND CORNERS

EXISTING EDGE OF PAVEMENT AND CURB LINE

EXISTING RIGHT-OF-WAY

EXISTING FENCE

EXISTING SEWER

EXISTING STORMWATER

EXISTING WATERLINE

EXISTING GASLINE

EXISTING EASEMENT

EXISTING SIDEWALK/CONCRETE

EXISTING CONTOURS

EXISTING TREELINE

SOILS

EXISTING UTILITY POLE

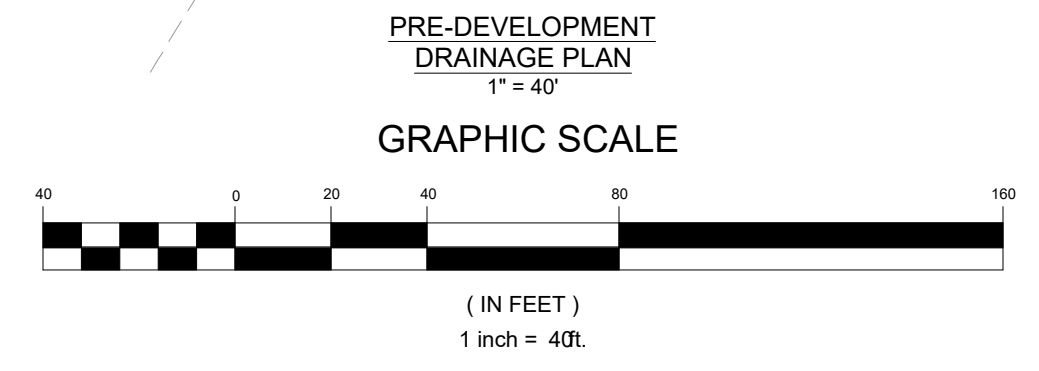
EXISTING LIGHT POLE

EXISTING OVERHEAD ELECTRIC

EXISTING WETLANDS

IRON PIN FOUND

IRON PIN SET



PRELIMINARY/FINAL SUBDIVISION &  
LAND DEVELOPMENT PLAN  
FOR  
WHISPER PINES - NARROWS DRIVE  
NORTH LEBANON TOWNSHIP, LEBANON COUNTY, PA

REVISION

DECEMBER 30, 2025

CHG 23.2



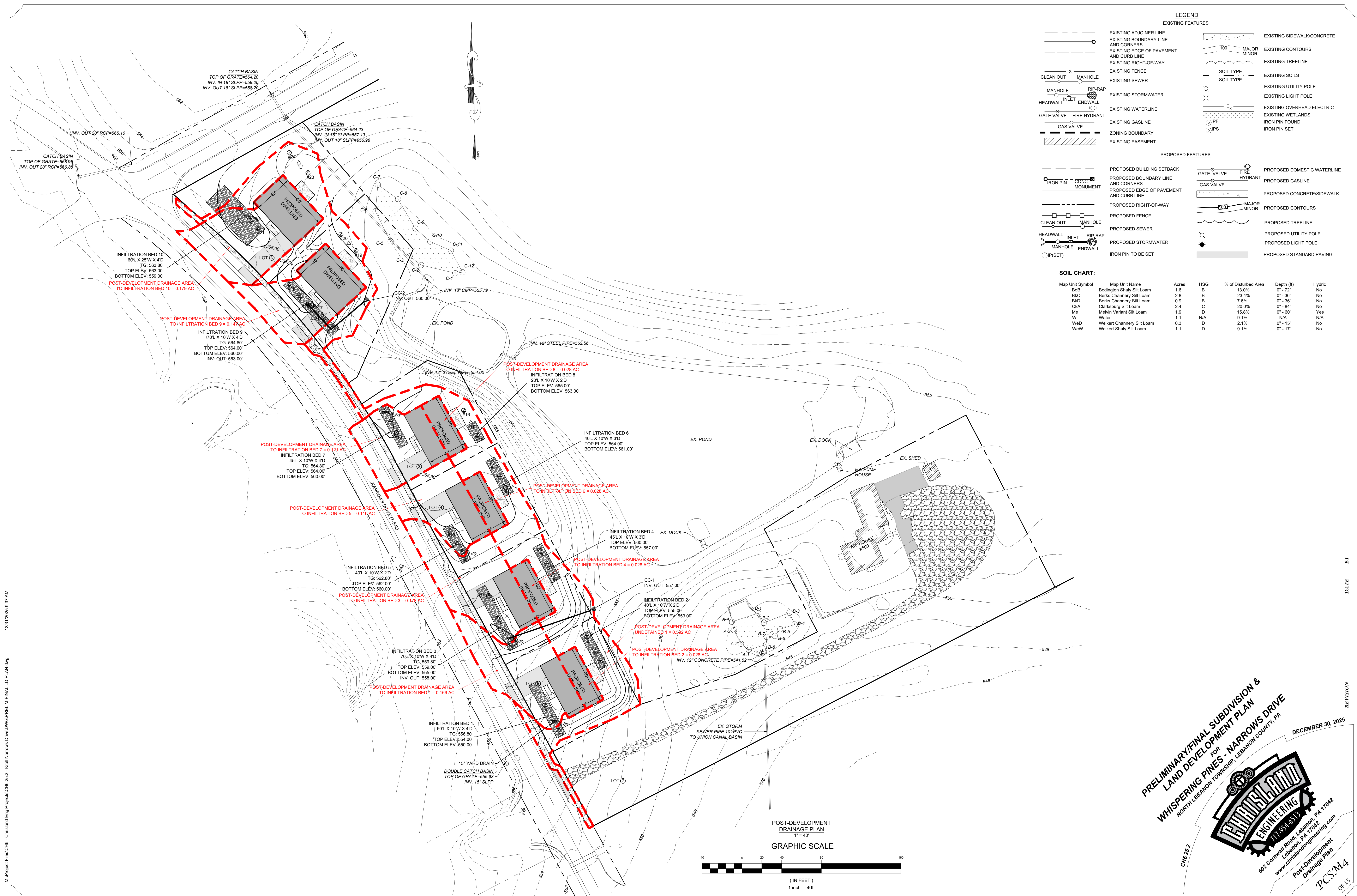
602 Cornwall Road, Lebanon, PA 17042  
Lebanon, PA 17042  
[www.chrislandengineering.com](http://www.chrislandengineering.com)

Pre-Development  
Drainage Plan

PCSM3

OF 15









**LEGEND**

**EXISTING FEATURES**

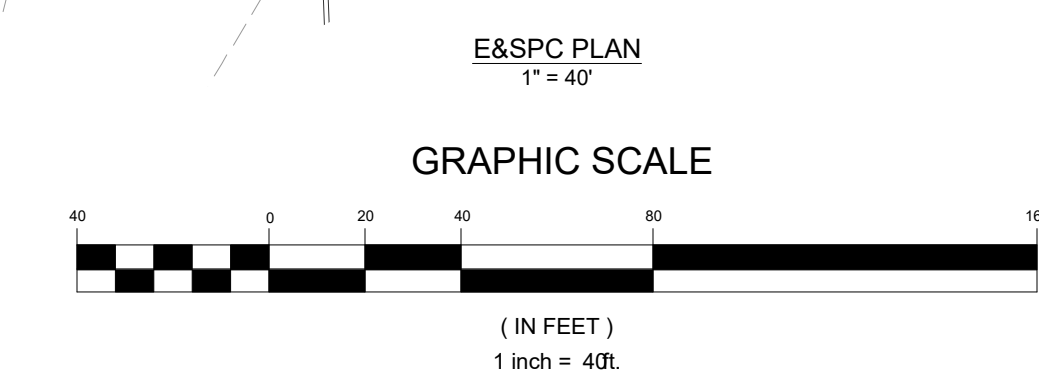
- EXISTING ADJOINER LINE
- EXISTING BOUNDARY LINE AND CORNERS
- EXISTING EDGE OF PAVEMENT AND CURB LINE
- EXISTING RIGHT-OF-WAY
- EXISTING FENCE
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING WATERLINE
- EXISTING GASLINE
- EXISTING EASEMENT
- EXISTING SIDEWALK/CONCRETE
- EXISTING CONTOURS
- EXISTING TREELINE
- EXISTING SOILS
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING OVERHEAD ELECTRIC
- EXISTING WETLANDS
- IRON PIN FOUND
- IRON PIN SET

**PROPOSED FEATURES**

- PROPOSED BUILDING SETBACK
- PROPOSED BOUNDARY LINE AND CORNERS
- PROPOSED EDGE OF PAVEMENT AND CURB LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED FENCE
- PROPOSED SEWER
- PROPOSED STORMWATER
- IRON PIN TO BE SET
- ROCK CONSTRUCTION ENTRANCE
- TOPSOIL STOCKPILE
- PROPOSED DOMESTIC WATERLINE
- PROPOSED GASLINE
- PROPOSED CONCRETE/SIDEWALK
- PROPOSED CONTOURS
- PROPOSED TREELINE
- PROPOSED UTILITY POLE
- PROPOSED LIGHT POLE
- PROPOSED STANDARD PAVING
- DISTURBANCE LIMITS
- NPDES LIMITS
- FILTER SOCK

**SOIL CHART:**

Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
BeB	Bedington Shaly Silt Loam	1.6	B	13.0%	0" - 72"	No
BkC	Berks Channery Silt Loam	2.8	B	23.4%	0" - 36"	No
BkD	Berks Channery Silt Loam	0.9	B	7.6%	0" - 36"	No
CkA	Clarkburg Silt Loam	2.4	C	20.0%	0" - 84"	No
Me	Melvin Variant Silt Loam	1.9	D	15.8%	0" - 60"	Yes
W	Water	1.1	N/A	9.1%	N/A	N/A
WeD	Weikert Channery Silt Loam	0.3	D	2.1%	0" - 15"	No
WeW	Weikert Shaly Silt Loam	1.1	D	9.1%	0" - 17"	No



**PRELIMINARY/FINAL SUBDIVISION & LAND DEVELOPMENT PLAN**  
FOR  
**WHISPERING PINES - NARROWS DRIVE**  
NORTH LEBANON TOWNSHIP - LEBANON COUNTY, PA

DECEMBER 30, 2025

**ENGINEERING**  
717-934-6513  
602 Cornwell Road, Lebanon, PA 17042  
www.chrislandengineering.com  
Erosion & Sediment  
Pollution Control Plan

**ES1**  
OF 15



EROSION AND SEDIMENT POLLUTION CONTROL NARRATIVE  
PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN FOR WHISPERING PINES – NARROWS DRIVE  
NORTH LEBANON TOWNSHIP, LEBANON COUNTY, PA 17046

A. SITE LOCATION

THE SITE IS LOCATED AT 500 NARROWS DRIVE IN NORTH LEBANON TOWNSHIP, LEBANON COUNTY, PA 17046 (SEE USGS MAP).

B. PROJECT DESCRIPTION

THE PURPOSE OF THIS PLAN IS TO PROPOSE THE SUBDIVISION OF AN R-2 HIGH DENSITY RESIDENTIAL PARCEL, RESULTING IN 6 RESIDENTIAL LOTS FOR SINGLE FAMILY DWELLINGS, 1 RESIDENTIAL LOT CONTAINING THE EXISTING RESIDENTIAL DWELLING, 1 RESIDUAL LOT, UTILITIES, BITUMINOUS DRIVEWAYS, AND ASSOCIATED STORMWATER MANAGEMENT FACILITIES (SEE SITE PLAN).

C. EXISTING SITE CONDITIONS & DOWNSTREAM DRAINAGE PATH

THE DEEDED ACREAGE FOR THIS SITE IS 13.64 ACRES. THE SITE CURRENTLY CONSISTS OF A RESIDENTIAL DWELLING, CULTIVATED FIELDS, AND GRASS OPEN SPACE. THE PROPERTY HAS BEEN IN ITS CURRENT CONDITION SINCE AT LEAST 1993 ACCORDING TO RESEARCH DONE ON PENNSYLVANIA IMAGERY NAVIGATOR (PASOS). THE SITE GENERALLY SLOPES TO THE CENTER, TOWARDS AN EXISTING POND. ONCE LEAVING THE PROPERTY, THE RUNOFF IS INTERCEPTED BY THE UNT TO TULPEHOCKEN CREEK, IN THE TULPEHOCKEN CREEK WATERSHED. THE CHAPTER 93 DESIGNATION IS COLD WATER FISHES (CWF).

ASSESSED USE: COLD WATER FISHES

ATTAIN USE: IMPAIRED

IMPAIRMENT SOURCE: AGRICULTURE, EROSION FROM DERELICT LAND (BARREN LAND)

IMPAIRMENT CAUSE: SILTATION

ASSESSED USE: WATER CONTACT SPORTS

ATTAIN USE: IMPAIRED

IMPAIRMENT SOURCE: UNKNOWN

IMPAIRMENT CAUSE: PATHOGENS

D. SOIL LIMITATIONS AND RESOLUTIONS

THE FOLLOWING SOILS ARE FOUND WITHIN OR ADJACENT TO THE AREA DISTURBED BY EARTH MOVING ACTIVITIES

SOIL CHART:

Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
BdL	Bedfordian Shaly Silt Loam	1.6	B	13.0%	0'-72"	No
BKC	Berks Channey Silt Loam	2.8	B	23.4%	0'-36"	No
BKD	Berks Channey Silt Loam	0.9	B	7.6%	0'-36"	No
CKA	Clarksburg Silt Loam	2.4	C	20.0%	0'-84"	No
Me	Melvin Variant Silt Loam	1.9	D	15.8%	0'-60"	Yes
W	Water	1.1	N/A	9.1%	N/A	N/A
WeD	Weikert Channey Silt Loam	0.3	D	2.1%	0'-15"	No
WeW	Weikert Shaly Silt Loam	1.1	D	9.1%	0'-17"	No

MANY SOIL LIMITATIONS EXIST FOR THE PROPOSED PROJECT. THE WEB SOIL SURVEY INDICATES THAT THE LAWS AND LANDSCAPING ESTABLISHMENT LIMITATIONS CLASSIFIED AS NOT RATED TO VERY LIMITED DUE TO LOW EXCHANGE CAPACITY, DROUGHTINESS, DUSTINESS, LARGE STONES CONTENT, PONDING, FLOODING, DEPTH TO SATURATED ZONE, GRAVEL CONTENT, DEPTH TO BEDROCK, AND SLOPE. THESE POTENTIAL LIMITATIONS SHOULD NOT BE A PROBLEM SINCE THE CURRENTLY VEGETATED. FURTHERMORE, THE SITE WILL BE STABILIZED WITH BUILDING COVERAGE, BITUMINOUS PAVEMENT, AND GRASS COVER OVER NEWLY GRADED TOPSOIL.

THE WEB SOIL SURVEY INDICATES THAT THE DWELLINGS WITHOUT BASEMENTS LIMITATIONS AS NOT RATED TO VERY LIMITED DUE TO SLOPE, DEPTH TO HARD BEDROCK, LARGE STONES, DEPTH TO THE SATURATED ZONE, DEPTH TO THICK CEMENTED PAN, DEPTH TO THICK CEMENTED PAN, PONDING, FLOODING AND SHRINK-SWELL POTENTIAL. THE SURVEY ALSO INDICATED THAT THE DWELLINGS WITH BASEMENTS LIMITATIONS WERE CLASSIFIED AS NOT RATED TO VERY LIMITED DUE TO SLOPE, DEPTH TO HARD BEDROCK, LARGE STONES, DEPTH TO THE SATURATED ZONE, PONDING, FLOODING, AND SHRINK-SWELL POTENTIAL. THESE LIMITATIONS WILL BE TAKEN INTO CONSIDERATION WHEN THE PROJECT IS DESIGNED.

THE SOIL RUTTING HAZARD LIMITATION CLASSIFIED AS NOT RATED TO SEVERE DUE TO LOW STRENGTH. STANDARD CONSTRUCTION PRACTICES WILL BE UTILIZED TO AVOID EXCESSIVE RUTTING AND EROSION ASSOCIATED WITH RUTTING WILL BE CONTROLLED WITH STANDARD EROSION AND SEDIMENT POLLUTION CONTROLS.

E. CALCULATIONS

TEMPORARY AND PERMANENT EROSION CONTROL FACILITIES WERE DESIGNED IN ACCORDANCE WITH THE STANDARDS ESTABLISHED IN THE EROSION AND SEDIMENT POLLUTION CONTROL MANUAL (PA DEP BUREAU OF SOIL AND WATER CONSERVATION, MARCH 2012).

RUNOFF CALCULATIONS WERE PERFORMED USING THE RATIONAL METHOD IN ACCORDANCE WITH PADEP AND NORTH LEBANON TOWNSHIP REGULATIONS. THE PROPOSED CONSTRUCTION PEAK RATES OF RUNOFF AND RUNOFF VOLUMES WILL REMAIN CONSISTENT WITH EXISTING CONDITIONS. THE VEGETATIVE COVER WILL BE RESTORED TO EXISTING CONDITIONS TO MITIGATE ANY POTENTIAL INCREASE IN PEAK RATES OF RUNOFF AND RUNOFF VOLUMES.

F. STAGING OF EARTHMOVING

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED BY THE LEBANON COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP, EXCEPT WHERE NOTED.

CONSTRUCTION OF THE SITE IMPROVEMENTS IS EXPECTED TO BEGIN SPRING OF 2026. CONSTRUCTION WILL PROCEED IN A TIMELY MANNER TO LIMIT THE POTENTIAL FOR ACCELERATED EROSION AND SEDIMENTATION. IF THE CONTROLS SHOWN ON THE PLAN ARE INCAPABLE OF ADDRESSING THE EROSION AND SEDIMENT CONTROL PROBLEMS ON THE LOT, THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ADOPTING ADEQUATE ALTERNATIVE MEASURES.

THE CONSTRUCTION SEQUENCE FOR DEVELOPMENT OF THE PROJECT SHALL BE AS FOLLOWS:

1. FOR ANY PROPERTY CONTAINING A POST-CONSTRUCTION STORMWATER CONTROL MEASURE (SCM), THE PERMITTED OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ENSURE DISCLOSURE OF THE SCM AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY.

THE RECORDED INSTRUMENT MUST IDENTIFY THE SCM(S), PROVIDE FOR NECESSARY ACCESS RELATED TO THE LONG-TERM OPERATION AND MAINTENANCE OF SCM(S) AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE SCM(S) IS A COVENANT THAT RUNS THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEE(S), AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER §102.7(b)(5) (RELATING TO PERMIT TERMINATION).

INSTRUMENT RECORDINGS ARE REQUIRED ON ALL LOTS WHERE ONE OR MORE SCMS WILL BE LOCATED AND SUBJECT TO LONG-TERM OPERATION AND MAINTENANCE. INSTRUMENT RECORDINGS ARE REQUIRED TO BE SUBMITTED TO THE LEBANON COUNTY CONSERVATION DISTRICT WITHIN 45 DAYS OF NPDES PERMIT AUTHORIZATION OR PRIOR TO SCHEDULING THE PRECONSTRUCTION MEETING.

2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING), THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, AND A REPRESENTATIVE FROM THE LEBANON COUNTY CONSERVATION DISTRICT (717-277-5275) TO AN ON-SITE PRECONSTRUCTION MEETING. THE LIMITS OF DISTURBANCE SHALL BE FIELD MARKED ON THE PROJECT SITE USING PAINT OR FLAGGING.

ALSO, AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.

3. INSTALL STABILIZED CONSTRUCTION ENTRANCE(S). THE BASE COURSE SHALL BE AASHTO #1 INSTALLED AT A MINIMUM OF 20-FT WIDE AND 50-FT LONG.

4. STAKE OUT LIMITS OF PROPOSED EARTH DISTURBANCE PRIOR TO ANY EARTH DISTURBANCE ACTIVITIES TAKING PLACE.

5. INSTALL FILTER SOCK AT TOPSOIL STOCKPILE AND OTHER AREAS AS INDICATED ON THE ATTACHED PLAN. FILTER SOCK IS TO BE INSTALLED ALONG THE CONTOUR AT A LEVEL GRADE.

UPON INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPs, AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT.

6. CLEAR, GRUB, AND STRIP AREAS AS NECESSARY TO CONSTRUCT IMPROVEMENTS. EXCESS TOPSOIL SHALL BE PLACED ON THE "TOPSOIL/SPILL STOCKPILE" SHOWN HEREON. IMMEDIATELY STABILIZE TOPSOIL STOCKPILE.

7. ROUGH GRADE SITE FOR INSTALLATION OF THE PROPOSED DWELLINGS, DRIVEWAYS, AND STORMWATER MANAGEMENT FACILITIES.

TAKE CARE TO AVOID UNNECESSARY COMPACTION OF THE INFILTRATION FACILITY BOTTOMS. EXCAVATION SHALL TAKE PLACE FROM OUTSIDE THE LIMITS OF THE INFILTRATION FACILITIES. IF COMPACTION OCCURS, THE INFILTRATION FACILITY BOTTOMS SHALL BE SCARIFIED TO LOOSEN THE SOILS PRIOR TO PLACEMENT OF THE AMENDED SOILS.

8. CONSTRUCT INFILTRATION BEDS AND INSTALL GEOTEXTILE AND STONE.

9. BACKFILL AND BRING SITE TO NECESSARY GRADE FOR INSTALLATION OF THE PROPOSED DWELLINGS. PLACE STONE BASE FOR DRIVEWAYS AS SOON AS PRACTICABLE. CONSTRUCT OR EXTEND UTILITIES AS NEEDED, AND COMPLETE ASSOCIATED GRADING.

10. CONSTRUCT DWELLINGS AND DRIVEWAYS.

11. FINE GRADE ANY REMAINING AREAS AS SHOWN ON THE GRADING PLAN. SPREAD 6-IN OF TOPSOIL ON FRESHLY GRADED AREAS. FINAL PASSES DURING FINE GRADING SHALL BE MADE AT RIGHT ANGLES TO THE SLOPES. PREPARE THE REMAINDER OF THE DISTURBED AREA FOR PERMANENT STABILIZATION. SEEDED SHALL BE PREPARED IN ACCORDANCE WITH ACCEPTED PRACTICES. SEED MIXTURE SHALL BE APPLIED IN ACCORDANCE

WITH THE MANUFACTURER'S RATES AND INSTRUCTIONS.

12. SEED ALL REMAINING DISTURBED AREAS AND SEEDED AREAS. MULCH WITH HAY OR STRAW AT A MINIMUM RATE OF THREE (3) TONS PER ACRE (OR MULCH AS A PART OF HYDROSEEDING).

13. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROLS ONCE THE SITE IS COMPLETELY STABILIZED (DEFINED AS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION IN ALL AREAS TRIBUTARY TO THE CONTROLS). ALL AREAS DISTURBED DURING THIS PROCESS SHALL BE STABILIZED IMMEDIATELY THROUGH SEEDING AND MULCHING.

14. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTE ON OR OFF THE SITE.

15. UPON COMPLETION OF PROPOSED IMPROVEMENTS, STABILIZATION OF THE SITE, AND FOLLOWING NECESSARY INSPECTION ACTIVITIES, THE DEVELOPER SHALL SUBMIT A NOTICE OF TERMINATION TO THE LEBANON COUNTY CONSERVATION DISTRICT.

G. TEMPORARY CONTROL MEASURES

1. TOPSOIL STOCKPILE

a. A STOCKPILE SHALL BE USED TO CONTAIN ALL STRIPPED TOPSOIL IN A LIMITED AREA TO KEEP DISTURBANCE TO A MINIMUM.

b. STOCKPILES SHALL BE STABILIZED IMMEDIATELY IN ACCORDANCE WITH THE TEMPORARY SEEDING SPECIFICATION CONTAINED HEREON.

c. STOCKPILE HEIGHTS MUST NOT EXCEED 35' IN HEIGHT. SIDE SLOPES SHALL BE 2:1 OR FLATTER.

2. FILTER SOCK

a. FILTER SOCK SHALL BE USED TO INTERCEPT SEDIMENT-LADEN RUNOFF FROM SMALL WATERSHEDS.

b. FILTER SOCK MUST BE INSTALLED AT LEVEL GRADE.

c. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF SOCK.

3. INTERIM STABILIZATION

a. TEMPORARY SEEDING AND MULCHING SHALL BE APPLIED WHERE INDICATED TO PROVIDE INTERIM STABILIZATION TO EXPOSED AREAS.

b. TEMPORARY SEEDING/MULCHING SHALL BE AS APPLIED AS SPECIFIED ON THE SEEDING SCHEDULE CONTAINED ON THE E&S PLAN.

c. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED, AND WHICH WILL REMAIN EXPOSED MUST BE STABILIZED IMMEDIATELY DURING NON-GERMINATING PERIODS. MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS THAT ARE NOT AT FINISHED GRADE AND WILL BE RE-DISTURBED WITHIN 1 YEAR MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY SEEDING SPECIFICATION CONTAINED HEREON. DISTURBED FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS CONTAINED HEREON.

4. ROCK CONSTRUCTION ENTRANCE

a. A STABILIZED PAD OF CRUSHED STONE (AASHTO #1) SHALL BE LOCATED WHERE CONSTRUCTION TRAFFIC WILL BE ENTERING AND LEAVING THE SITE. THE ROCK CONSTRUCTION ENTRANCE IS USED TO ELIMINATE THE TRACKING OF LOVING MATERIALS ONTO THE DRIVEWAY.

b. PUBLIC STREET SWEEPING WITH A VACUUM SWEEPER AND ROLLING OF DIRT AND GRAVEL ROADS SHALL BE COMPLETED AT THE END OF EACH WORKDAY (OR MORE FREQUENTLY AS NEEDED).

c. INSPECT AREA TO BE SWEEP FOR MATERIALS THAT MAY BE HAZARDOUS PRIOR TO BEGINNING SWEEPING OPERATIONS.

d. MANUAL CLEANING OF TIRES WITH A BROOM SHALL BE COMPLETED PRIOR TO SITE EGRESS.

H. PERMANENT CONTROL MEASURES

1. PERMANENT GRASS OR LEGUME COVER

a. ALL DISTURBED AREAS THAT ARE NOT PAVED SHALL BE PERMANENTLY STABILIZED WITH GRASS TO MINIMIZE EROSION.

b. PERMANENT GRASS COVER SHALL BE APPLIED AS SPECIFIED IN ACCORDANCE WITH THE SEEDING SCHEDULE AND NOTES CONTAINED ON THE ATTACHED E&S PLAN.

2. MULCH

a. MULCH SHALL BE APPLIED TO ALL SEEDED AREAS TO HELP ESTABLISH A PERMANENT GRASS COVER AND TO PREVENT EROSION ON ALL AREAS PERMANENTLY STABILIZED WITH SEED.

b. MULCH SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE. MULCH SHALL BE ANCHORED WITH WOOD CELLULOSE FIBER AT 750 LBS./ACRE.

3. SOD

a. SOD SHALL BE INSTALLED IN AREAS WHERE PERMANENT STABILIZATION WITH SEED ALONE IS DIFFICULT.

b. SOD MATERIALS AND INSTALLATION SHALL MEET THE APPROVAL OF THE LEBANON COUNTY CONSERVATION DISTRICT.

c. ALL PERMANENT AND TEMPORARY SPILLWAYS ARE TO BE SODDED TO PROVIDE IMMEDIATE EROSION PROTECTION. SOD SHALL EXTEND FROM THE SPILLWAY TO THE TOP OF THE SLOPE OF THE TRAP EMBANKMENT.

I. MAINTENANCE

1. THE APPLICANT/OR HIS DESIGNEE SHALL BE RESPONSIBLE FOR MAINTAINING ALL FACILITIES SHOWN ON THIS PLAN.

2. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROL AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY.

3. STOCKPILES MUST BE STABILIZED IMMEDIATELY.

4. ALL SEDIMENT REMOVED FROM SEDIMENT TRAPPING DEVICES SHALL BE DISPOSED OF WITHIN THE SITE IN A MANNER THAT WILL NOT CAUSE EROSION OR SEDIMENTATION. ALL AREAS DISTURBED DURING THIS PROCESS WILL BE MULCHED AND PERMANENTLY STABILIZED WITH SEEDS.

5. ANY PERMANENTLY SEEDED AREA THAT BECOMES ERODED OR DISTURBED SHALL HAVE THE TOPSOIL REPLACED, THE GRASS RE-SOWN AND MULCH REAPPLIED, OR, AT THE DISCRETION OF THE OWNER, SOD INSTALLED.

6. FILTER SOCK MUST BE INSTALLED AT LEVEL GRADE. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE SOCK.

7. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

8. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED, AND WHICH WILL REMAIN EXPOSED MUST BE STABILIZED IMMEDIATELY DURING NON-GERMINATING PERIODS. MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE, AND WHICH WILL BE RE-DISTURBED WITHIN ONE (1) YEAR MAY BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN ONE (1) YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.

9. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED (DEFINED AS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION IN ALL AREAS TRIBUTARY TO THE CONTROLS), TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED IMMEDIATELY.

10. FILTER SOCK MUST BE INSTALLED AT LEVEL GRADE. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE SOCK.

11. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

12. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED, AND WHICH WILL REMAIN EXPOSED MUST BE STABILIZED IMMEDIATELY DURING NON-GERMINATING PERIODS. MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE, AND WHICH WILL BE RE-DISTURBED WITHIN ONE (1) YEAR MAY BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDING SPECIFICATIONS. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN ONE (1) YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS.

13. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED (DEFINED AS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION IN ALL AREAS TRIBUTARY TO THE CONTROLS), TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED IMMEDIATELY.

J. FILL MATERIALS

IF THE SITE WILL NEED TO HAVE FILL IMPORTED FROM AN OFF-SITE LOCATION, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND THE DETERMINATION OF CLEAN FILL WILL IN MOST CASES RESIDE WITH THE OPERATOR. IF THE SITE WILL HAVE EXCESS FILL THAT WILL NEED TO BE EXPORTED TO AN OFF-SITE LOCATION, THE RESPONSIBILITY OF CLEAN FILL DETERMINATION AND ENVIRONMENTAL DUE DILIGENCE RESTS ON THE APPLICANT.

K. CLEAN FILL

UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREGGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK, OR CONCRETE FROM CONSTRUCTION AND DEMOLITION AREAS THAT ARE SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED.

L. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE

FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS A CLEAN FILL PROVIDED THE EXISTING FILL MATERIALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

M. ENVIRONMENTAL DUE DILIGENCE

INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATABASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.

N. POTENTIAL POLLUTANT CAUSING MATERIALS

THE SITE CONSISTS OF SOILS WHICH HAVE THE POTENTIAL TO ERODE WHEN DISTURBED. STANDARD EROSION CONTROLS SUCH AS ROCK CONSTRUCTION ENTRANCES, FILTER SOCKS, AND TEMPORARY AND FINAL SEEDING WILL BE UTILIZED TO MINIMIZE THE POTENTIAL FOR EROSION.

O. MINIMIZE THE EXTEND AND DURATION OF EARTH DISTURBANCE

THE CONSTRUCTION SEQUENCE ADDRESSES THE ANTICIPATED SEQUENCE OF CONSTRUCTION AND PROVIDES PROVISIONS FOR INTERIM STABILIZATION AND A PERIODIC STABILIZATION SCHEDULE TO MINIMIZE THE DURATION

AND EXTENT OF DISTURBANCE AT ANY ONE TIME.

P. E&S PLAN MINIMIZES SOIL COMPACTION

THE PROJECT WILL COMPACT FILL ONLY AS NEEDED TO PROVIDE THE NECESSARY STRUCTURAL STABILITY. IT IS NOT ANTICIPATED THERE WILL BE ANY UNNECESSARY COMPACTION BY CONSTRUCTION EQUIPMENT SINCE THE PROJECT IS LIMITED IN SIZE AND CONSTRUCTION EQUIPMENT WILL GENERALLY BE CONCENTRATED IN AREAS OF PROPOSED DRIVEWAYS IMMEDIATELY ADJACENT TO THE PROPOSED STRUCTURES. TOPSOIL WILL BE PLACED IN ACCORDANCE WITH INDUSTRY STANDARDS AND WILL NOT BE OVERLY COMPACTED. THE TOPSOIL PLACEMENT AND STABILIZATION WILL BE THE LAST STEPS OF THE PROJECT WITH LIMITED POTENTIAL FOR UNWARRANTED COMPACTION.

Q. E&S PLAN UTILIZES OTHER MEASURES OR CONTROLS THAT PREVENT OR MINIMIZE GENERATION OF INCREASED STORMWATER RUNOFF

A STORMWATER MANAGEMENT SYSTEM IS PROPOSED TO REDUCE PEAK RATES OF RUNOFF AND THE VOLUME OF RUNOFF. DISTURBED AREAS WILL BE RESTORED TO MEADOW/GRASS CONDITIONS SIMILAR TO PRE-DEVELOPMENT CONDITIONS.

R. THERMAL ANALYSIS IMPACT

NO THERMAL IMPACTS ARE EXPECTED FROM THIS PROJECT. THE RUNOFF IS COLLECTED AND CONVEYED TO INFILTRATION FACILITIES. THE INFILTRATION BEDS WILL RETAIN THE RUNOFF AND ALLOW IT TO COOL PRIOR TO INFILTRATING.

S. OFF-SITE DISCHARGE ANALYSIS

THE MAJORITY OF THE SITE (DRAINAGE AREAS 1 TO 10) DRAINS TO THE GROUNDWATER. THE REST OF THE DISTURBED SITE (UNDETAINED AREA 1) DRAINS EITHER TO THE EXISTING SURFACE WATERS OR TO THE SOUTH AND CONTINUES TO THE TULPEHOCKEN CREEK. THE EXISTING DRAINAGE PATH IS STABLE AND IN GOOD CONDITION.

NO ADVERSE IMPACTS ARE EXPECTED AS PART OF THIS DEVELOPMENT. THE PROPOSED STORMWATER MANAGEMENT SYSTEM PROPOSES TO REDUCE THE PEAK FLOW RATES AND 100-YEAR RUNOFF VOLUME TO LESS THAN PRE-DEVELOPMENT THEREFORE, THE CONVEYANCE CAPACITY OF THE DOWNSTREAM CHANNEL WILL BE IMPROVED. THE CURRENT DRAINAGE PATH IS STABLE AND WILL CONTINUE TO BE SO IN POST-DEVELOPMENT CONDITIONS.

STANDARD E&S PLAN NOTES

- All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings (stamped, signed and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
- At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.
- At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
- The earth disturbance activities shall be done in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing from the local conservation district or by the Department prior to implementation.
- Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.
- Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified by the BMP sequence for that stage or phase have been installed and are functioning as described in this E&S plan.
- At no time shall construction vehicles be allowed to enter areas outside the limit of disturbance boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.
- Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan map(s) in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 35 feet. Stockpile slopes shall be 2H:1V or flatter.
- Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or the regional office of the Department.
- All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq. 271.1, and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
- All off-site waste and borrow areas must have an E&S plan approved by the local conservation district or the Department fully implemented prior to being activated.
- The contractor is responsible for ensuring that any material brought on site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.
- All pumping of water from any work area shall be done according to the procedure described in this plan, over undisturbed vegetated areas.
- Until the site is stabilized, all erosion and sediment BMPs shall be maintained properly. Maintenance shall include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.
- A log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of inspection.
- Sediment tracked onto any public roadway or sidewalk shall be returned to the construction site by the end of each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.
- All sediment removed from BMPs shall be disposed of in the manner described on the plan drawings.
- Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches — 6 to 12 inches on compacted soils — prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill outcrops shall have a minimum of 2 inches of topsoil.
- All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc. shall be compacted in accordance with local requirements or codes.
- All earthen fills shall be placed in compacted layers not to exceed 9 inches in thickness.
- Fill materials shall be free of frozen particles, brush, roots, sod, or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.
- Frozen materials or soft, mucky, or highly compressible materials shall not be incorporated into fills.
- Fill shall not be placed on saturated or frozen surfaces.
- Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other approved method.
- All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.
- Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
- Permanent stabilization is defined as a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.
- E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the local conservation district or the Department.
- Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district for an inspection prior to removal/conversion of the E&S BMPs.
- After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.
- Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district to schedule a final inspection.
- Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Department as defined in Section 602 of the Pennsylvania Clean Streams Law. The Clean Streams Law provides for up to \$10,000 per day in civil penalties, up to \$10,000 in summary criminal penalties, and up to \$25,000 in misdemeanor criminal penalties for each violation.
- Underground utilities cutting through any active channel shall be immediately backfilled and the channel restored to its original cross-section and protective lining. Any base flow within the channel shall be conveyed past the work area in the manner described in this plan until such restoration is complete.
- Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.
- Fill material for embankments shall be free of roots, or other woody vegetation, organic material, large stones, and other objectionable materials. The embankment shall be compacted in maximum 9" layered lifts at 95% density.

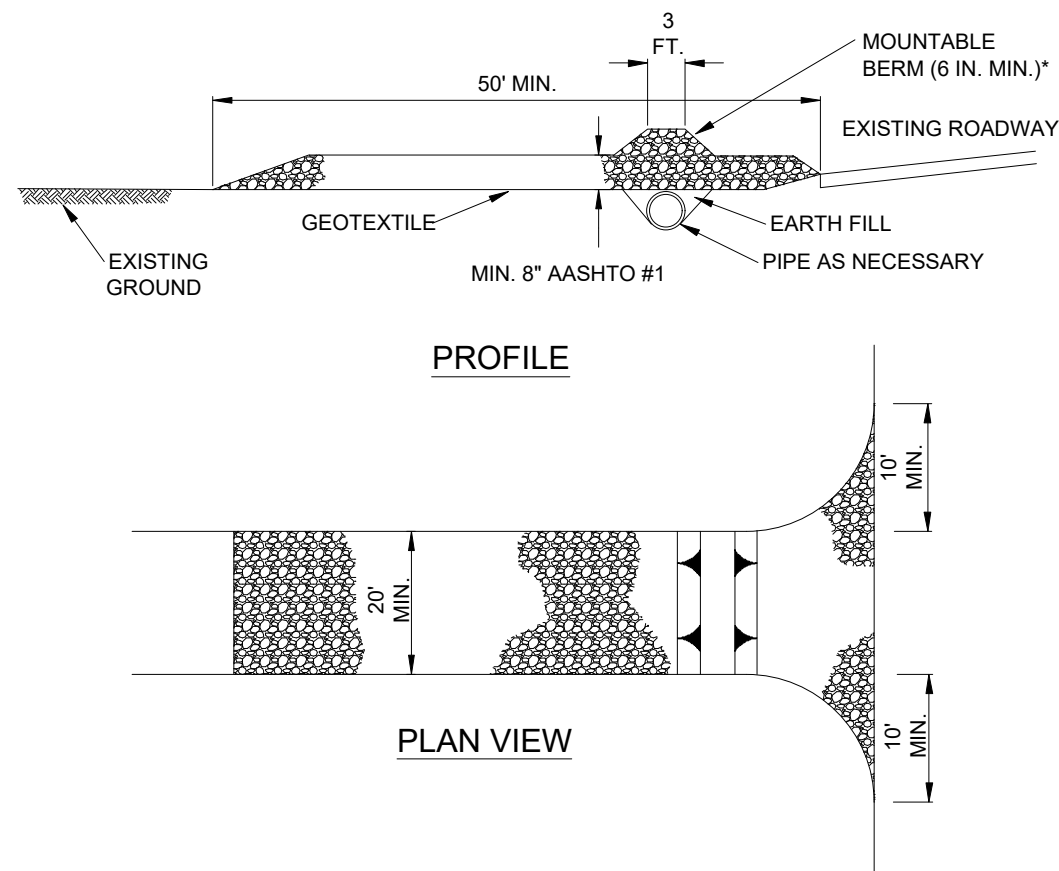


		1 (P.L.S. IN LBS/AC)	(LBS/ACRE)	2 (TONS/ACRE)	
TEMPORARY	ANNUAL RYE	174	50-50-50 N-P-K 0-0-0	AG GRADE	OCTOBER 30
PERMANENT	FINE FESCUES	60			
	KENTUCKY BLUEGRASS	90	100-200-200 N-P-K 0-0-0	6 AG GRADE	AUGUST 30 AND OCTOBER 30
	PERENNIAL RYEGRASS	25			
ATHLETIC FIELDS	KENTUCKY BLUEGRASS	150	100-200-200 N-P-K 0-0-0	6 AG GRADE	AUGUST 30 AND OCTOBER 30
	PERENNIAL RYEGRASS	25			
SWALE	F.M. BROWN CONSERVE LOW MAINTENANCE BASIN	20	100-200-200 N-P-K 0-0-0	6 AG GRADE	AUGUST 30 AND OCTOBER 30
STEEP SLOPES					
NURSE CROP	ANNUAL RYE	64	50-50-50 N-P-K 0-0-0	1 TON/AC AG GRADE	OCT. 15
PERMANENT	BIRDSFOOT TREFOIL PLUS	10			
	PLUS TALL FESCUE	30	100-200-200 N-P-K 0-0-0	1 TON/AC AG GRADE	MARCH 15 AND OCT. 15

1. PLS IS PURE LIVE SEED. PLS IS THE PRODUCT OF THE PERCENTAGE OF PURE SEED TIMES PERCENTAGE GERMINATION DIVIDED BY 100. TO SECURE THE ACTUAL PLANTING RATE, DIVIDE THE POUNDS PLS BY THE PLS PERCENTAGE SHOWN ON THE SEED TAG OR AS PREVIOUSLY DISCUSSED. THUS, IF THE PLS CONTENT OF FINE FESCUES IS 50%, DIVIDE 7 PLS BY 0.50 TO OBTAIN 140 POUNDS OF SEED PER ACRE.
2. LIMING RATE SHALL BE IN ACCORDANCE WITH SOIL TEST RESULTS. APPLY 6 TONS OF AGRICULTURAL GRADE LIMESTONE/AC OF LAND DISTURBED BY DIVERSIONS AND DAMS.
- ALL SEEDED AREAS SHALL BE MULCHED WITH STRAW APPLIED AT A RATE OF 3 TONS/ACRE. MULCH TO BE ANCHORED WITH WOOD CELLULOSE FIBER @ 750 LBS/AC.
- ALL DIVERSIONS, CHANNELS, SED TRAPS AND STOCKPILES MUST BE STABILIZED IMMEDIATELY.

### SEEDING AND FERTILIZER SPECIFICATIONS

NOT TO SCALE



\* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

#### NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

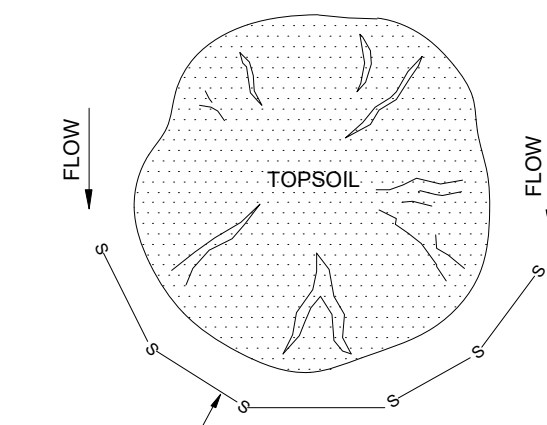
MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

PUBLIC STREET SWEEPING WITH A VACUUM SWEEPER AND ROLLING OF DIRT AND GRAVEL ROADS TO BE COMPLETED AT THE END OF EACH WORK DAY (OR MORE FREQUENTLY AS NEEDED). TIRES SHALL BE MANUALLY CLEANED PRIOR TO SITE EGRESS.

### STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

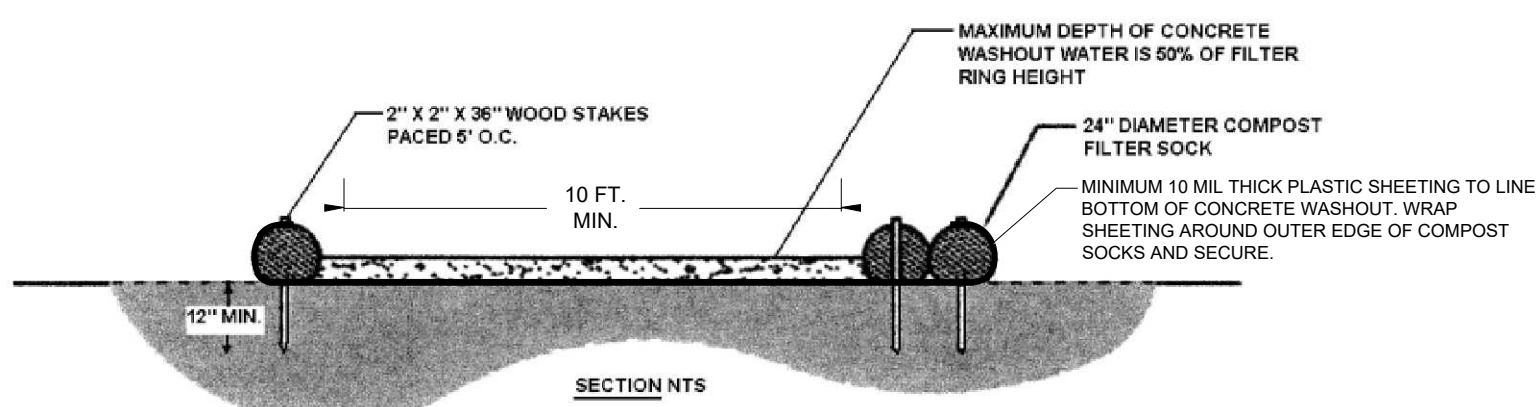


#### NOTE:

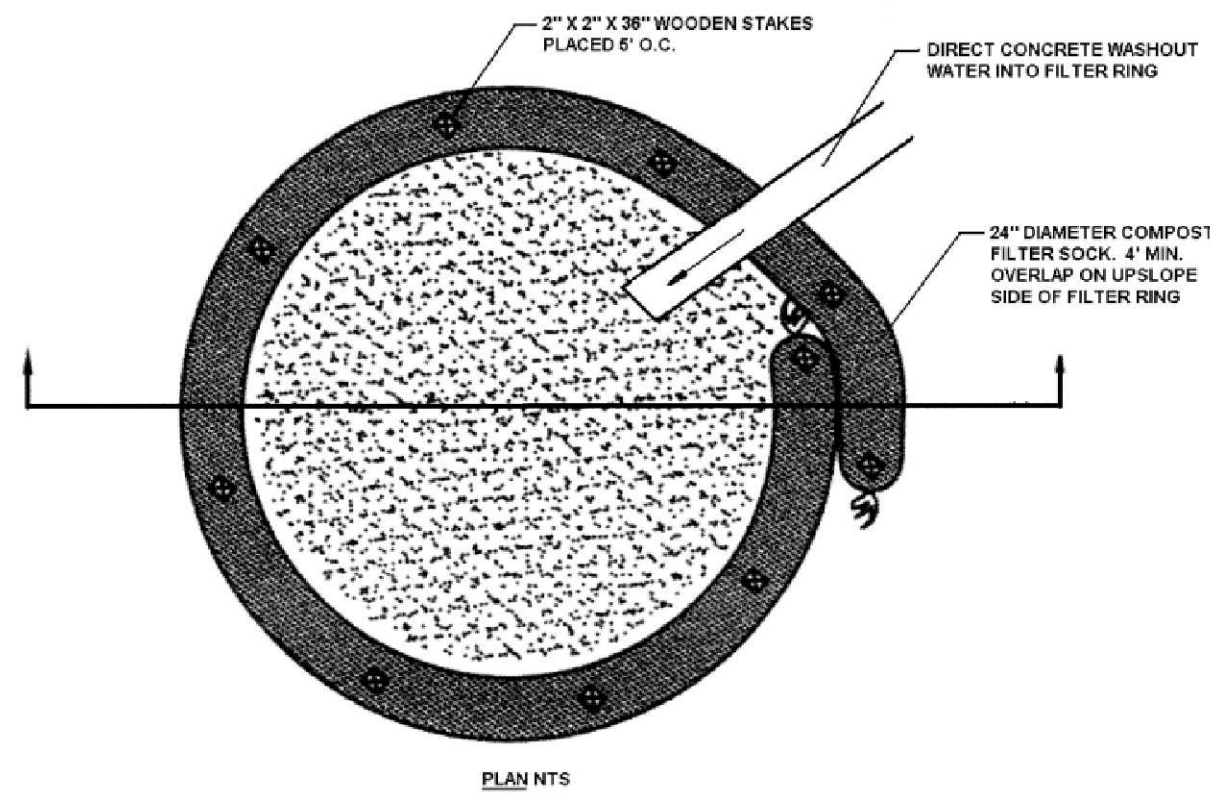
- 1) A STOCKPILE SHALL BE USED TO CONTAIN ALL STRIPPED TOPSOIL IN A LIMITED AREA IN ORDER TO KEEP DISTURBANCE TO A MINIMUM.
- 2) STOCKPILES ARE TO BE STABILIZED IMMEDIATELY.
- 3) STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET.
- 4) STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
- 5) STOCKPILES SHALL BE LOCATED SO THAT ALL SWALES CAN FUNCTION AS DESIGNED.

### TOPSOIL STOCKPILE

NO SCALE



- NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. 18\"/>

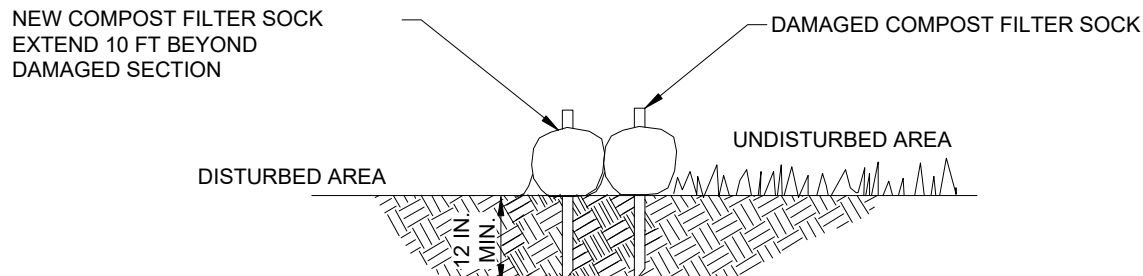


#### NOTE:

1. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.
2. PROVIDE 10' MINIMUM INSIDE DIAMETER.
3. PROVIDE AT LEAST ONE WASHOUT PER GROUPING OF TOWNHOUSES AND EACH APARTMENT BUILDING.

### TYPICAL COMPOST SOCK WASHOUT INSTALLATION

NOT TO SCALE

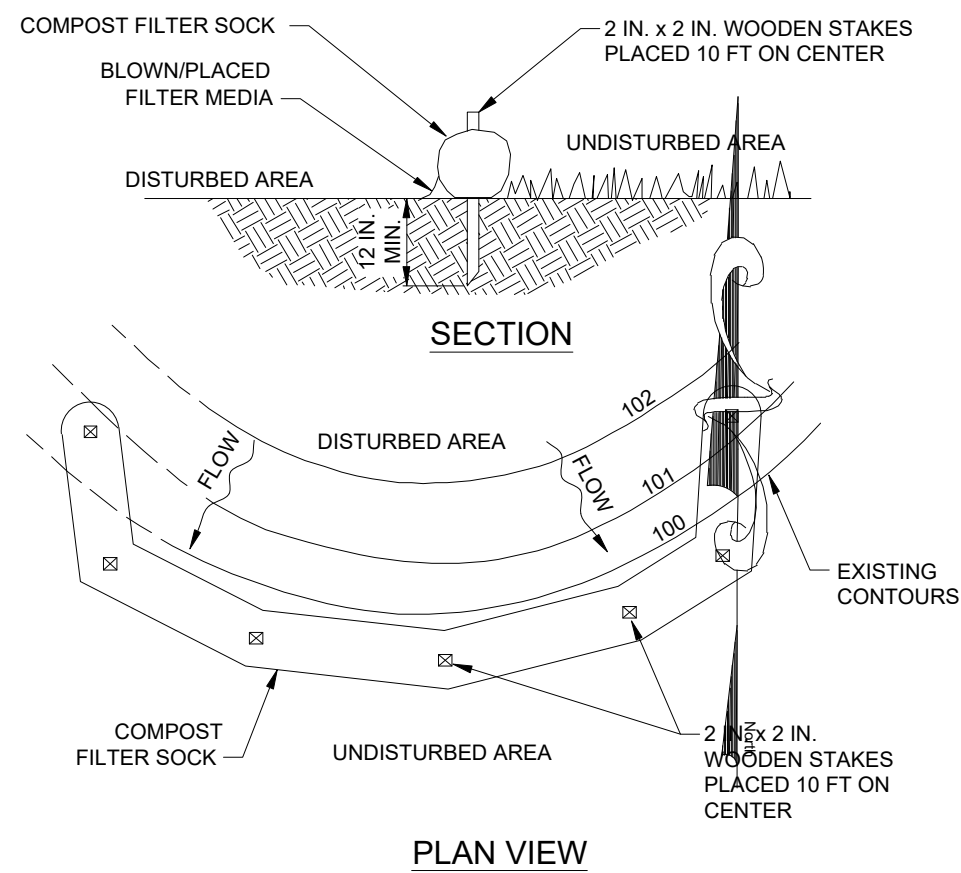


#### NOTES:

COMPOST FILTER SOCK OF EQUAL OR GREATER DIAMETER SHALL BE INSTALLED WHERE FAILURE OF A COMPOST FILTER SOCK HAS OCCURRED DUE TO CONCENTRATED FLOW. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT.

### ADDITIONAL FILTER SOCK AT DAMAGED FILTER SOCK

NOT TO SCALE



#### NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

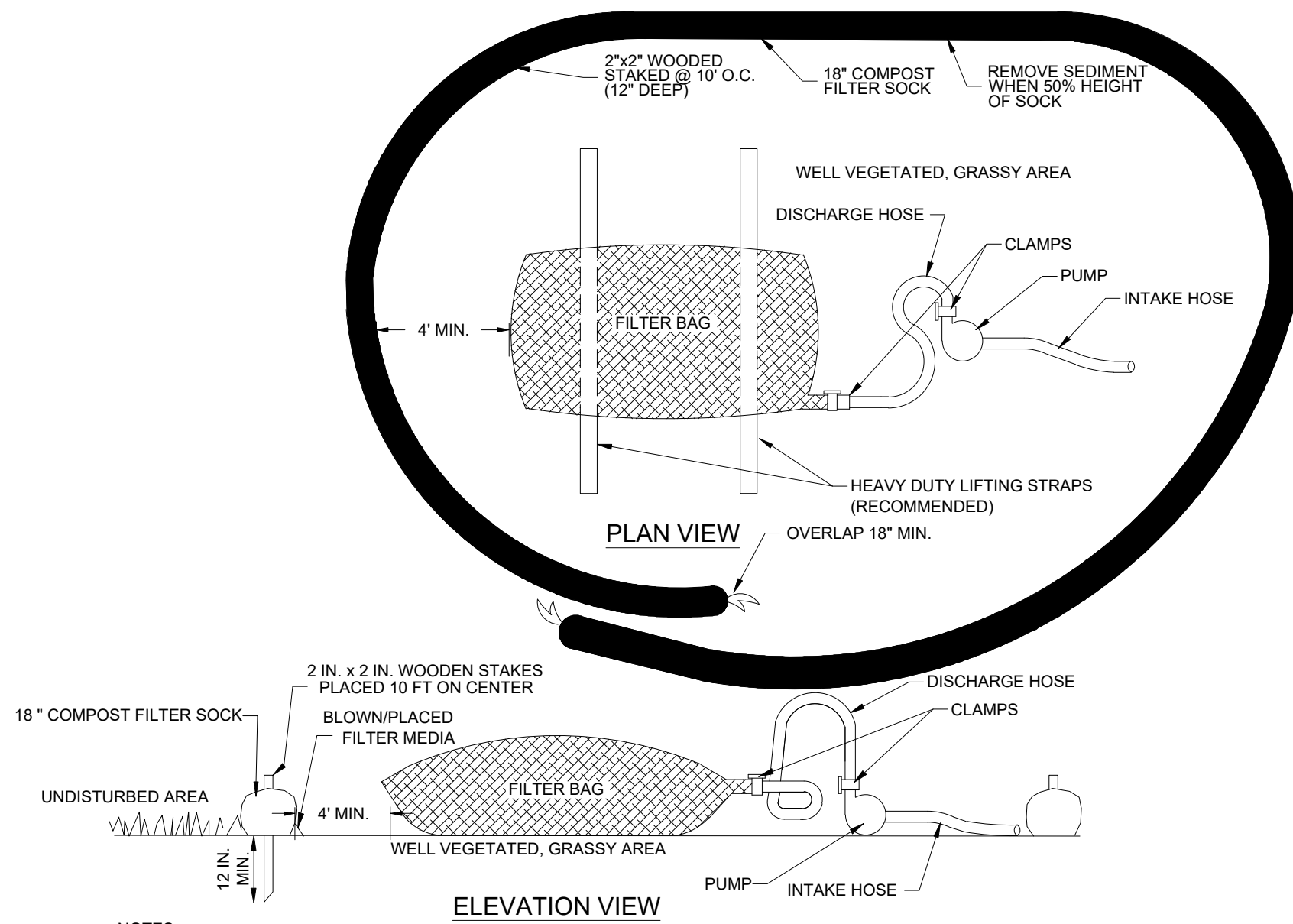
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

### STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK

NOT TO SCALE



#### NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED \"J\" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4365	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA. AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

A FILTER SOCK RING OF NO LESS THAN 18\"/>

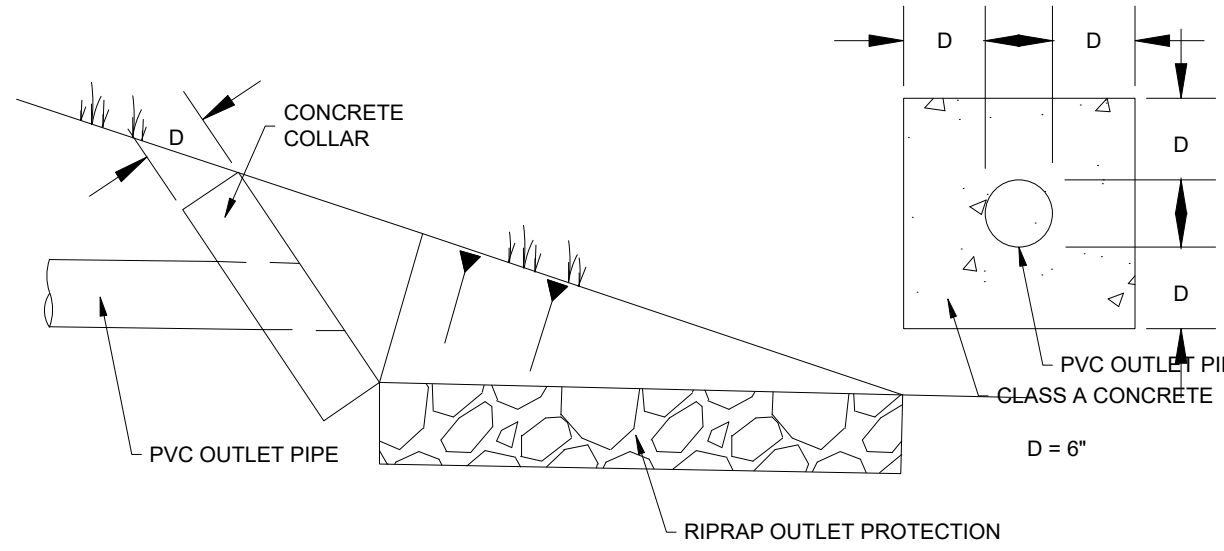
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

### STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG

NOT TO SCALE



### CONCRETE COLLAR DETAIL

NOT TO SCALE