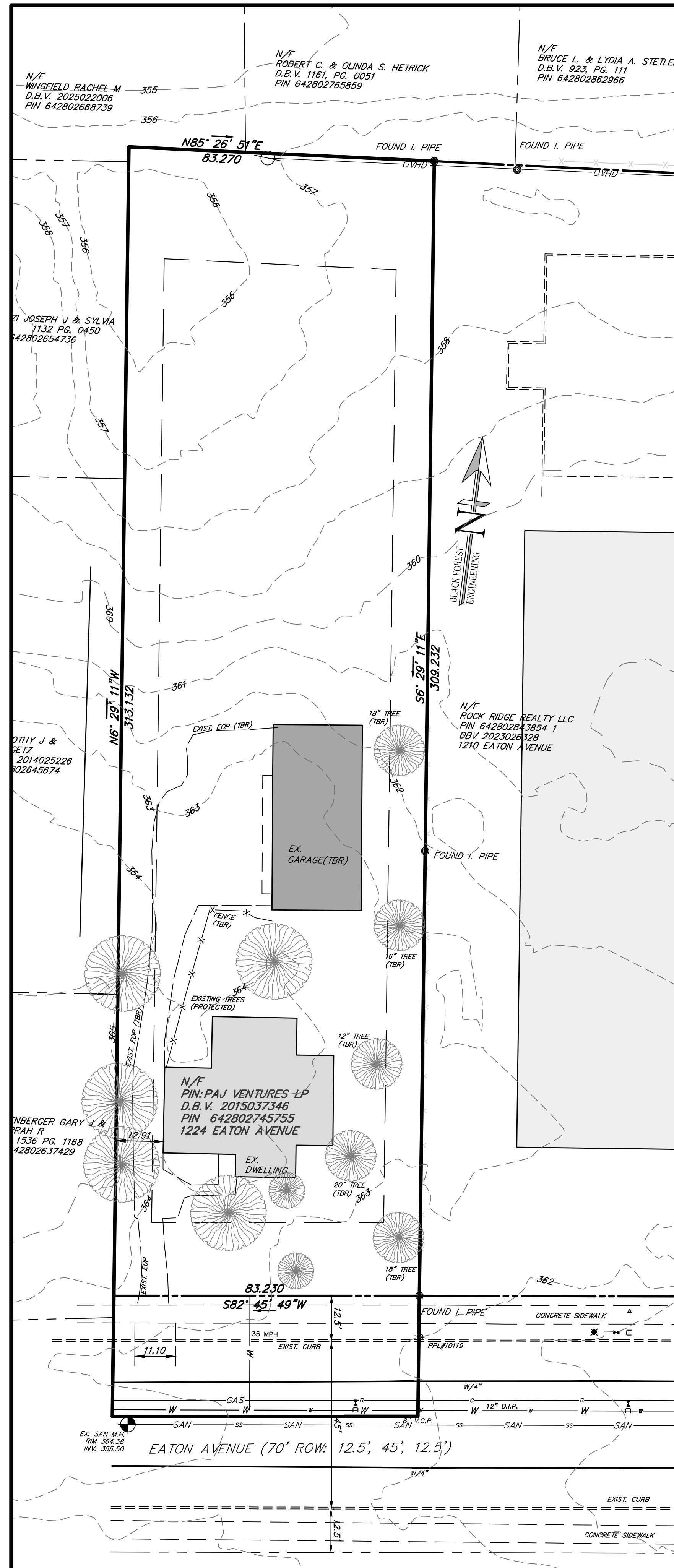
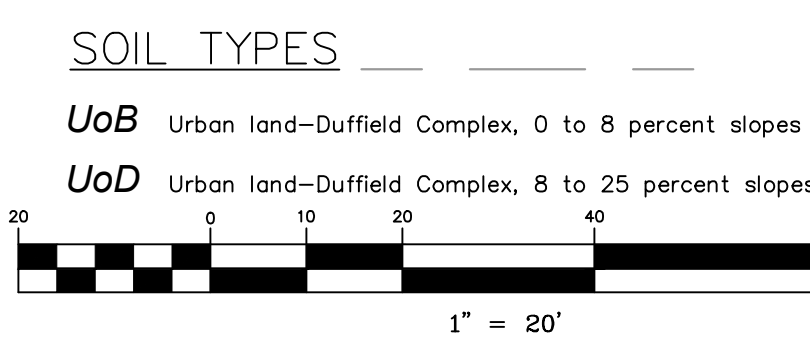


DFRD Pumper Pierce Velocity

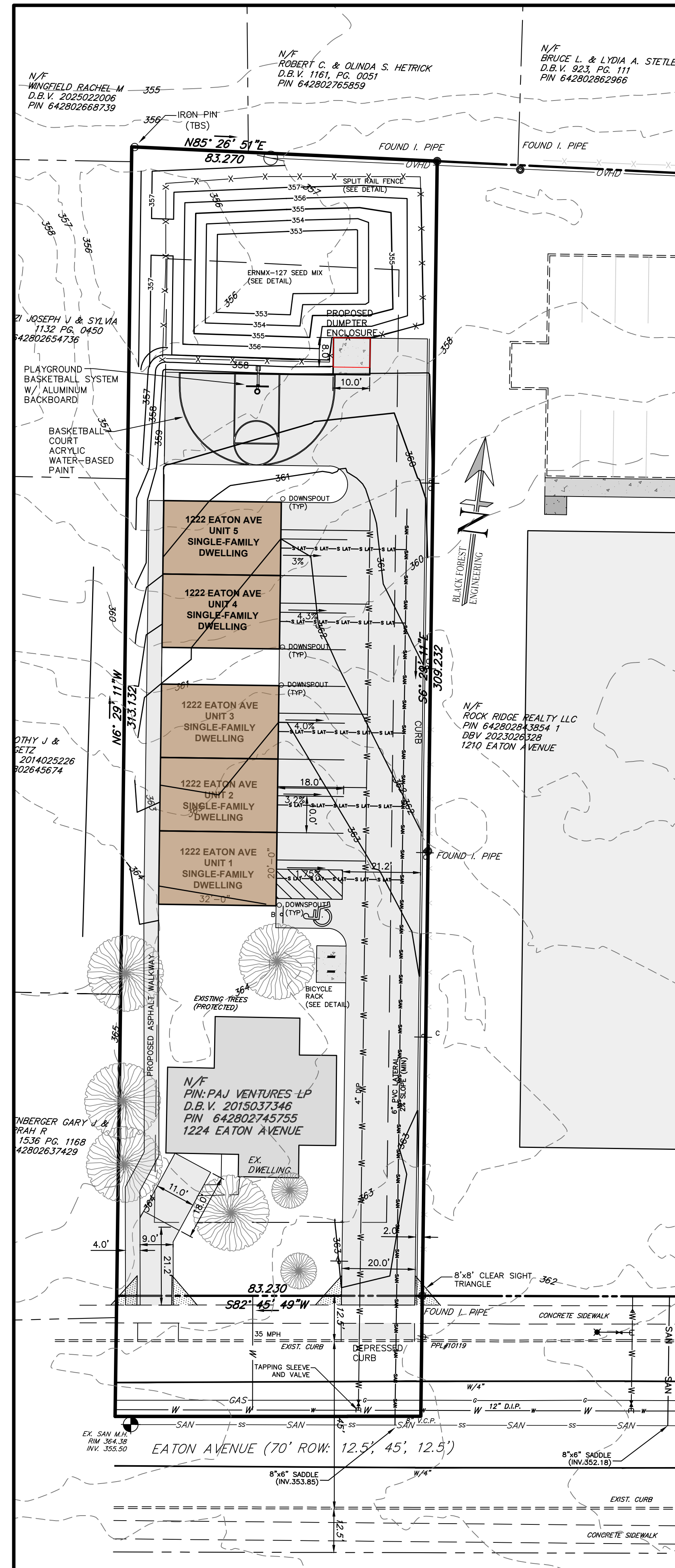
	Feet
Width	: 8.33
Track	: 8.01
Lock to Lock Time	: 6.00 s
Steering Angle	: 45.00 deg

EXISTING Legend	
	PROPERTY LINE
	EXISTING RIGHT-OF-WAY
	BUILDING RESTRICTION LINE
	EXISTING EASEMENT
	EXISTING CENTERLINE
	EXISTING ROAD PAVEMENT
	EXISTING SIDEWALK
	EXISTING STRUCTURE
	EXISTING ADJOINER
	EXISTING GAS LINE
	EXISTING SANITARY LINE
	EXISTING STORM SEWER
	EXISTING WATER LINE
	EXISTING CURB
	EXISTING FENCE
	EXISTING MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING ELECTRIC POLE
	EXISTING GAS VALVE
	EXISTING WATER VALVE
	EXISTING FIRE HYDRANT
	EXISTING IRON PIN
	EXISTING CONTROL POINT
	EXISTING TEST PIT/PROBE
	EXISTING INLET

PROPOSED Legend	
	PROP. PROPERTY LINE
	PROP. TRACT LINE
	PROP. RIGHT-OF-WAY
	PROP. EASEMENT
	PROP. BUILDING RESTRICTION LINE
	PROP. FENCE
	PROP. TREE LINE
	PROP. CENTERLINE
	PROP. SIDEWALK
	PROP. CURB
	PROP. DRIVEWAY
	PROP. CONTOUR MAJOR
	PROP. CONTOUR MINOR
	PROP. GAS LINE
	PROP. GAS LATERAL LINE
	PROP. SANITARY LINE
	PROP. SANITARY LATERAL LINE
	PROP. STORM LINE
	PROP. WATER LINE
	PROP. WATER LATERAL LINE
	PROP. DRAINAGE PATH
	PROP. IRON PIN
	PROP. CONCRETE MONUMENT
	PROP. UTILITY POLE
	PROP. SANITARY MANHOLE
	PROP. CLEANOUT
	PROP. STORM MANHOLE
	PROP. INLET
	PROP. FIRE HYDRANT
	PROP. WATER VALVE
	PROP. WELL
	PROP. GAS VALVE
	PROP. TREE
	PROP. BENCHMARK
	PROP. CONCRETE WHEELSTOP
	PROP. DRIVEWAY
	PROP. RETAINING WALL
	PROP. SIDEWALK



EXISTING FEATURES



GRADING & UTILITY

GENERAL UTILITY NOTES

1. THE DEVELOPER IS RESPONSIBLE TO SECURE AND PAY FOR ALL ESTABLISHED CITY APPLICATION, ALLOCATION AND TRANSMISSION AND TREATMENT FEES OR PERMITS NECESSARY FOR THE CONNECTION OF THE WATER AND SEWER SYSTEMS TO THE CITY PUBLIC SYSTEMS.
2. ALL DEVELOPMENT CONSTRUCTION IMPROVEMENTS ARE SUBJECT TO QUALITY CONTROL INSPECTION BY THE CITY OR THEIR ASSIGNED AGENTS. ALL WORK CONSTRUCTED WITHOUT QUALITY CONTROL INSPECTION WILL BE SUBJECT TO REJECTION AND REMOVAL AND REMOVAL AND RECONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF 3 DAYS PRIOR TO ANY CONSTRUCTION OPERATIONS WITHIN THE CITY RIGHT-OF-WAY OR AFFECTING A CITY UTILITY.
3. ALL PROPOSED UTILITIES SHALL BE LOCATED UNDERGROUND.

SANITARY SEWER NOTES

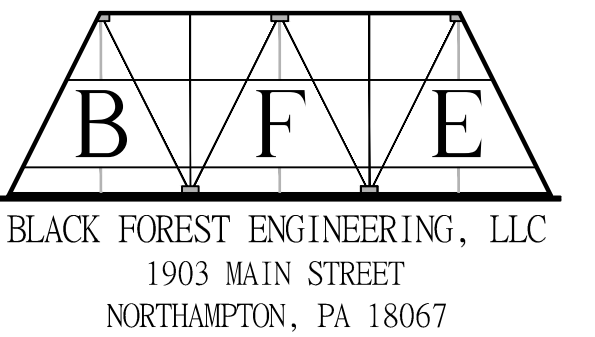
1. ALL SANITARY SEWER MATERIAL AND APPURTENANCES TO BE DEDICATED TO THE CITY MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF BETHLEHEM CONSTRUCTION SPECIFICATIONS, AS AMENDED AND THE PA DEP DOMESTIC WASTEWATER FACILITIES MANUAL, LATEST REVISION.
2. ALL SANITARY SEWER PIPE, FITTINGS, AND APPURTENANCES MUST BE SDR-26 OR 35 PVC, UNLESS NOTED OTHERWISE.
3. CONNECTION TO EXISTING SANITARY SEWER MANHOLE MUST BE MADE USING WATERTIGHT CONNECTION.
4. EXISTING SANITARY SEWER CONNECTIONS SHALL BE CAPPED AT THE MAIN PRIOR TO DEMOLITION. CAPPING PERMITS SHALL BE OBTAINED FROM THE CITY OF BETHLEHEM ENGINEERING BUREAU.

WATER UTILITY NOTES

1. ALL WATER SERVICE LATERALS MUST BE INSTALLED FROM THE MAIN, CORPORATION STOP TO THE CURB STOP AT THE CITY RIGHT-OF-WAY WITHOUT A SPLICE CONNECTION.
2. THE CONTRACTOR SHALL NOT OPERATE EXISTING VALVES, FIRE HYDRANTS, ETC., WITHIN THE CITY'S WATER SYSTEM. ARRANGEMENTS SHALL BE MADE THROUGH THE CITY FOR OPERATION.
3. ALL WATER SYSTEM MATERIALS, APPURTENANCES AND CONSTRUCTION WITHIN THE CITY RIGHT-OF-WAY MUST BE IN COMPLIANCE WITH THE CITY OF BETHLEHEM CONSTRUCTION SPECIFICATIONS, AS AMENDED AND THE PA DEP PUBLIC WATER SUPPLY MANUAL, LATEST EDITION.
4. ALL WATER LATERALS AND APPURTENANCES MUST MAINTAIN A MINIMUM OF 4 FEET COVER FROM FINISHED GRADE AND SHALL BE DUCTILE IRON PIPE.

EXISTING TREES:

THERE ARE FIVE (5) EXISTING TREES MEETING THE REQUIREMENTS OF CITY ORDINANCE 1318.28 PLANNED FOR REMOVAL. ANY SUCH EXISTING TREE MEETING THIS REQUIREMENT SHALL BE REPLACED AS REQUIRED.



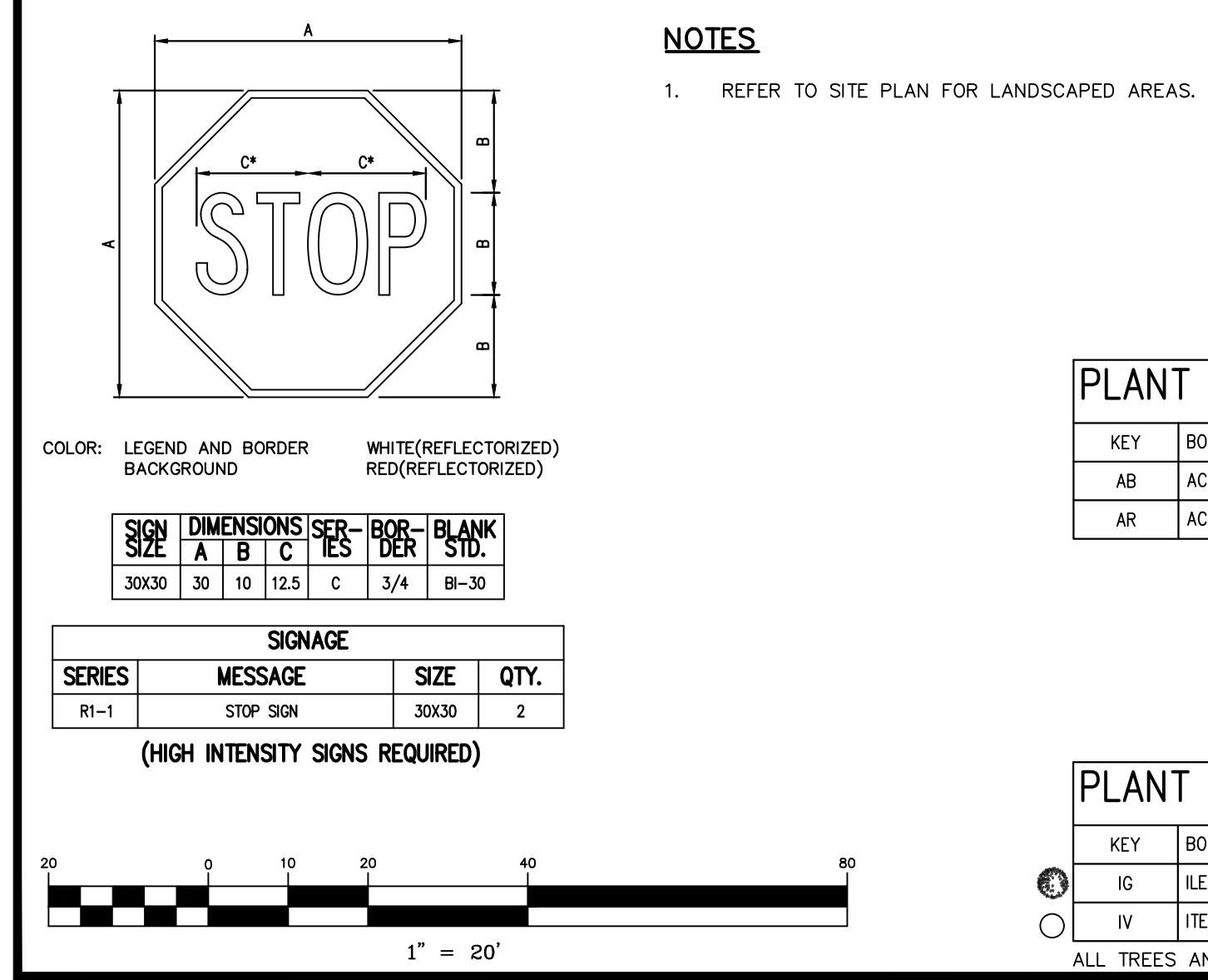
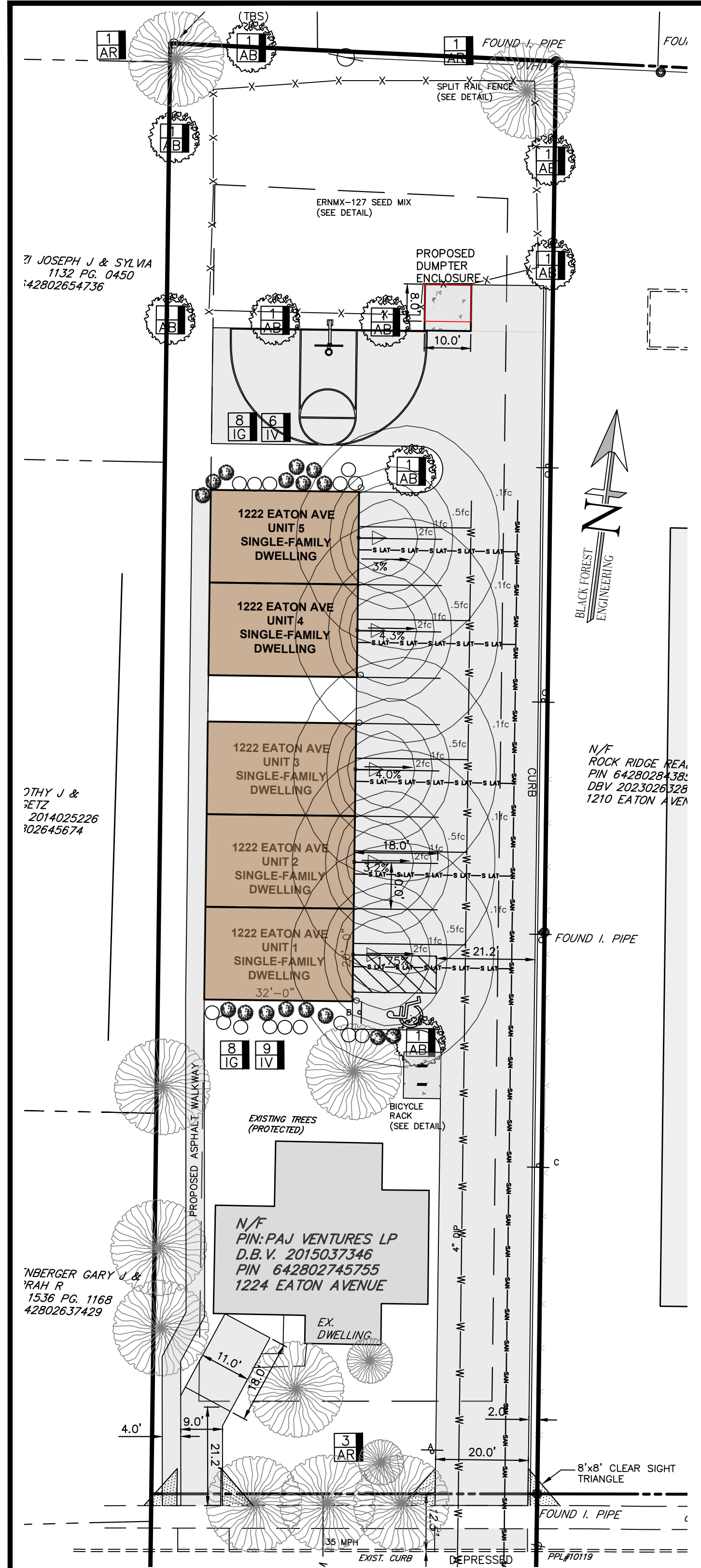
BLACK FOREST ENGINEERING, LLC
1903 MAIN STREET
NORTHAMPTON, PA 18067



JOSEPH E. RENTKO, P.E. #E0805609
3455 BLACK FOREST DRIVE
COPLAY, PA 18037
202-339-4499

01	ADDRESS CITY LETTER (3-6-26)	JER	3/16/26
REV.	DESCRIPTION:	BY	DATE
PROJECT TITLE: 1224 EATON AVE LAND DEVELOPMENT			
PROJECT OWNER: PAJ VENTURES LP 1177 6TH ST WHITEHALL, PA 18052 ABE777@CLOUD.COM			
PROJECT LOCATION: CITY OF BETHLEHEM WARD 13; BLOCK 149 LEHIGH COUNTY PENNSYLVANIA			
PLAN TITLE: EX. FEAT.; G&U			
SCALE: 1"=20'	DATE: 2/2/26	DRAWN: JER	CHECKED: JER/KTH
PROJECT NO. 1224	DRAWING NO. 2	OF 6	REVISION: 01

"CALL BEFORE YOU DIG"
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PENNSYLVANIA ONE CALL SYSTEM, INC.
1-800-242-1776

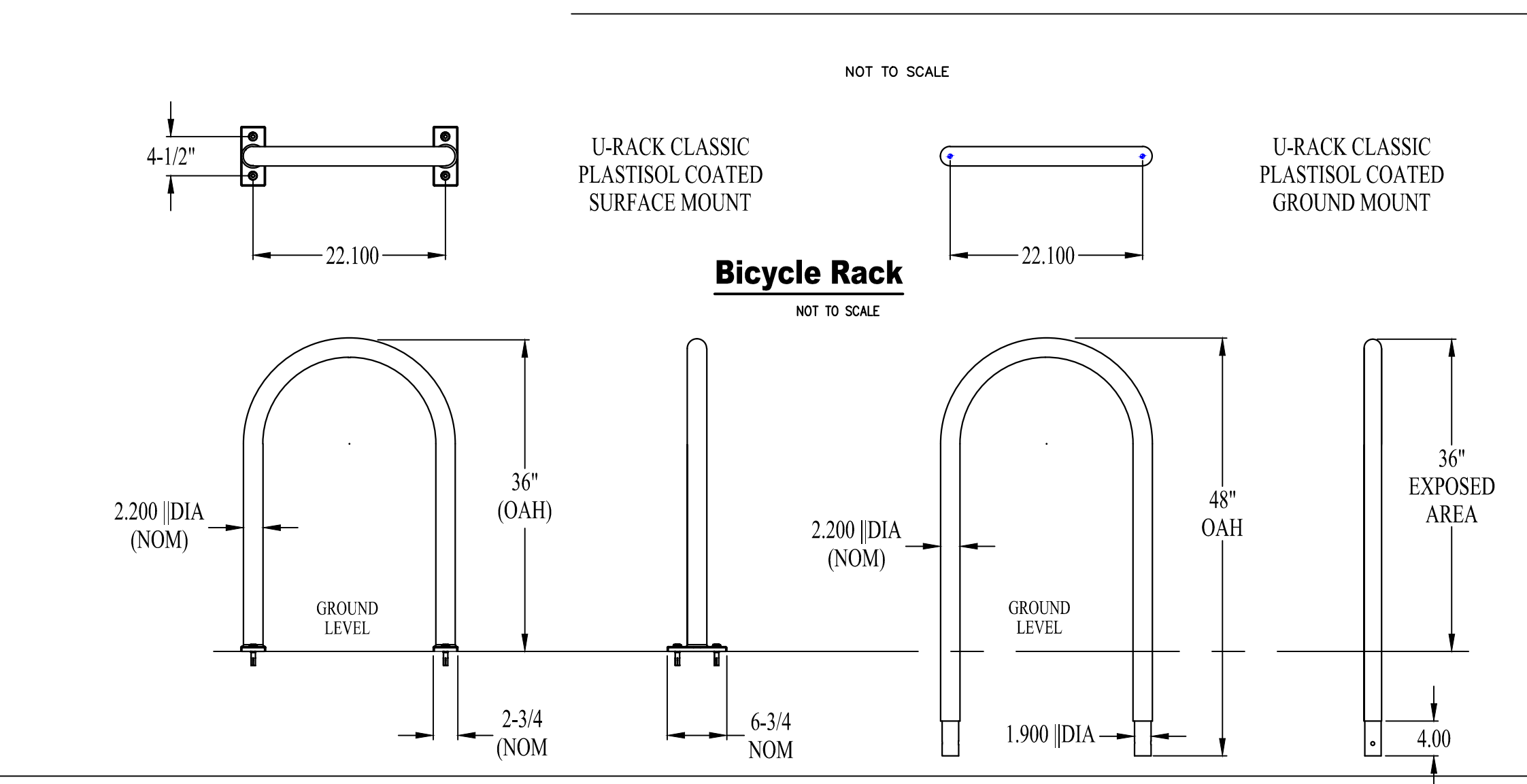
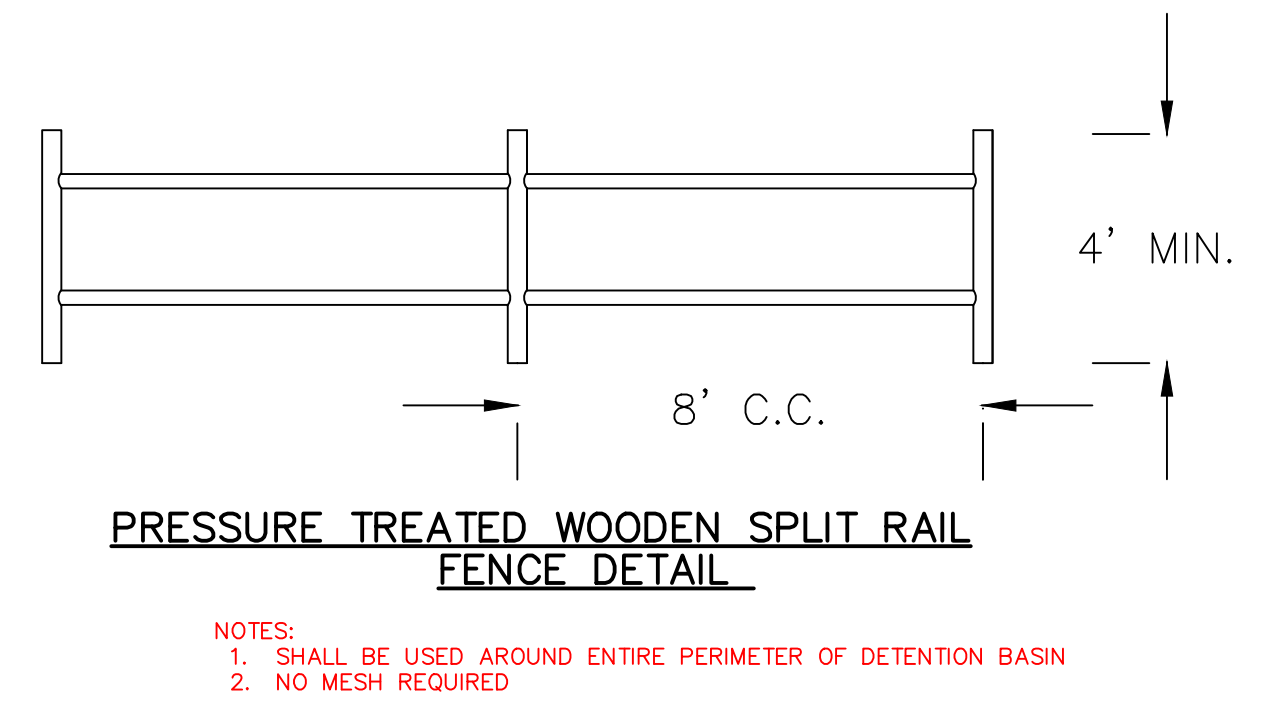
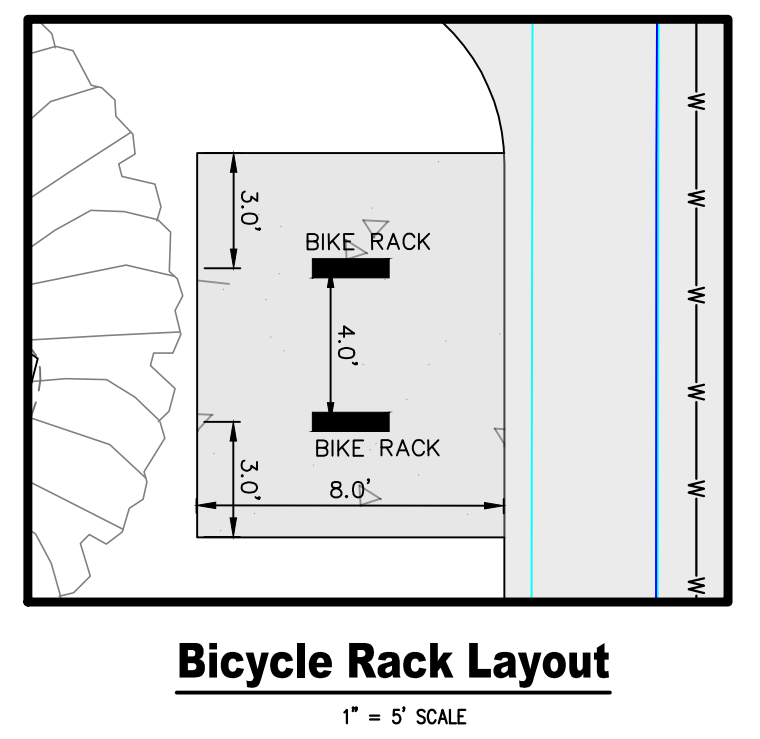
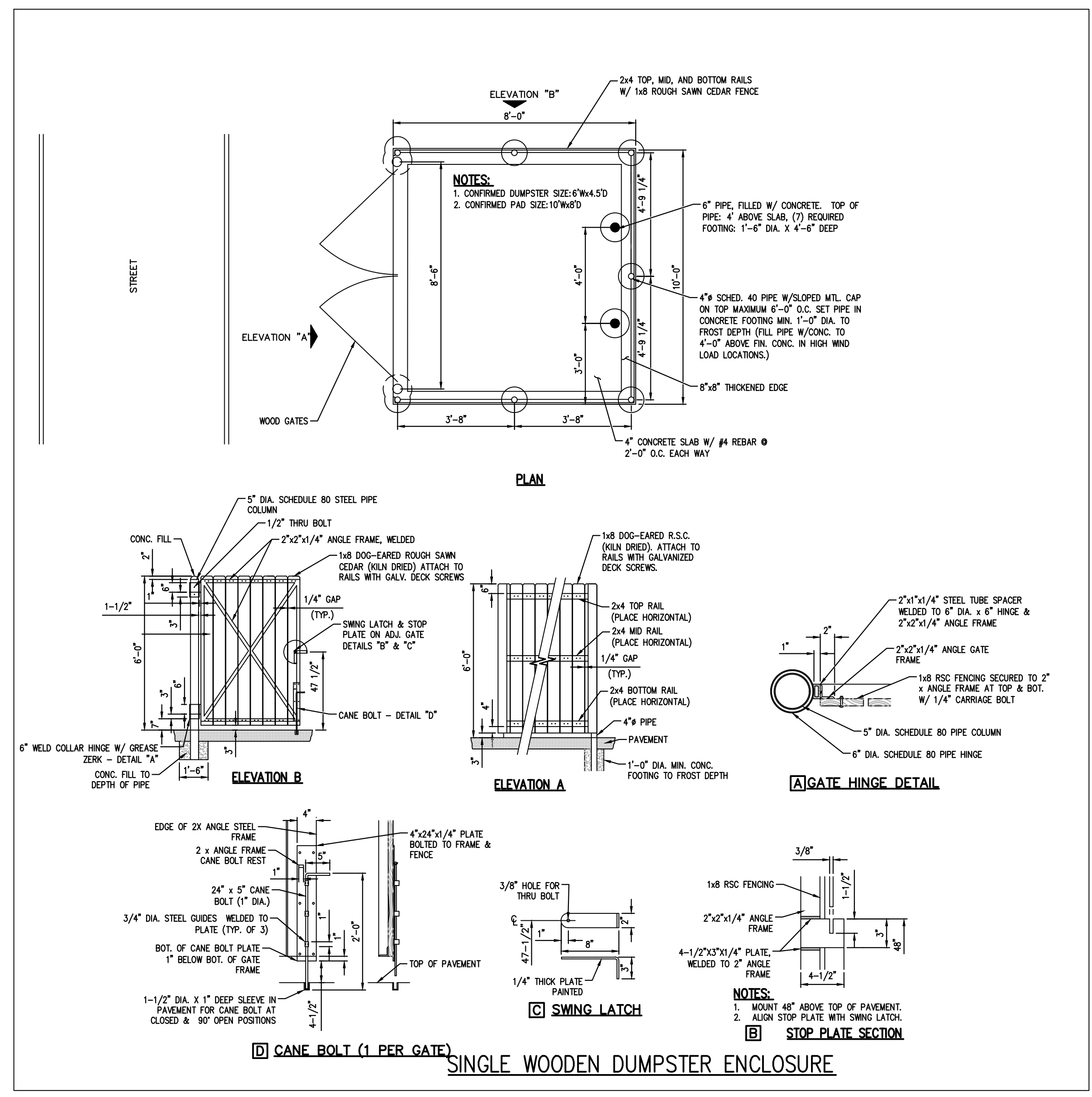


PLANT LIST: STREET & PARKING LOT TREES

KEY	BOTANIC / COMMON NAME	SIZE	ROOT CONDITION	QUANTITY
AB	ACER BUERGERIAUM / TRIDENT MAPLE	2"-2.5" CAL.	B&B	9
AR	ACER RUBRUM / OCTOBER GLORY	2"-2.5" CAL.	B&B	5

PLANT LIST: FOUNDATION PLANTS

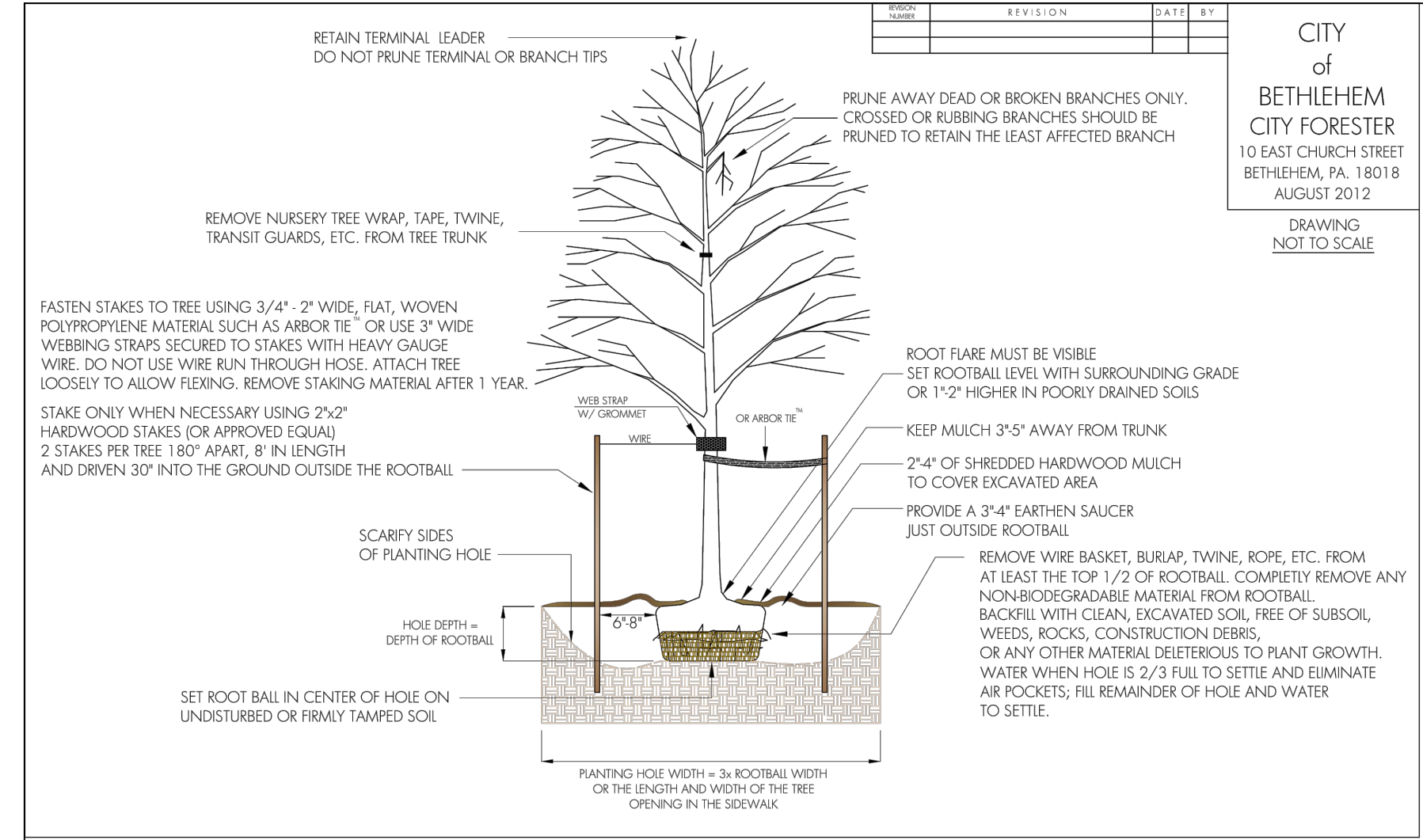
KEY	BOTANIC / COMMON NAME	SIZE	ROOT CONDITION	QUANTITY
IG	ILEX GLABRA / SHAMROCK	5 LB	CONT.	16
IV	ITEA VIRGINICA / LITTLE HENRY	5 LB	CONT.	15



LIGHTING SCHEDULE

KEY	COMPANY	PRODUCT NAME	QTY
ARC	LITHONIA	ARC 1 LED P1 30K	5

PROPOSED BUILDING LIGHTS MODEL: ARC 1 LED P1 30K (OR EQUAL) 10FT HT



- Notes:
- Include the following notes on the site or grading plan in addition to the landscape plan when applicable:
- No soil disturbance or compaction, construction materials, traffic, burial pits, trenching or other land disturbance is allowed in the tree protection zone unless indicated on the plan.
 - Barricades must be installed prior to any destruction and/or construction activity.
 - The root protection zone shall be the area encompassed by a circle with a radius extending 1.25 ft. from the trunk of the tree for every inch DBH (diameter at breast height) of the tree.
 - Violations of tree protection requirements are subject to penalty per City ordinance.
 - All trees on public property are protected by ordinance; no pruning, root pruning of roots over one inch in diameter, and/or tree removal is to be performed without a permit and work must be performed by a City licensed tree contractor.
 - All plant materials are to conform to the American Standard for Nursery Stock, Latest Edition, American Nursery and Landscape Association.
 - Street and parking lot trees shall be a minimum of 14' in height and have a single straight trunk with the first lateral branch at 7' above the root ball. Trees with an upright branching habit, such as zelkova, may have the first lateral branch at 6' above the root ball.
 - All landscaping shall conform to the current edition of the Arboricultural Specifications and Standards of Practice of the City of Bethlehem.

CITY OF BETHLEHEM CITY FORESTER
10 EAST CHURCH STREET BETHLEHEM, PA. 18018
AUGUST 2012

BLACK FOREST ENGINEERING, LLC
1903 MAIN STREET NORTHAMPTON, PA 18067

SEAL: **JOSEPH E. RENTKO** REGISTERED PROFESSIONAL ENGINEER PENNSYLVANIA

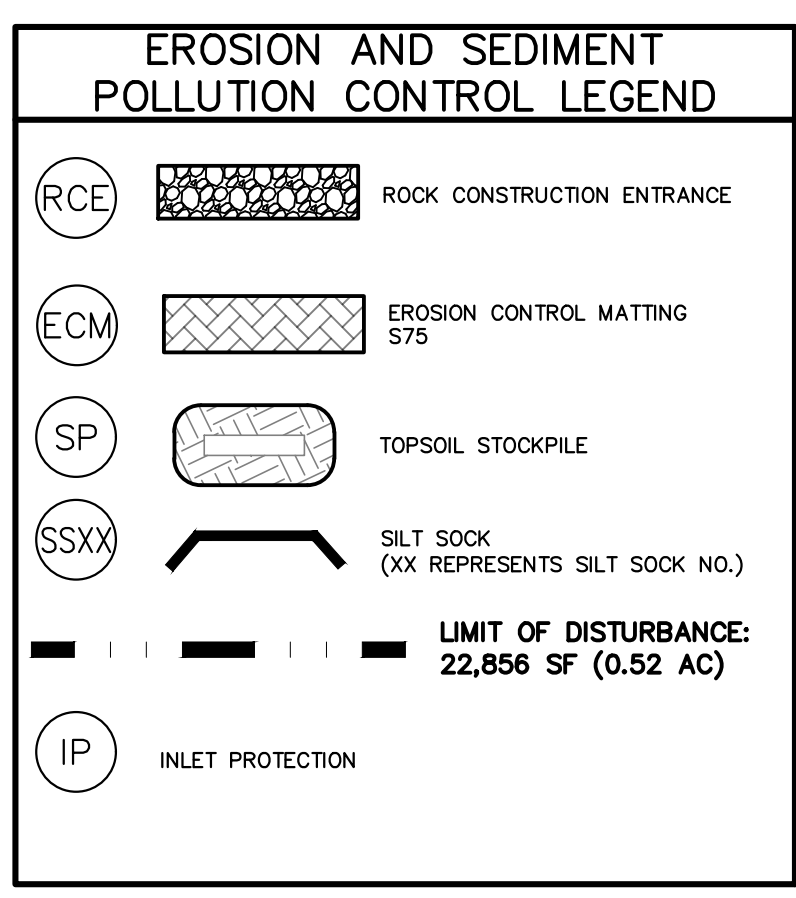
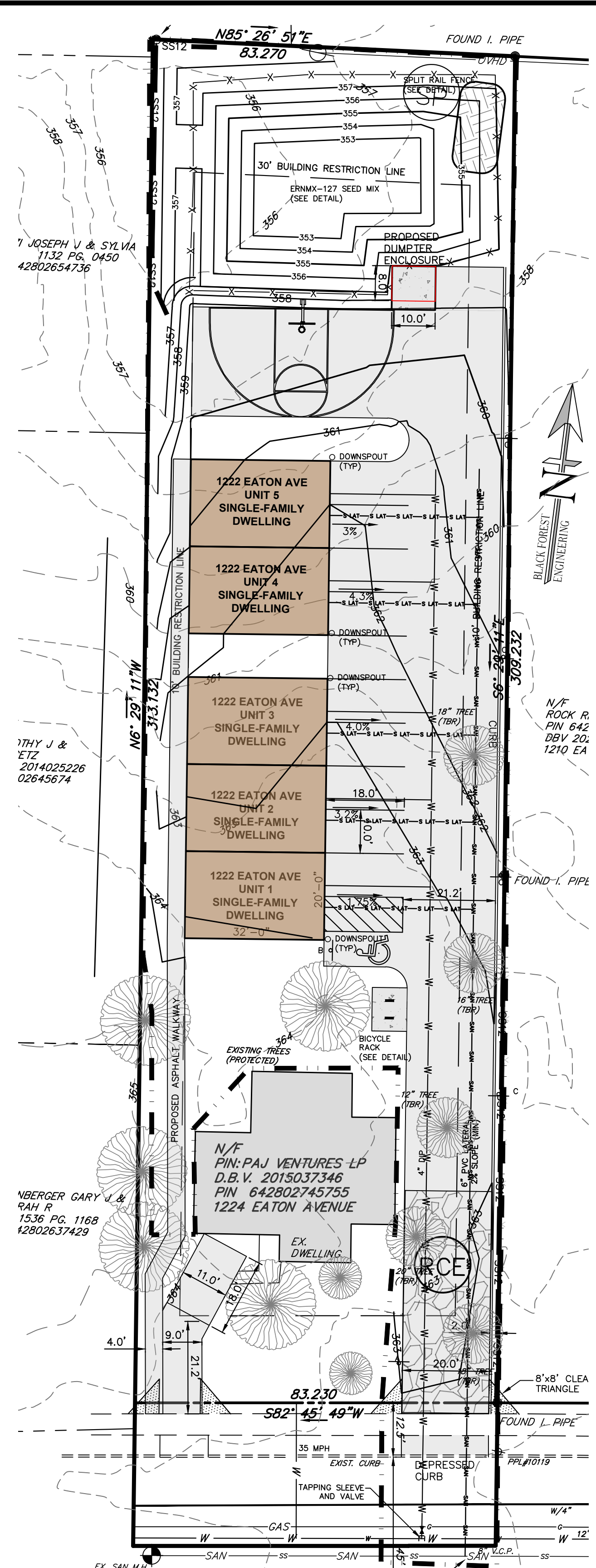
PROJECT TITLE: **1224 EATON AVE LAND DEVELOPMENT**

PROJECT LOCATION: **CITY OF BETHLEHEM WARD 13; BLOCK 149 LEHIGH COUNTY PENNSYLVANIA**

PROJECT OWNER: PAJ VENTURES LP 1177 6TH ST WHITEHALL, PA 18052 ABE777@CLOUD.COM

PLAN TITLE: **LIGHTING & LANDSCAPING**

SCALE: 1"=20'	DATE: 2/2/26	DRAWN: JER	CHECKED: JER/KTH
PROJECT NO. 1224	DRAWING NO. 3 OF 6	REVISION: 01	



CONSTRUCTION NOTES:

- All grading shall be done in accordance with the City of Bethlehem.
- No earthmoving or grading activities may take place until a grading permit is granted by the City of Bethlehem.
- The City Engineer and/or staff may enter the property to inspect all grading and construction activities on the site.
- At least 7 days prior to any earth disturbance activities, the operator shall notify the City and invite all contractors involved in those activities, and the landowner to an on-site meeting.
- At least 7 days prior to any earth disturbance activities, the operator shall provide notice in writing to the City of Bethlehem that earth disturbance activities will be commencing.
- Temporary and permanent seeding shall be in accordance with requirements on the details. Compost Filter Socks shall be installed downslope of all topsoil stockpiles as indicated in the Topsoil Stockpile detail.
- Topsoil pile locations may be adjusted to fit the contractor schedule as long as the silt sock is placed downslope of the pile locations.
- Prior to any seeding and lime and fertilizer application, a soil test shall be performed to determine the pH factor. Additional lime and fertilizer may be required.
- All disturbed areas shall be immediately stabilized if earth disturbance/construction has ceased. Disturbed slopes of 3:1 or greater shall be stabilized with erosion control matting.
- Soil compaction and vehicle traffic shall be kept to a minimum at areas designated for sanitary absorption or stormwater infiltration BMPs.
- Topsoil shall be stripped and stockpiled prior to all earthwork. Only strip the amount of topsoil necessary to perform earthwork. All disturbed areas shall be stabilized immediately if disturbance has ceased.
- On a daily basis, the Contractor shall inspect and clean any sediment that is tracked onto existing roads.
- All erosion control facilities shall be inspected after every runoff event and on a weekly basis, any necessary repairs must be made immediately.
- An area shall be considered to have achieved final stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements.
- NAGS75 matting to be applied to all proposed 3:1 slopes.

SEQUENCE OF CONSTRUCTION

- At least 7 days before starting any earth disturbance activities, the operator provide written notification to the City of Bethlehem and shall invite all contractors involved in those activities, appropriate municipal officials, the ESPC plan preparer and the landowner to an on-site 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.
- Flag and mark the Limits of Disturbance. No grading or earthmoving may take place beyond the Limits of Disturbance.
- Install Rock Construction Entrance (RCE) off of Eaton Ave where indicated on the Plan. This shall be the only ingress and egress from the site. Any sediment tracked onto the public roadway shall be collected and returned to the site by the end of each workday. Any sediment tracked onto the public roadway during RCE construction shall be cleaned immediately.
- Install perimeter compost filter socks at locations indicated on plan and per details.
- Remove existing trees. Strip topsoil and stockpile locations indicated on the Plan.
- Begin bulk earthwork for the building pad, walk and parking lot. Fill should be compacted in layers so as to minimize sliding, slumping and erosion of soil. Erosion Control matting shall be installed on any graded slopes of 3:1 or greater.
- Begin building construction, utility connection installation, and binder. Complete final paving (wearing course) once site work is substantially complete.
- Upon completion of proposed improvements, any temporary staging area shall be restored to existing condition. Proposed landscaping shall be installed upon completion of building.
- After the site is stabilized, remove E&S BMPs. Immediately stabilize any areas disturbed by the removal of the erosion and sediment pollution controls and plant street trees. An area shall be considered to have achieved final stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements.

Notes.

Include the following notes on the site or grading plan in addition to the landscape plan when applicable:

- No soil disturbance or compaction, construction materials, traffic, burial pits, trenching or other land disturbance is allowed in the tree protection zone unless indicated on the plan.
- Barricades must be installed prior to any destruction and/or construction activity.
- The root protection zone shall be the area encompassed by a circle with a radius extending 1.25 ft. from the trunk of the tree for every inch DBH (diameter at breast height) of the tree.
- Violations of tree protection requirements are subject to penalty per City ordinance.
- All trees on public property are protected by ordinance: no pruning, root pruning of roots over one inch in diameter, and/or tree removal is to be performed without a permit and work must be performed by a City licensed tree contractor.
- All plant materials are to conform to the American Standard for Nursery Stock, Latest Edition, American Nursery and Landscape Association.
- Street and parking lot trees shall be a minimum of 14' in height and have a single straight trunk with the first lateral branch at 7' above the root ball. Trees with an upright branching habit, such as zelkova, may have the first lateral branch at 6' above the root ball.
- All landscaping shall conform to the current edition of the Arboricultural Specifications and Standards of Practice of the City of Bethlehem.

Ernst Conservation Seeds
 8884 Mercer Pike
 Meadville, PA 16335
 (800) 873-3321 Fax (814) 336-5191
 www.ernstseeds.com

Date: April 23, 2024

Retention Basin Wildlife Mix - ERNMX-127

Botanical Name	Common Name	Price/Lb
30.00% Carex vesiculosus, PA Ecotype	Fine Sedge	28.80
30.00% Panicum clandestinum, Toga	Doerflinger, Toga	22.08
20.20% Elymus virginicus	Virginia Wildrye	8.84
7.00% Carex lasiocarpa, PA Ecotype	Blunt Broom Sedge	87.20
7.00% Carex scoparia, PA Ecotype	Soft Rush	81.60
1.50% Junca effusa	Blue Vervain, PA Ecotype	48.00
1.40% Helopsis heterothoides, PA Ecotype	Chenopium	33.60
1.00% Verbena hastata, PA Ecotype	Blue Vervain, PA Ecotype	38.40
0.50% Agrostis perennans, Albany Pine Bush-NY Ecotype	Autumn Bellsgrass, Albany Pine Bush-NY Ecotype	16.80
0.50% Achillea incanata, PA Ecotype	Sweet Milfoed, PA Ecotype	172.60
0.20% Scirpus cyperinus, PA Ecotype	Woolgrass, PA Ecotype	115.20
0.10% Aster lanceolobus	Lance Leaved Aster	432.00
0.10% Aster novae-angliae, PA Ecotype	New England Aster, PA Ecotype	336.00
0.10% Aster purpureus, PA Ecotype	Purplestem Aster, PA Ecotype	432.00
0.10% Lobelia siphilitica, PA Ecotype	Great Blue Lobelia, PA Ecotype	384.00
0.10% Lycopodium americanum, PA Ecotype	American Water Honeysuckle, PA Ecotype	72.00
0.10% Mimulus ringens, PA Ecotype	Square Stemmed Monkeyflower, PA Ecotype	216.00
0.10% Scirpus atrovirens, PA Ecotype	Green Bulrush, PA Ecotype	144.00

100.00 % Mix Price/Lb Bulk: \$32.26

Seeding Rate: 20 lbs per acre, or 0.5-1 lb/1,000 sq ft with a cover crop. For a cover crop use one of the following: grain rye (1 Sep to 30 Apr; 30 lbs/acre), Japanese millet (1 May to 31 Aug; 10 lbs/acre), or bermudagrass (1 May to 31 Aug; 10 lbs/acre).

Grasses & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial; Stormwater Management; Wildlife Habitat & Food Plots

The grasses, grass-like species and forbs provide a diverse cover in retention basins where mowing is not anticipated. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

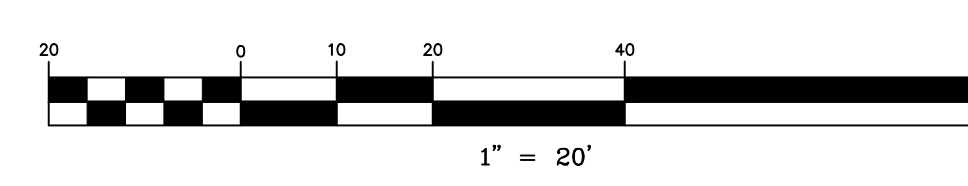
MULCHING—Mulch absorbs rainfall impact, increases the rate of infiltration, reduces soil moisture loss due to evaporation, moderates soil temperatures, provides a suitable environment for germination, and protects the seeding from intense sunlight. All seeded areas should be mulched or blanketed to minimize the potential for failure to establish an adequate vegetative cover. Mulching may also be used as a temporary stabilization of disturbed areas in non-germinating seasons.

Apply mulches at the rates shown in table 11.6

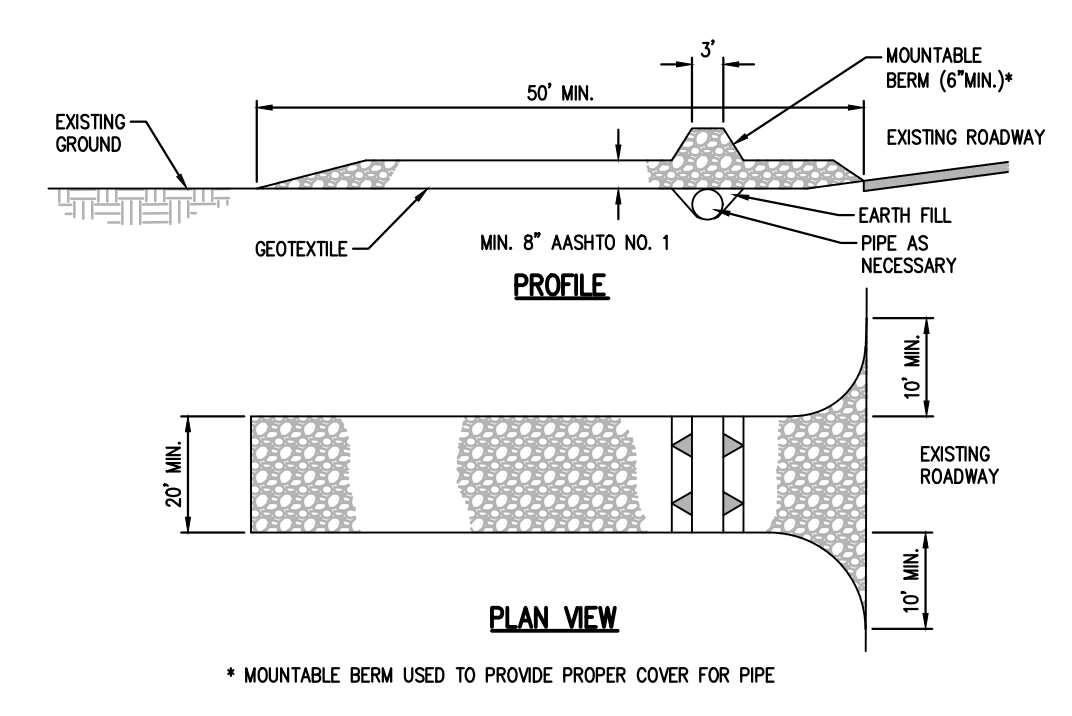
Straw and hay mulch should be anchored immediately after application to prevent being windblown. A tractor-drawn implement may be used to crimp the straw or hay into the soil (about 3 inches). This method should be limited to slopes no steeper than 3H:1V. The machinery should be operated on the contour. (Note: Crimping of hay or straw by running over it with tracked machinery is not recommended.)

Table 11.6. Mulch Application Rates

Mulch Type	Application Rate (Min.)		Notes
	Per Acre	Per 1,000 sq. ft.	
Straw	3 tons	140 lb., 1,240 lb.	Either wheat or oat straw, free of weeds, not chopped or finely broken
Hay	3 tons	140 lb., 1,240 lb.	Timothy, mixed clover and timothy or other native forage grasses
Wood Chips	4-6 tons	185-275 lb., 1,650-2,500 lb.	May prevent germination of grasses and legumes
Hydromulch	1 ton	47 lb., 415	See limitations above



Standard Construction Detail # 3-1
ROCK CONSTRUCTION ENTRANCE
 NOT TO SCALE

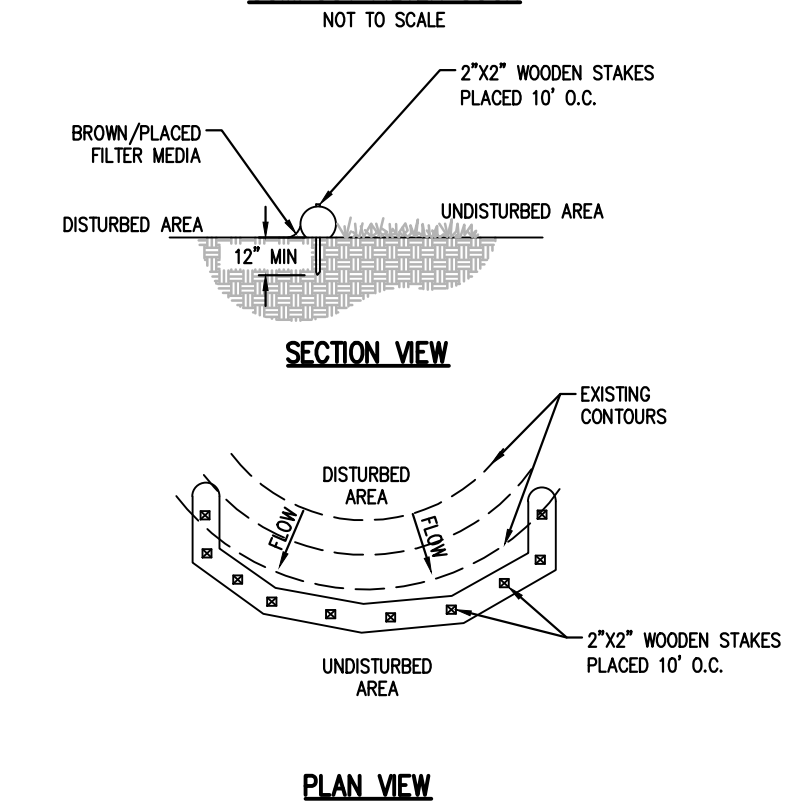


* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

General 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. 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.

Standard Construction Detail # 4-1
COMPOST FILTER SOCK
 NOT TO SCALE



General Notes:

- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (SEE FIGURE 4.1 OF THE PA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MAR. 2012).
- MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN OF FIGURE 4.2 OF THE PA DEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, (MAR. 2012). STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- 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 FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS, PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND 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.

TABLE 4.1
 COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (DMPP)
	PHOTO - DEGRADABLE	PHOTO - DEGRADABLE	BIO - DEGRADABLE	PHOTO - DEGRADABLE	PHOTO - DEGRADABLE
MATERIAL CHARACTERISTICS					
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"
TENSILE STRENGTH		26 psi	26 psi	44 psi	202 psi
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

TABLE 4.2
 COMPOST STANDARDS

ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	50% - 60%
PARTICLE SIZE	30% - 50% PASS THROUGH 3/8" SIEVE
SOLUBLE SALT CONCENTRATION	5.0 gS/m (mmhos/cm) MAXIMUM

B F E
 BLACK FOREST ENGINEERING, LLC
 1903 MAIN STREET
 NORTHAMPTON, PA 18067

THIS DOCUMENT IS THE PROPERTY OF BLACK FOREST ENGINEERING, LLC. ANY USE OF A COPY OF THIS DOCUMENT THAT DOES NOT CONTAIN AN ORIGINAL SEAL AND SIGNATURE IS STRICTLY PROHIBITED. THIS DOCUMENT IS NOT PUBLISHED AND ALL RIGHTS ARE RESERVED BY BLACK FOREST ENGINEERING, LLC. THIS PLAN HAS BEEN SEALED WITH A RED INK SEAL AND SIGNATURE. IF NEITHER APPEARS ON THIS PLAN, POSSIBLE REPRODUCTIONS OR ALTERATIONS MAY HAVE BEEN MADE WITHOUT THE APPROVAL OR KNOWLEDGE OF THE SIGNATORY.

SEAL:

JOSEPH E. RENTKO, P.E. #PE086569
 2455 BLACK FOREST DRIVE
 COPLAY, PA 18037
 717-239-4499

01	ADDRESS CITY LETTER (3-6-26)	JER	3/16/26
REV:	DESCRIPTION:	BY	DATE

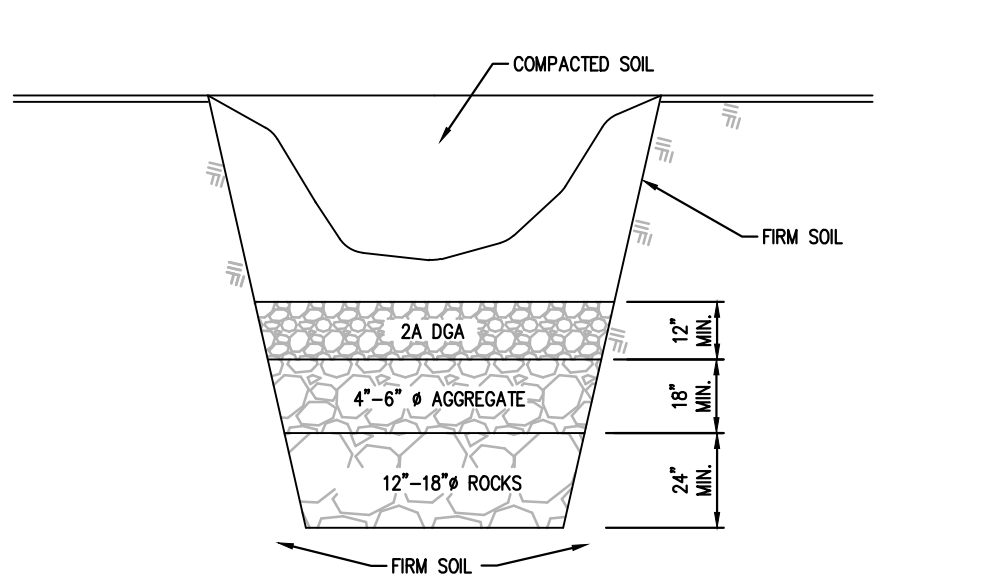
PROJECT TITLE:
**1224 EATON AVE
 LAND DEVELOPMENT**

PROJECT OWNER: PAJ VENTURES LP
 1177 6TH ST
 WHITEHALL, PA 18052
 ABE777@CLOUD.COM

PROJECT LOCATION:
**CITY OF BETHLEHEM
 WARD 13; BLOCK 149
 LEHIGH COUNTY
 PENNSYLVANIA**

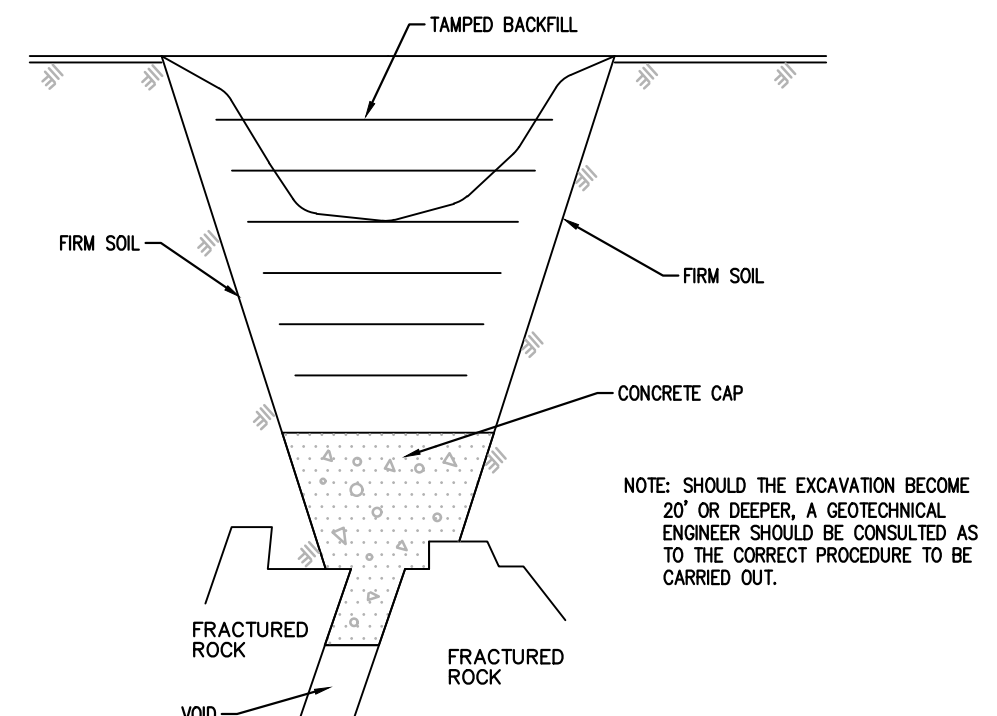
PLAN TITLE:
ESPC

SCALE:	DATE:	DRAWN:	CHECKED:
1"=20'	2/2/26	JER	JER/KTH
PROJECT NO.	DRAWING NO.	REVISION:	
1224	4 OF 6	01	



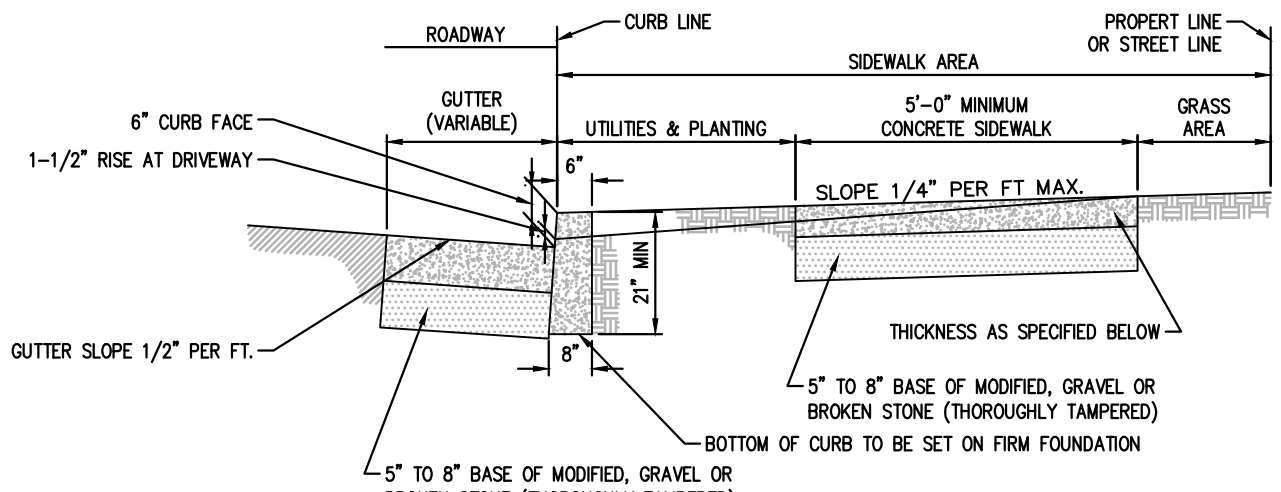
Sinkhole In Soil

- NOT TO SCALE
- THE REPAIR TECHNIQUES AS DESCRIBED BELOW ARE SUITABLE ONLY IF THE SINKHOLE IS LOCATED IN AN OPEN AREA. IF THE SINKHOLE IS LOCATED UNDER OR NEAR A STRUCTURE OR A BUILDING, COMPACTION GROUTING MAY BE NECESSARY FOR FOUNDATION, AS DETERMINED BY A GEOTECHNICAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA.
 - EXCAVATE DOWN TO ROCK TO SINKHOLE THROAT OR TO A DEPTH OF 15 FEET BELOW GRADE, WHICHEVER OCCURS FIRST.
 - IF ROCK IS ENCOUNTERED WITHIN 10 FEET, STOP EXCAVATION. THE LIMIT OF EXCAVATION SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER. GENERALLY, A ZONE OF SOFT, IN-FILL MATERIAL WILL BE FOUND WHICH COVERS MOST OF THE BOTTOM OF THE EXCAVATION. COVER THIS AREA WITH A GRADED ROCK FILTER AS SHOWN ABOVE.
 - BACKFILL HOLE WITH RELATIVELY IMPERMEABLE CLAY SOIL. COMPACT SOIL IN 6" LIFTS WITH A POWER TAMPER OR RAMMER TO AT LEAST 95% OF THE STANDARD PROCTOR.
 - BACKFILL HOLE ABOVE EXISTING GRADE TO DIVERT SURFACE WATER.



Sinkhole In Rock

- NOT TO SCALE
- THE REPAIR TECHNIQUES AS DESCRIBED BELOW ARE SUITABLE ONLY IF THE SINKHOLE IS LOCATED IN AN OPEN AREA. IF THE SINKHOLE IS LOCATED UNDER OR NEAR A STRUCTURE OR A BUILDING, COMPACTION GROUTING MAY BE NECESSARY FOR FOUNDATION, AS DETERMINED BY A GEOTECHNICAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA.
 - EXCAVATE DOWN TO BEDROCK OR TO THE SINKHOLE THROAT.
 - EXPOSE THE ROCK SURFACE BY WASHING THE AREA WITH A SMALL HOSE WATER SPRAY AND INSTALL HIGHIMP CEMENT INTO VOIDS AND CRACKS UNTIL VOIDS ARE FILLED AND A CAP COVERS THE AREA. THE LIMIT OF EXCAVATION AND CONCRETE SHALL BE DETERMINED BY THE ENGINEER.
 - AFTER CONCRETE HAS SET OVERNIGHT, BACKFILL HOLE WITH RELATIVELY IMPERMEABLE CLAY SOIL. COMPACT SOIL IN 6" LIFTS WITH A POWER TAMPER OR RAMMER TO AT LEAST 95% OF THE STANDARD PROCTOR. THE TOP THREE(3) FEET SHALL BE BACKFILLED WITH 20% CRUSHED AGGREGATE.
 - BACKFILL HOLE ABOVE EXISTING GRADE TO DIVERT SURFACE WATER.
 - WHEN SINKHOLE IS UNDER A PROPOSED UTILITY, CONCRETE IS TO BE SET 6" BELOW THE UTILITY TO ALLOW FOR A STONE BEDDING.



General Requirements:

ONE COURSE (MONOLITHIC) CONSTRUCTION FOR ALL CURB, GUTTER AND SIDEWALK CONCRETE MIX TO BE CLASS A CONCRETE 3500# 8 BAG MIX - 5.6 GAL. WATER PER BAG THROUGHOUT; USE POWER BATCH MIXER, NO SLAG.
CURB: 2" MINIMUM DEPTH WITH APPROVED FINISH ON TOP AND EXPOSE FACE.
GUTTER: 8" DEPTH - SLOPE OF GUTTER 1/2" RISE PER FOOT AWAY FROM CURB.
SIDEWALK: THICKNESS - RESIDENTIAL AREA - 5", BUSINESS AND INDUSTRIAL AREAS - 6" AT RESIDENTIAL DRIVEWAYS - 6", AT BUSINESS AND INDUSTRIAL DRIVEWAYS - 8" ENSEI - USE WOOD FLOAT TO PRODUCE SMOOTH RESISTANCE SURFACE. OVERLAP OF 2" OR MORE PROVIDE A ROUGHER FINISH.
SLOPE: WALK AND PARKWAY AREAS 1/4" PER FOOT (2%) TOWARD CURB.

EXPANSION AND CONTRACTION JOINTS SEE CITY CONSTRUCTION STANDARD NO. 1A.
HANDICAP RAMPES: REQUIRED ON ALL RAMPS IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.
DRIVEWAYS: SEE CITY STANDARD DRIVEWAY ENTRANCE AND APRON SKECH.

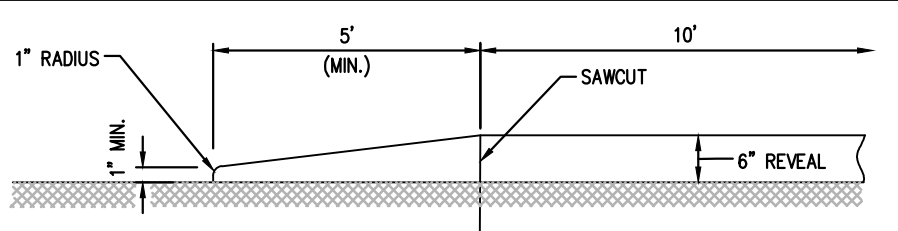
EXCAVATION IN CARTWAY WHEN EXCAVATING IN THE CARTWAY OF THE CITY STREET, A CLEAN, FULL DEPTH CUT-BY JACK HAMMERS OR SAWING/SHALL BE MADE IN THE STREET BETWEEN THE AFFECTED AND THE UNAFFECTED WORK AREAS. FURTHER, FINAL RESTORATION IN THE AFFECTED AREA OF THE STREET SHALL CONSIST OF CREATING A NEW CLEAN CUT BY SAWCUTTING 12" BEYOND THE EDGE OF ANY AFFECTED WORK AREAS, BACKFILLING WITH PENNDOT 2A MODIFIED STONE, AND PROPERLY COMPACTING THIS STONE TO THE ELEVATION OF THE TOP OF THE SUBBASE (I.E. BOTTOM OF THE BASE COURSE OF MACADAM), BUT NO HIGHER THAN 3-INCHES BELOW THE FINISH GRADE-EXCEPT AS REQUIRED TO PROVIDE REASONABLE TEMPORARY ACCESS AT DRIVEWAYS.

Ordinance Requirements:
WARRANT OF SURVEY - PROCURED FROM THE CITY ENGINEER'S OFFICE; PROVIDES FOR ESTABLISHING LINE & GRADES; STAKES TO BE PROTECTED BY APPLICANT AND USED WITHIN 30 DAYS.
EXCAVATION PERMIT - PROCURED FROM THE CITY ENGINEER'S OFFICE; FOR SIDEWALK AND DRIVEWAY CONSTRUCTION

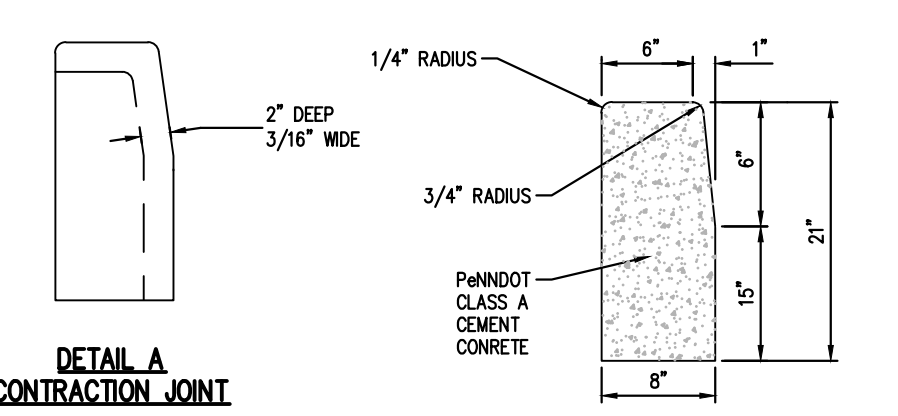
DETAIL REQUIREMENTS:
 FOR FURTHER DETAILS AND OTHER REQUIREMENTS SEE THE FOLLOWING DOCUMENTS ON FILE IN THE OFFICE OF THE CITY ENGINEER:
 "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF CONCRETE CURB, GUTTER AND SIDEWALK" COPIED ORDINANCES OF THE CITY OF BETHLEHEM, ARTICLES 903 AND 909.

NOTE:
 * WHENEVER A CURB, GUTTER AND/OR SIDEWALK IS LOCATED IN THE HISTORIC DISTRICT, SPECIAL REQUIREMENTS MAY APPLY.
 * CHANGES TO DIMENSIONAL REQUIREMENTS MAY BE CONSIDERED IN CASES WHERE OBSTRUCTIONS OR ENCROACHMENTS EXIST; ANY EXCEPTIONS MUST BE APPROVED BY THE CITY ENGINEER. CURRENT ADA REQUIREMENTS MUST BE IN ALL CASES.

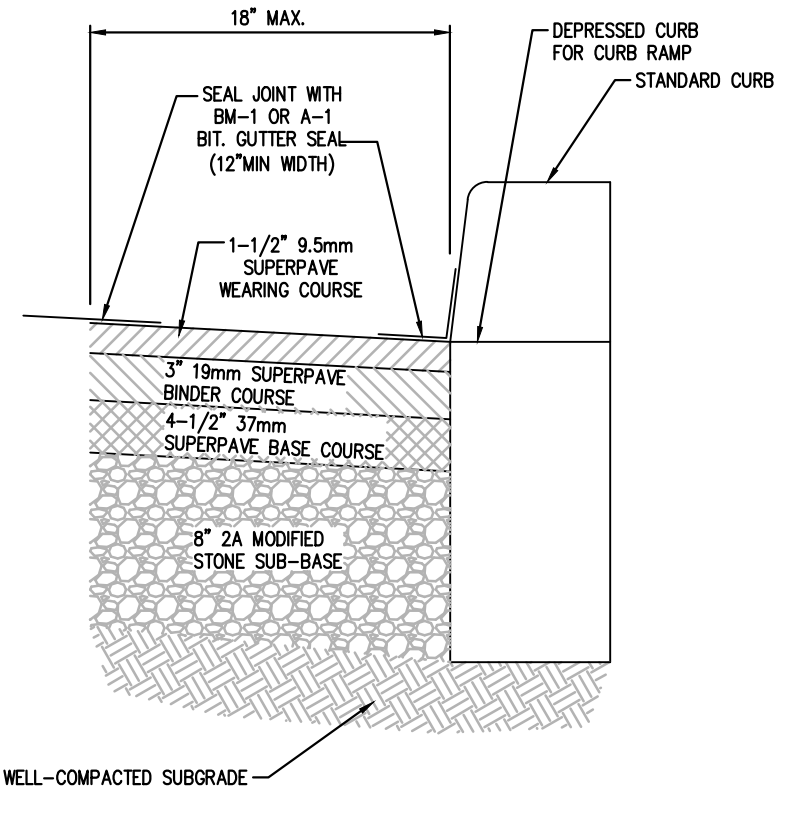
CITY OF BETHLEHEM, PA. BUREAU OF ENGINEERING Construction Standard No. 1



Typical Curb Taper Detail

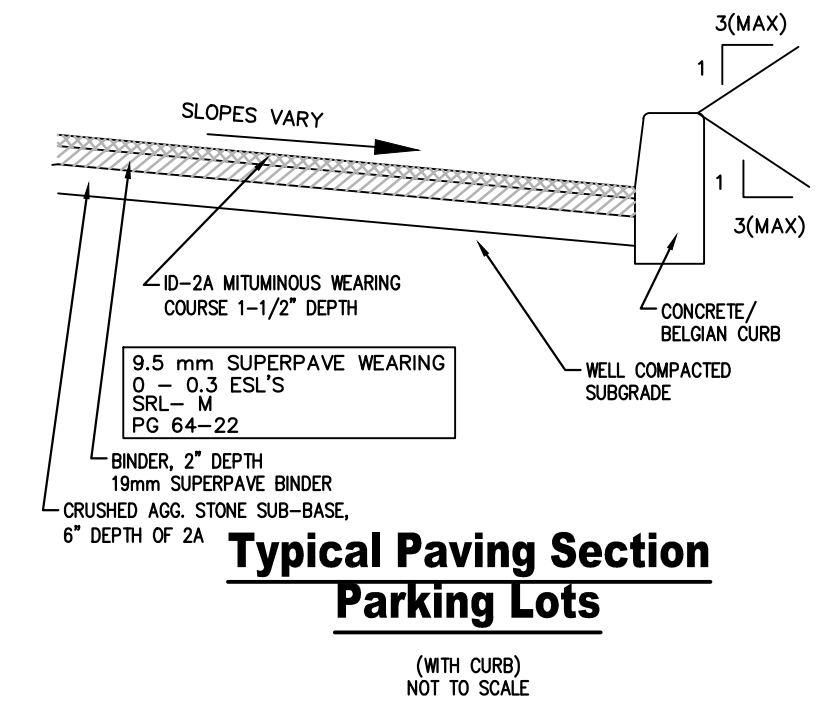


TYPICAL CROSS SECTION



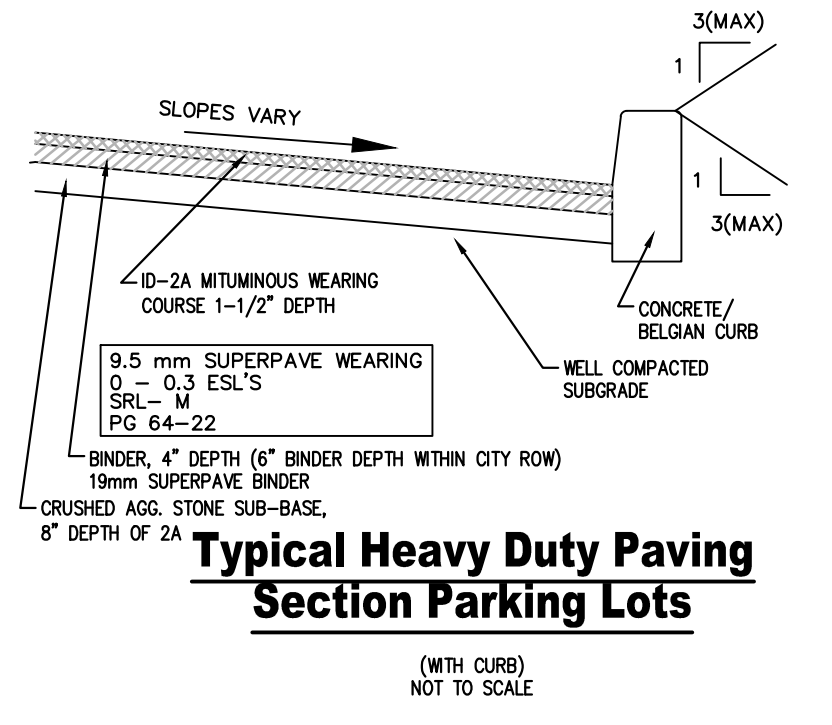
Pavement Restoration For Curb Replacement

NOT TO SCALE



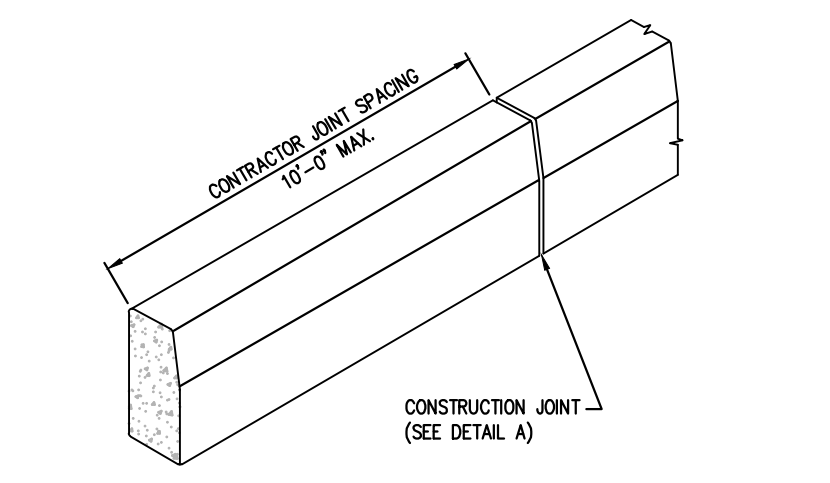
Typical Paving Section Parking Lots

NOT TO SCALE



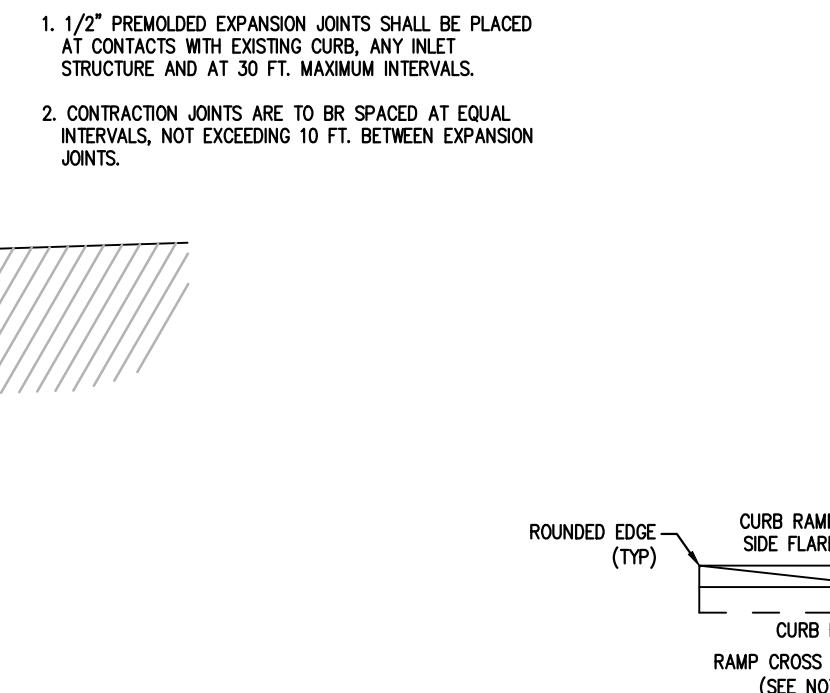
Typical Heavy Duty Paving Section Parking Lots

NOT TO SCALE



Concrete Curb

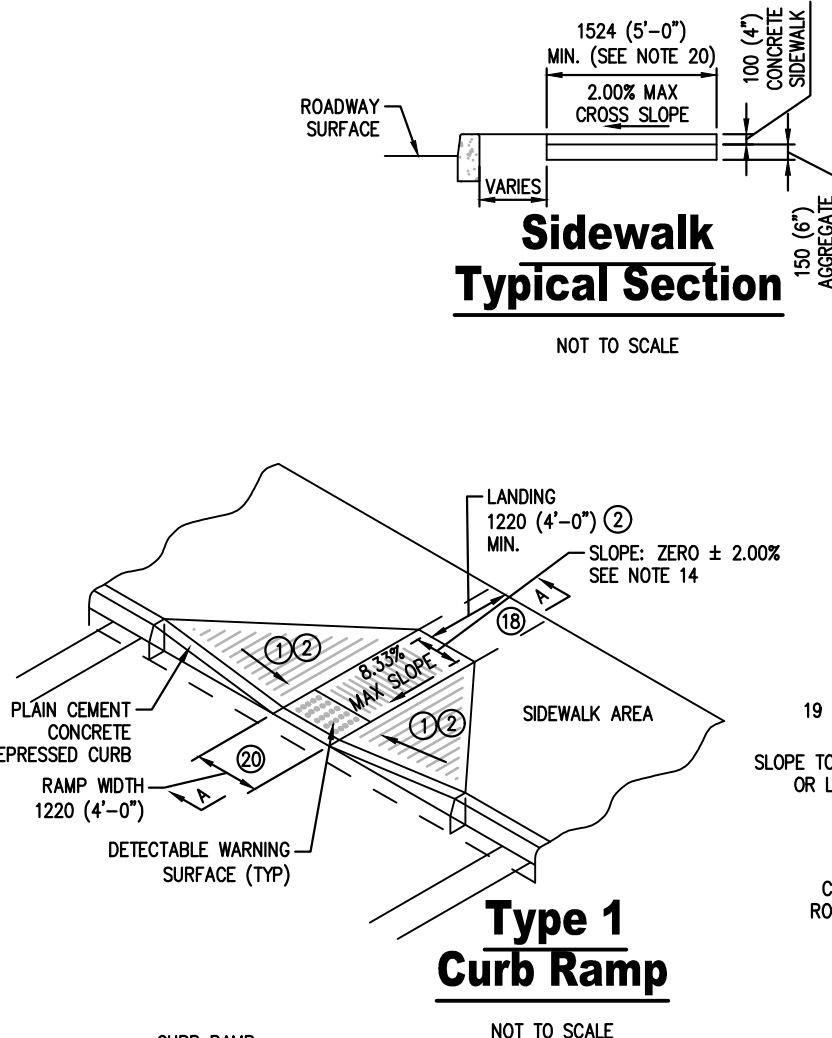
NOT TO SCALE



Upright Curb Detail

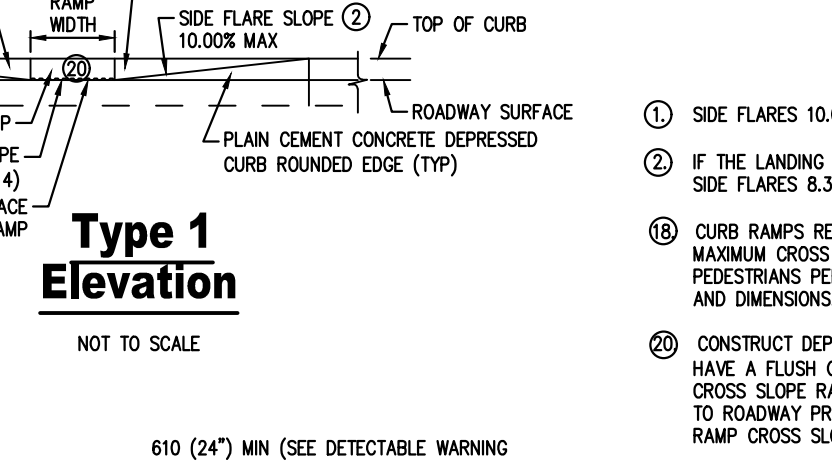
NOT TO SCALE

- Notes:**
- MATERIALS AND CONSTRUCTION SHALL MEET THE REQUIREMENTS OF PUBLICATION 408, SECTION 630.
 - SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
 - PLACE 3/4" PREMOULDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.



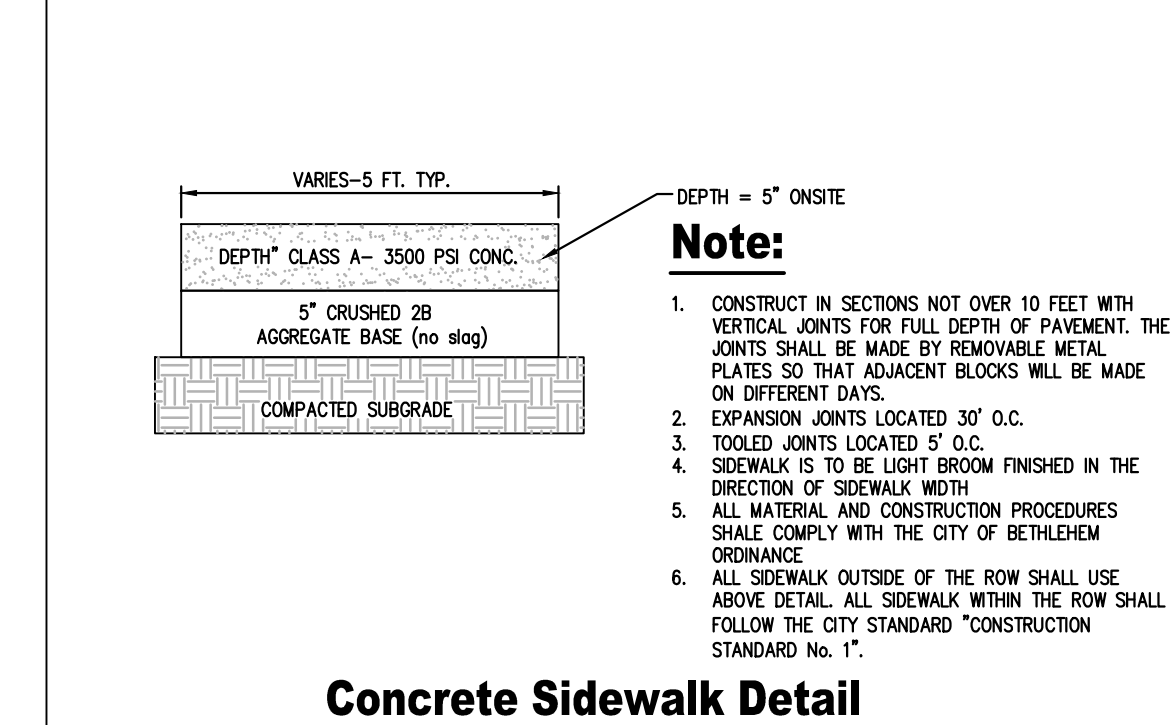
Type 1 Curb Ramp

NOT TO SCALE



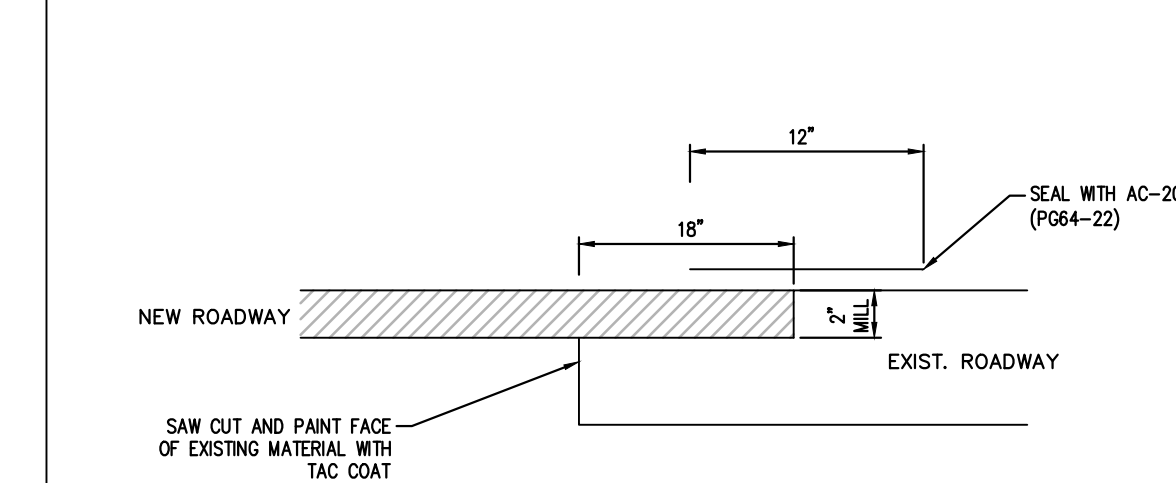
Type 1 Elevation

NOT TO SCALE



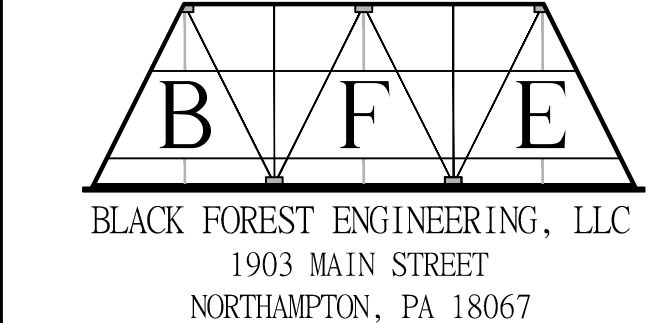
Concrete Sidewalk Detail

NOT TO SCALE



Paving Joint Detail

(TIE INTO EXISTING PAVEMENT) NOT TO SCALE



THIS DOCUMENT IS THE PROPERTY OF BLACK FOREST ENGINEERING, LLC. ANY USE OF A COPY OF THIS DOCUMENT THAT DOES NOT CONTAIN AN ORIGINAL SEAL AND SIGNATURE IS STRICTLY PROHIBITED. THIS DOCUMENT IS NOT PUBLISHED AND ALL RIGHTS ARE RESERVED BY BLACK FOREST ENGINEERING, LLC. THIS PLAN HAS BEEN SEAL AND SIGNATURE. IF NEITHER APPEARS ON THIS PLAN, POSSIBLE REPRODUCTIONS OR ALTERATIONS MAY HAVE BEEN MADE WITHOUT THE APPROVAL OR KNOWLEDGE OF THE SIGNATORY.



JOSEPH E. RENTKO, P.E. #PE0805609
 2455 BLACK FOREST DRIVE
 COPLAY, PA 18037
 717-239-4499

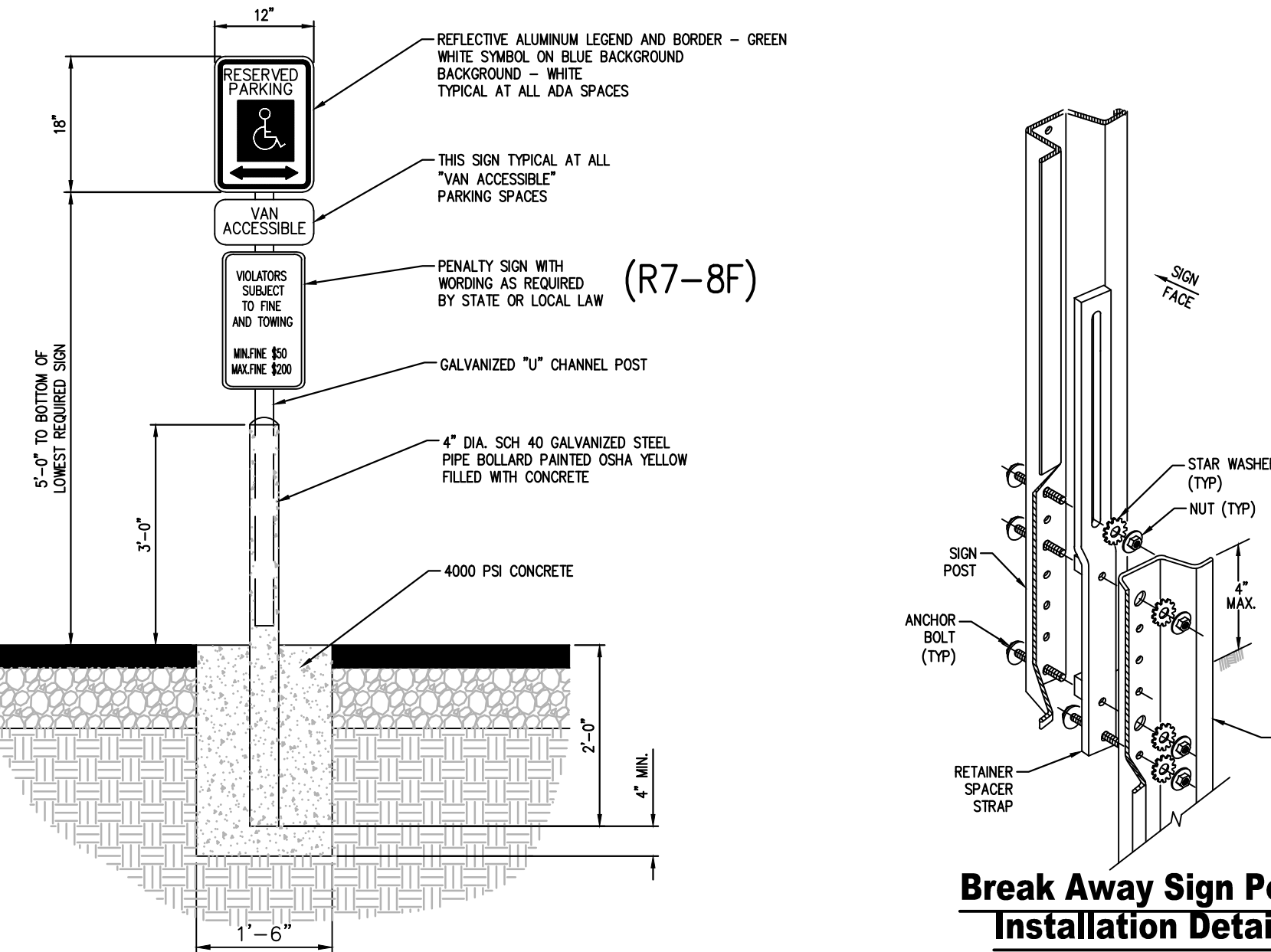
Equivalent Slopes

Percent Slope	Equivalent Slope
10.00%	10:1 (1:10)
8.33%	12:1 (1:12)
7.14%	14:1 (1:14)
5.00%	20:1 (1:20)
2.00%	50:1 (1:50)
1.00%	100:1 (1:100)

Note:
 EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

Notes:

- PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTIONS 350, 409, 630, 678 AND 684.
- PROVIDE EXPANSION JOINT MATERIAL 1 1/2" THICK WHERE CURB RAMP ADJACENT TO SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
- CONSTRUCT CURB RAMP WITH A MINIMUM 1220 X 1220 (4'-0" X 4'-0") CLEAR SPACE BEYOND THE CURB FACE, WITHIN THE WIDTH OF THE CROSSWALK AND MINIMALLY OUTSIDE THE PARALLEL VEHICLE TRAVEL LANE. SEE SHEET 7 FOR CROSSWALK DETAILS.
- SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
- PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING FLARED SIDE RAMP.
- MOODY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB HEIGHTS WHERE THE CURB IS LESS THAN THE STANDARD 205 (8") HEIGHT.
- CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
- TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVELING THE HEIGHT OF CURB, RAMP LENGTH NOT TO EXCEED 4500 (15'-0"). ADJUST RAMP OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
- NON-WALK AREA IS AN OBSTRUCTED OR GRASS/NON-PAVED AREA ADJACENT TO THE PEDESTRIAN ACCESS ROUTE THAT IS NOT USED BY THE PEDESTRIAN FOR ACCESS.
- THE DETAILS DEPICT PEDESTRIAN PUSHBUTTON POLES TO ILLUSTRATE THE RECOMMENDED PLACEMENT OF PEDESTRIAN PUSHBUTTONS. FOR ALTERATION PROJECTS, PROVIDE ACCESS TO EXISTING PEDESTRIAN PUSHBUTTONS TO THE MAXIMUM EXTENT FEASIBLE. INSTALL PEDESTRIAN PUSHBUTTON STUB POLES, WHERE APPLICABLE, SO AS NOT TO CREATE PEDESTRIAN OBSTRUCTIONS.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. USE CUSTOMARY UNITS IN PARENTHESES.
- ALIGN DETECTABLE WARNING SURFACE TRUNCATED DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO CURB.
- PROVIDE DETECTABLE WARNING SURFACES (DWS) 610 (24") MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
- FOR NEW CONSTRUCTION, DO NOT EXCEED 2.00% CROSS SLOPE ON THE CURB RAMP OR PEDESTRIAN ACCESSIBLE ROUTE.
- FOR CURB RAMP AND ALTERATIONS, CONSTRUCT CURB RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE. THE SLOPES INDICATED IN THE DETAILS SHOW THE MAX SLOPE ALLOWABLE. SLOPES THAT EXCEED THOSE INDICATED IN THE DETAILS, OR CONTRACT DOCUMENTS AS APPLICABLE, WILL NOT BE ACCEPTED AND WILL BE DECONSTRUCTED.
- CONSTRUCT SIDEWALKS AT A LONGITUDINAL SLOPE NOT TO EXCEED 5.00%. FOR ROADWAY PROFILE SLOPES THAT EXCEED 5.00%, CONSTRUCT PARALLEL SIDEWALKS ADJACENT TO ROADWAY AT A LONGITUDINAL SLOPE NOT TO EXCEED ROADWAY PROFILE SLOPE.
- THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJACENT ROADWAY SURFACE IS NOT TO EXCEED AN ALGEBRAIC DIFFERENCE OF 1.00%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP, LANDING OR BLENDED TRANSITION IS NOT TO EXCEED 5.00%. SEE SHEET 8 FOR DETAILS.
- THE CONSTRUCTION STANDARDS DEPICTED ARE MOST APPROPRIATE FOR NEW CONSTRUCTION. ALL CONSTRUCTION MUST MEET THE STANDARDS CONTAINED HEREIN UNLESS OTHERWISE NOTED OR DIRECTED.
- ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF RAMP IS NOT SOLELY DEPENDANT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 150 (6") CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 1800 (6'-0") FOR A 12:1 (1:12) SLOPE.
- SIDEWALK WIDTH MAY BE REDUCED TO 1220 (4'-0") WHEN PASSING AREAS 1525 X 1525 (5'-0" X 5'-0") ARE PROVIDED EVERY 61 METERS (200').
- THE TRAVEL LANE IS DEFINED BY THE OUTSIDE EDGE OF THE WHITE PAVEMENT MARKING LINE. IF A WHITE PAVEMENT MARKING LINE DOES NOT EXIST, THE TRAVEL LANE IS DEFINED BY THE CONTRACT DOCUMENTS.
- CONSTRUCT DEPRESSED CURB FOR CURB RAMP FLUSH TO ADJACENT ROADWAY. GRADE EDGE OF ROAD ELEVATIONS AT THE FLOW LINE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING. FOR LEVEL LANDINGS BEHIND DEPRESSED CURB, ADJUST SLOPES TO PROVIDE POSITIVE DRAINAGE.
- CHECK WALLS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES CANNOT BE ACCOMMODATED BY FLARES OR GRADING. GRADE GRASS AREAS OR OTHER NON-WALK AREAS AT 3:1 (1:3) MAXIMUM. DO NOT INSTALL CHECK WALLS THAT INTERSECT THE PEDESTRIAN ACCESS ROUTE.
- CONSTRUCT TOP OF PLAN CEMENT CONCRETE DEPRESSED CURB TO BE FLUSH WITH ADJACENT SURFACES (RAMPS, SIDEWALKS, FLARES).
- FOR CURB RAMPS THAT LEAD TO A SINGLE CROSSWALK, THE RAMP (EXCLUDING FLARES) IS TO BE FULLY INSIDE OF MARKED CROSSWALK LINES. SEE SHEET 7 FOR DETAILS.
- A 1220 (4'-0") MAXIMUM DIGITAL DISPLAY LEVEL WILL BE USED TO VERIFY THE SLOPES OF CURB RAMPS AND SIDEWALKS.



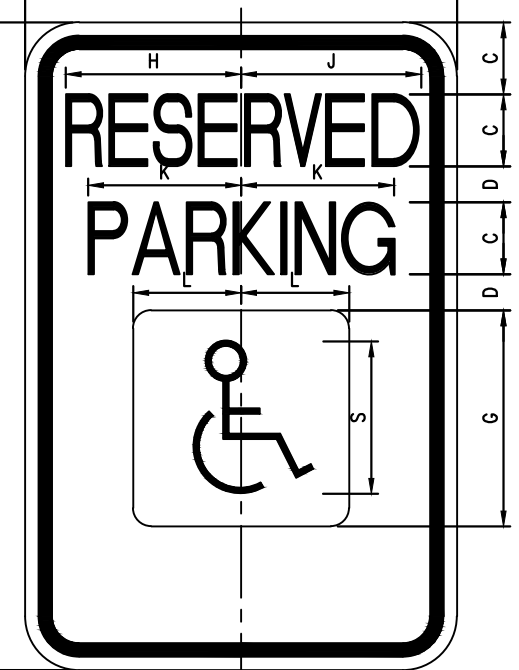
ADA Parking Sign

NOT TO SCALE

NOTE: ONE AT EACH ADA SPACE. WHERE ADA SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED BOTH SIDES.

SIGN SIZE DIMENSIONS

Sign Size	A	B	C	D	E	F	G	H	J	K	L	M
12x18	12	18	2	1	1 1/2	2 1/4	6	4 1/4	5	4 1/4	3	1/2



COLOR: LEGEND AND BORDER GREEN (NON-REFLECTORIZED)
 BACKGROUND WHITE (NON-REFLECTORIZED)
 SYMBOL WHITE (NON-REFLECTORIZED)
 BACKGROUND BLUE (NON-REFLECTORIZED)

"Reserved Parking" Sign PennDOT R7-8

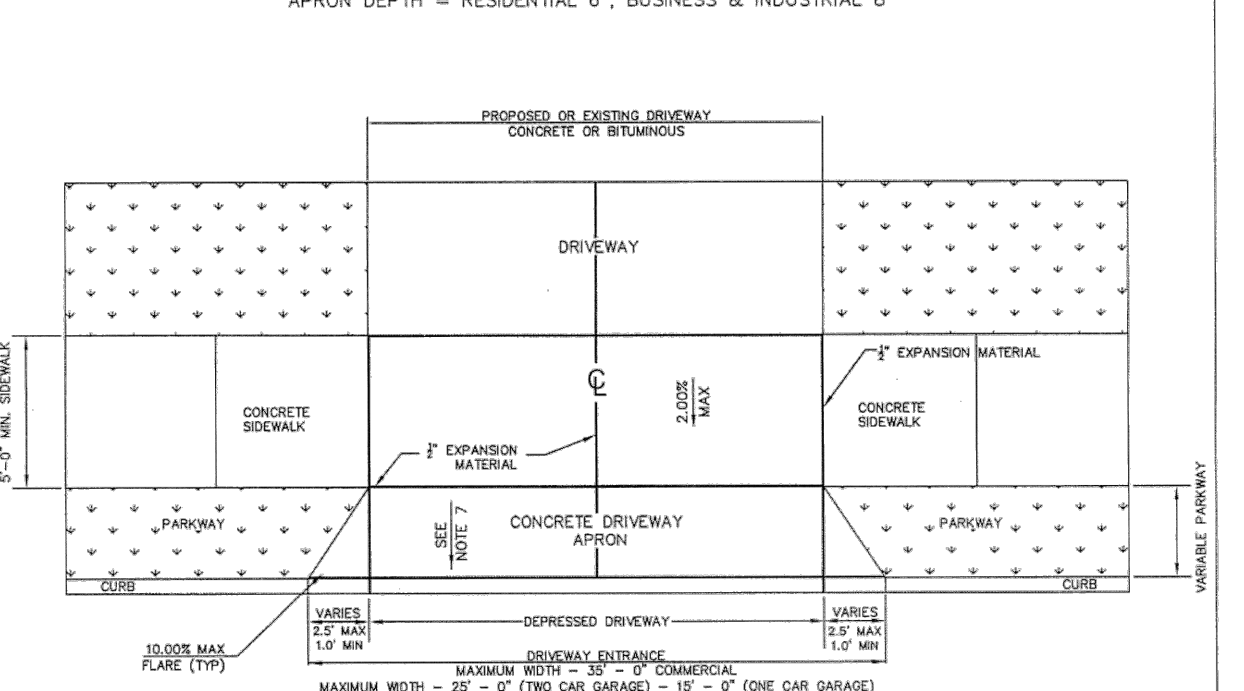
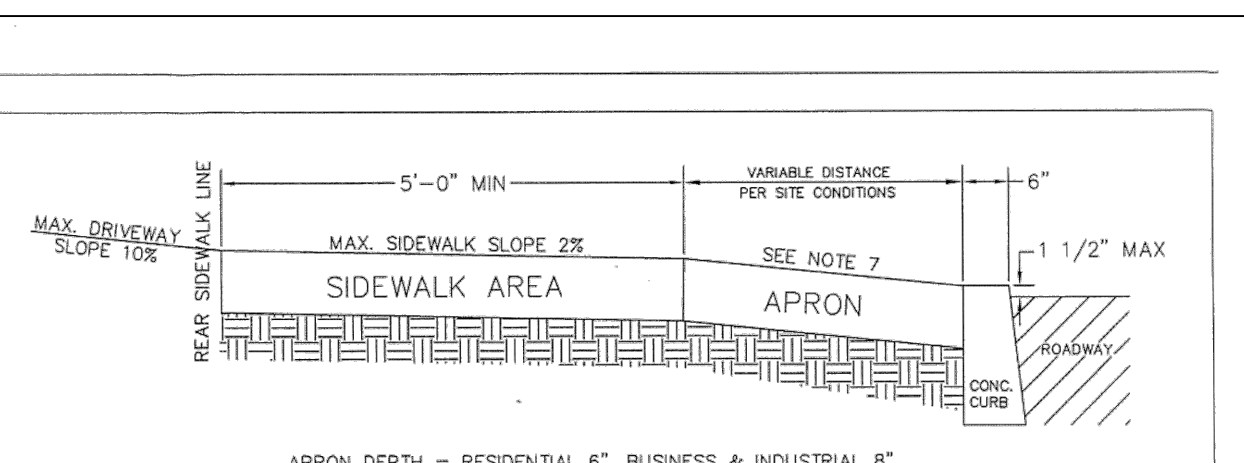
- MOUNT ALL SIGNS ON PENNDOT STD. 2.25 LB. BREAKAWAY CHANNEL BAR POSTS, UNLESS NOTED OTHERWISE.
- MARK ALL PARKING SPACES WITH 4" WIDE SOLID WHITE LINES.



VAN ACCESSIBLE

12'x6" R7-8B ADA Parking Signs

NOT TO SCALE

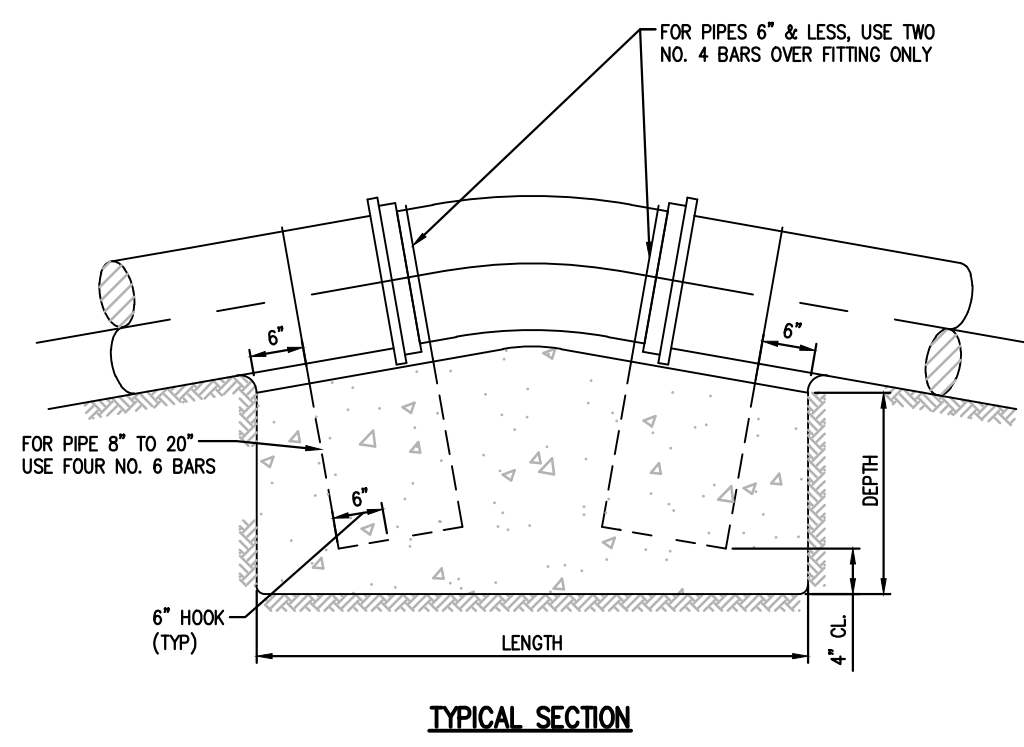


- NOTES:**
- No driveway allowed within 25 feet of the street line intersection.
 - An off street parking area shall be at least 9' wide by 19' deep on private property.
 - One driveway entrance allowed for each 100' feet of property frontage.
 - Maximum slope for driveway behind public right-of-way shall be 10%.
 - A monolithic driveway apron and curb may be permitted.
 - Changes to dimensional requirements may be considered in cases where obstructions or encroachments exist. Any exceptions must be approved by the City Engineer. Current ADA requirements must be met in all cases.
 - Desired 8% max allowable change in grade between road surface and driveway apron. 10% max grade for driveway apron.

CITY OF BETHLEHEM, PA BUREAU OF ENGINEERING

TYPE 1 DRIVEWAY ENTRANCE AND APRON

12/14/14

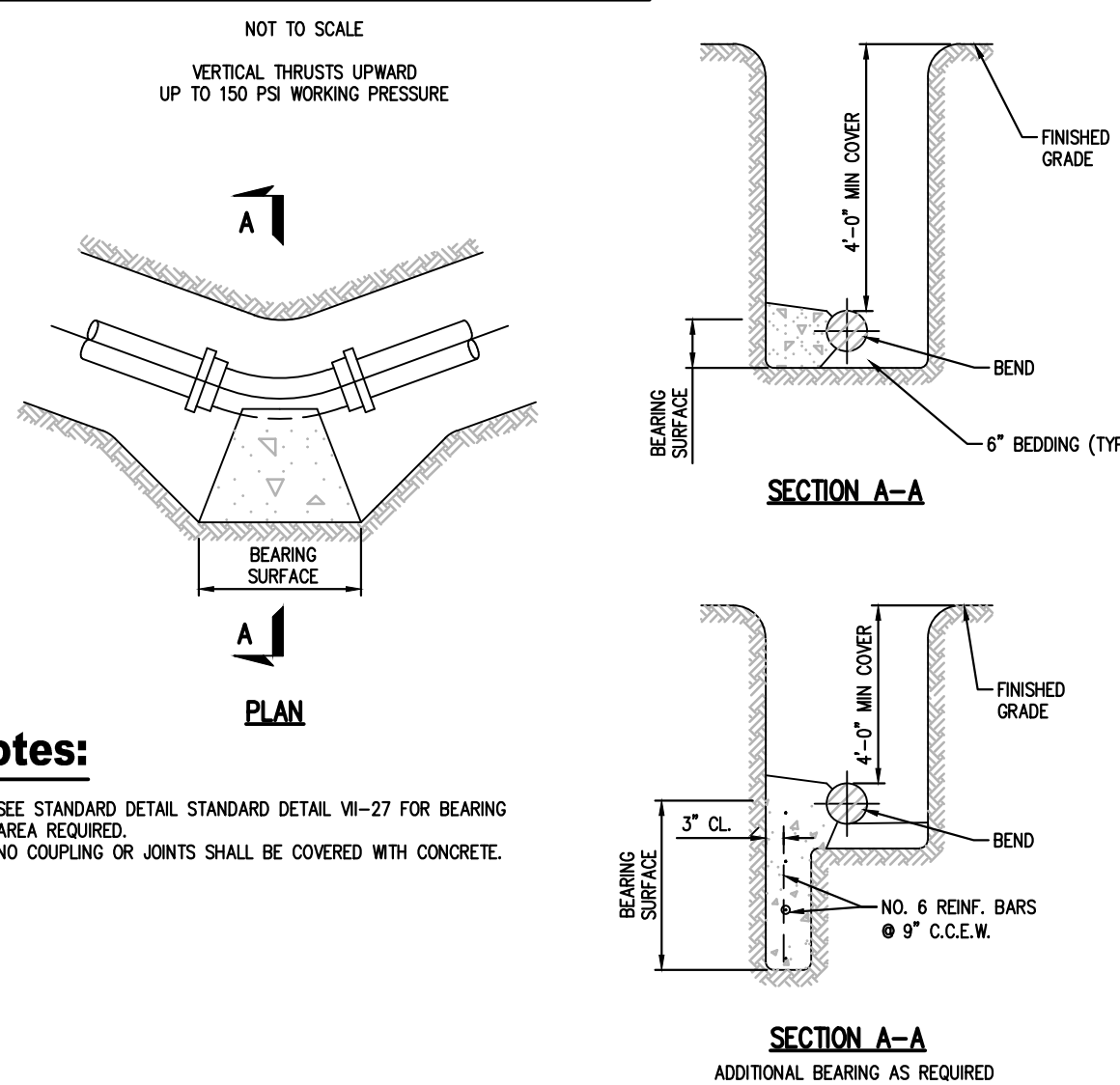


PIPE SIZES (inches)	DIMENSIONS OF CONCRETE BLOCKING							
	LENGTH		WIDTH		DEPTH			
4 & SMALLER	11 1/4	22 1/2	4	4	11 1/4	22 1/2	4	4
6 & 8	2	4	6	3	3	2	3	4
10 & 12	4.5	6	8	3	3	4	3	5
14 & 16	6	8	11	3.5	3.5	5	3.5	5
18 & 20	7	9	13	4	5	5.5	4	6

Notes:

1. NO COUPLING OR JOINTS SHALL BE COVERED WITH CONCRETE.
2. REINFORCING BAR STRIPS TO BE SHAPED TO PIPE CURVATURE.
3. ALL EXPOSED STEEL TO BE PAINTED WITH TWO COATS ASPHALTIC PAINT.

Thrust Blocking - Vertical Thrusts

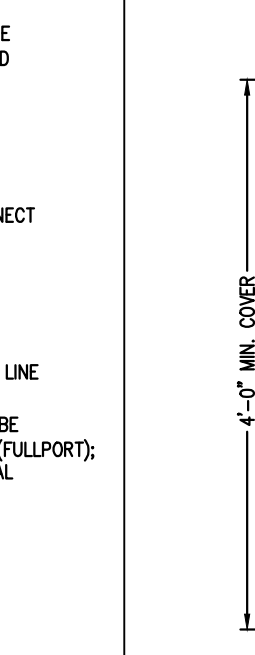


Notes:

1. SEE STANDARD DETAIL STANDARD DETAIL V-27 FOR BEARING AREA REQUIRED.
2. NO COUPLING OR JOINTS SHALL BE COVERED WITH CONCRETE.

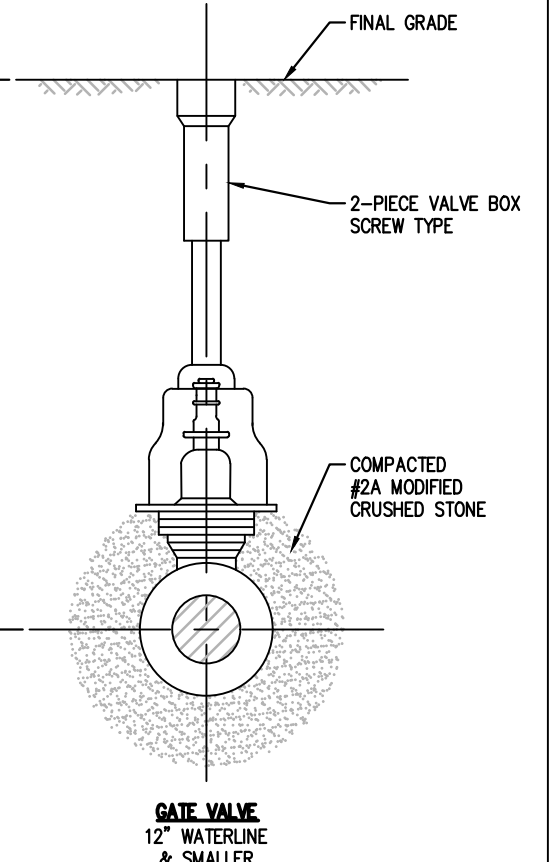
Thrust Blocking For Bends

NOT TO SCALE
TYPICAL BLOCKING FOR HORIZONTAL & VERTICAL DOWNWARD THRUSTS UP TO 150 PSI WORKING PRESSURE



Typical Fire Hydrant Detail

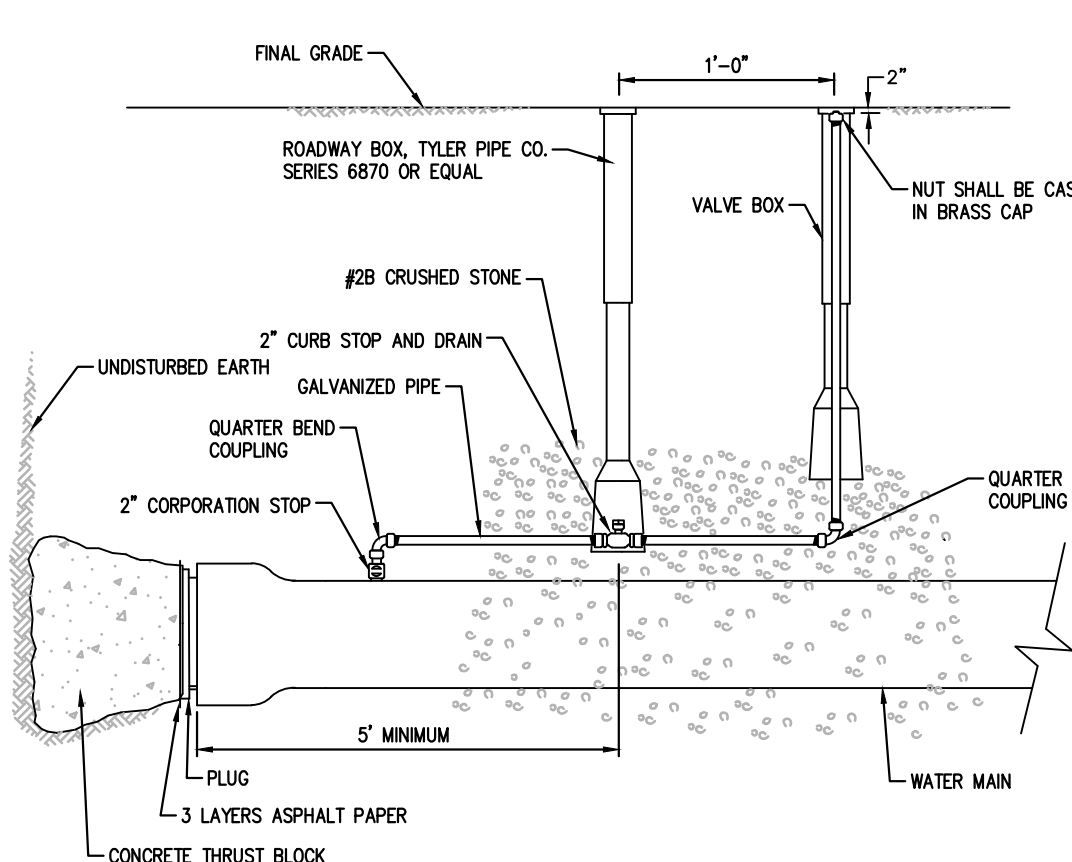
NOT TO SCALE



Gate Valve Detail

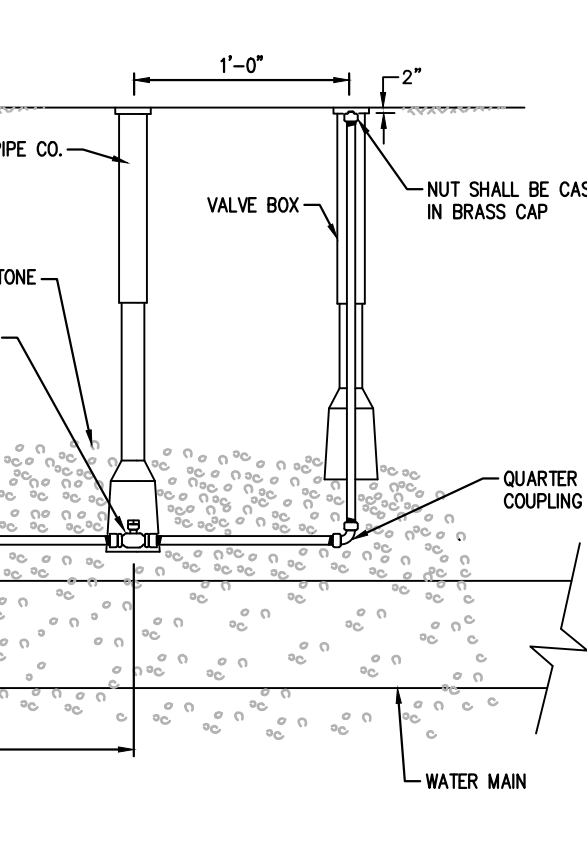
NOTE:

1. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS
2. ROD DIAMETER SHALL BE EQUAL TO THAT OF THE GLAND BOLTS. RODS SHALL BE GIVEN ONE COAT OF BITUMASTIC PAINT.



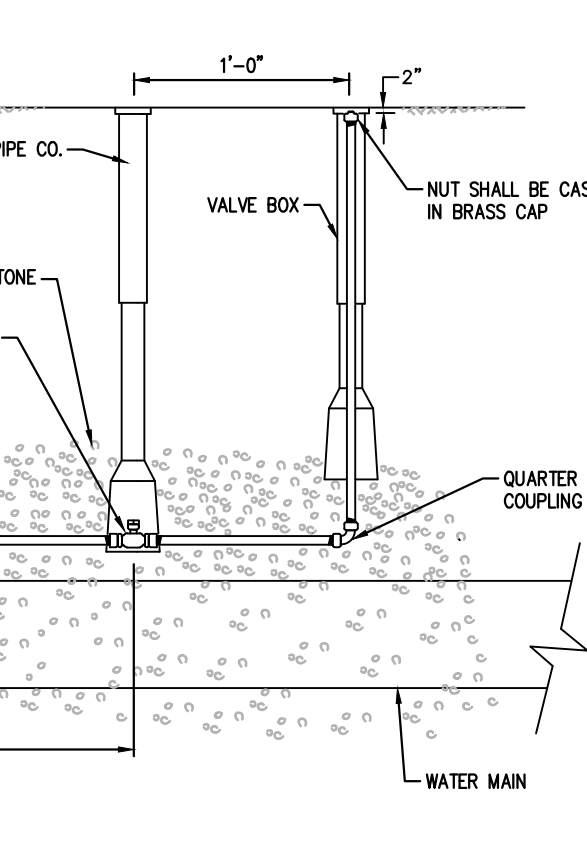
2" Surface Blowoff

NOT TO SCALE



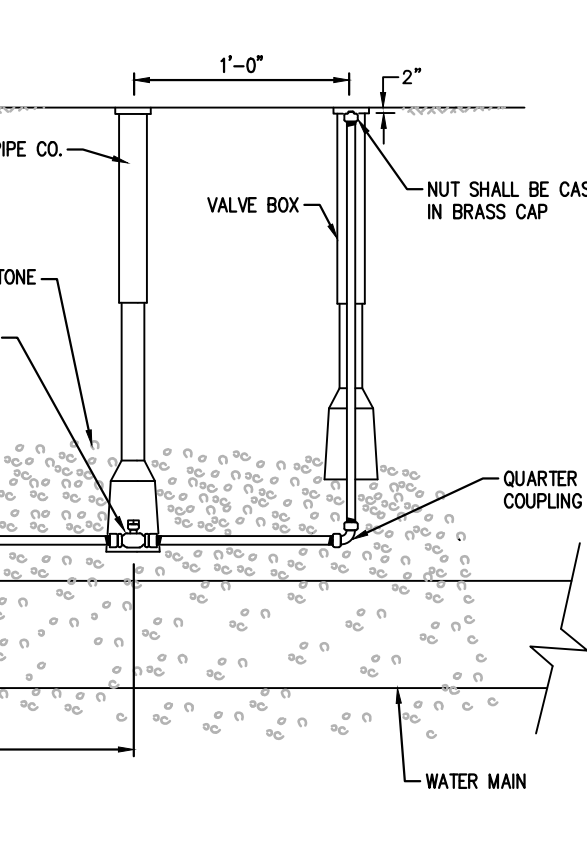
Water Lateral Small Service Connection

NOT TO SCALE



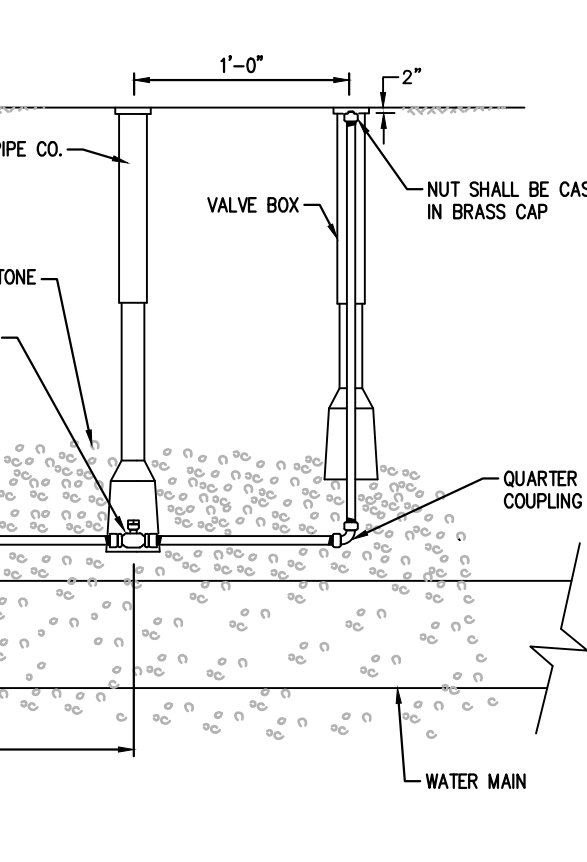
Typical Trench Plug

NOT TO SCALE



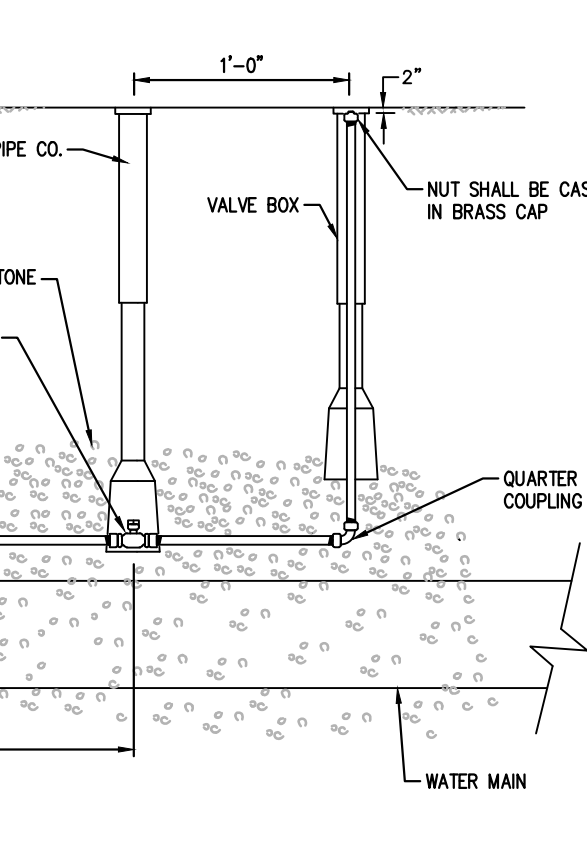
Typical Sanitary Sewer Lateral Connection

NOT TO SCALE



Lateral Clean-out

NOT TO SCALE

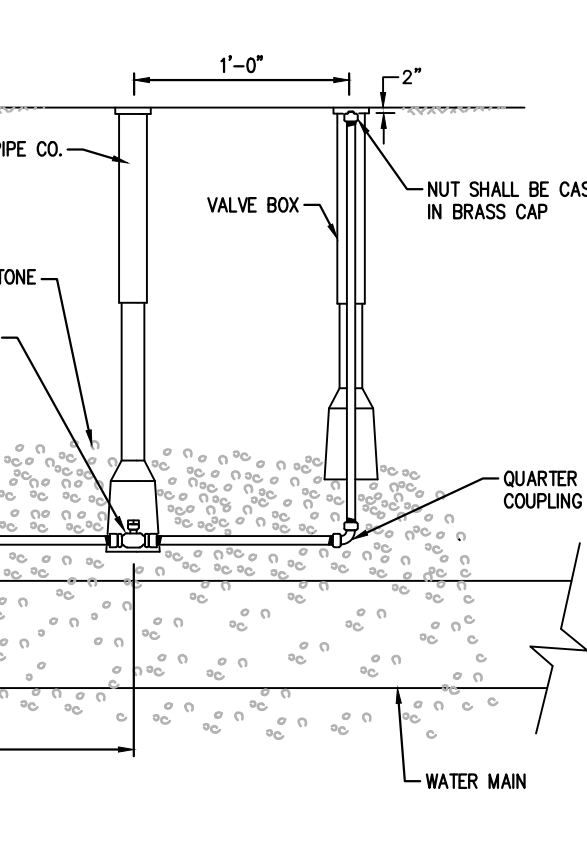


Valving Detail

NOT TO SCALE

NOTE:

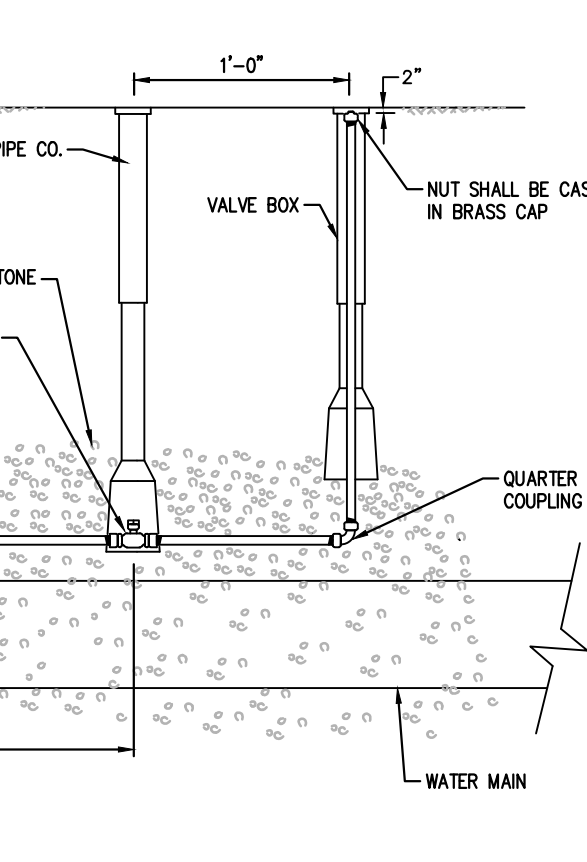
1. VALVES 8" OR SMALLER SHALL BE RODDED TO A FITTING WITH 2 ALL-THREAD RODS, 12" VALVES WITH 4 ALL-THREAD RODS.
2. ROD DIAMETER SHALL BE EQUAL TO THAT OF THE GLAND BOLTS. RODS SHALL BE GIVEN ONE COAT OF BITUMASTIC PAINT.



Thrust Blocking Schedule

NOT TO SCALE

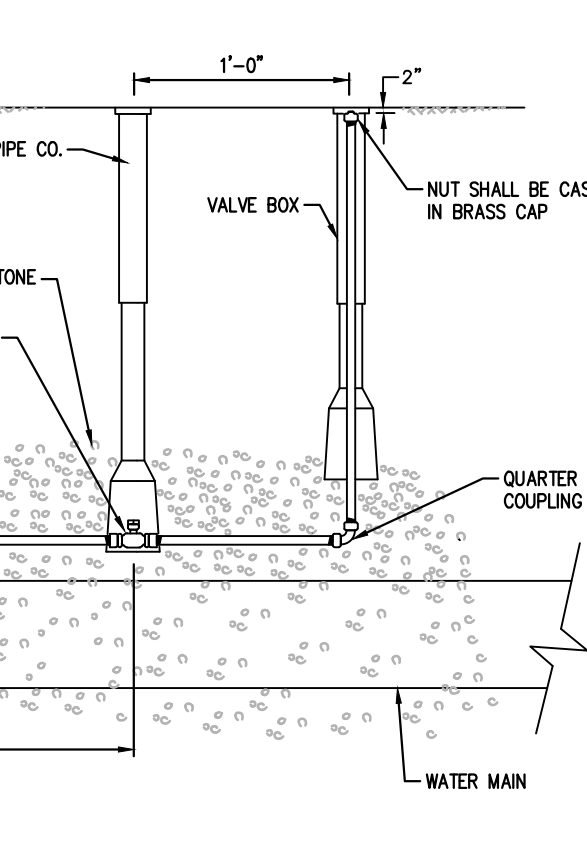
SCHEDULE OF DIMENSIONS UP TO 150 PSI WORKING PRESSURE



Thrust Blocking For Tees

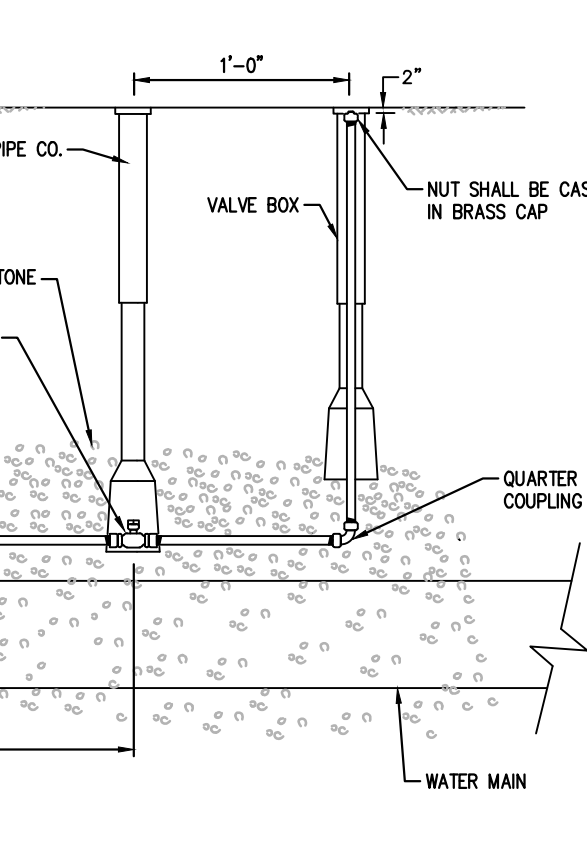
NOT TO SCALE

TYPICAL BLOCKING FOR HORIZONTAL & VERTICAL DOWNWARD THRUSTS UP TO 150 PSI WORKING PRESSURE

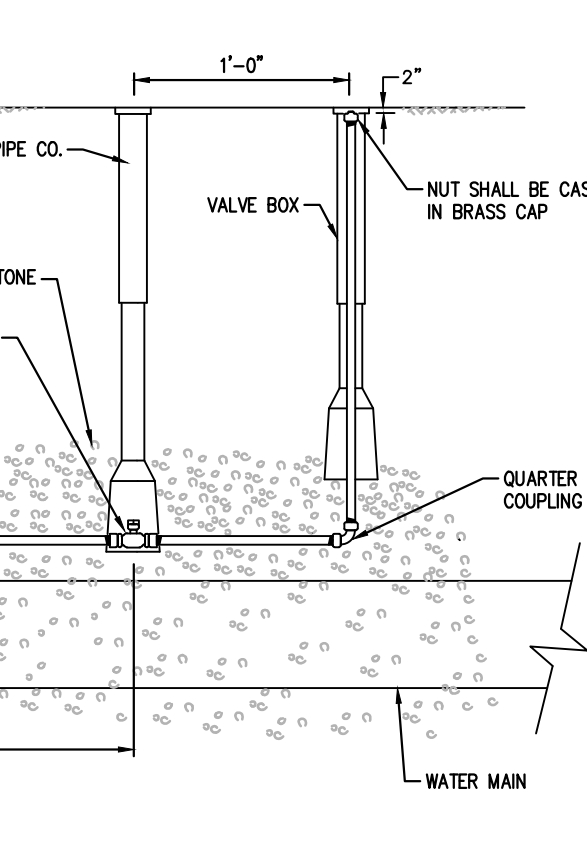


Notes:

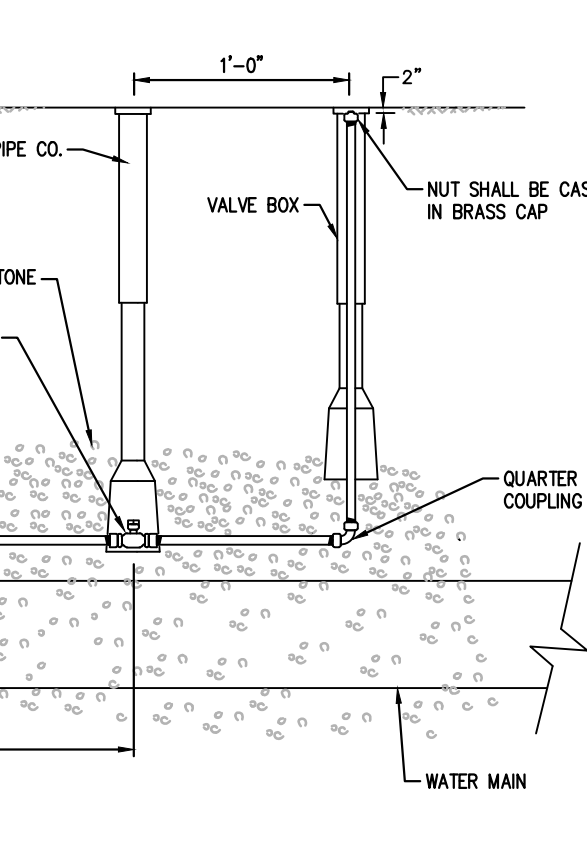
1. SEE STANDARD DETAIL STANDARD DETAIL V-27 FOR BEARING AREA REQUIRED.
2. NO COUPLING OR JOINTS SHALL BE COVERED WITH CONCRETE.
3. REINFORCING BAR STRIPS TO BE SHAPED TO PIPE CURVATURE.
4. ALL EXPOSED STEEL TO BE PAINTED WITH TWO COATS ASPHALTIC PAINT.



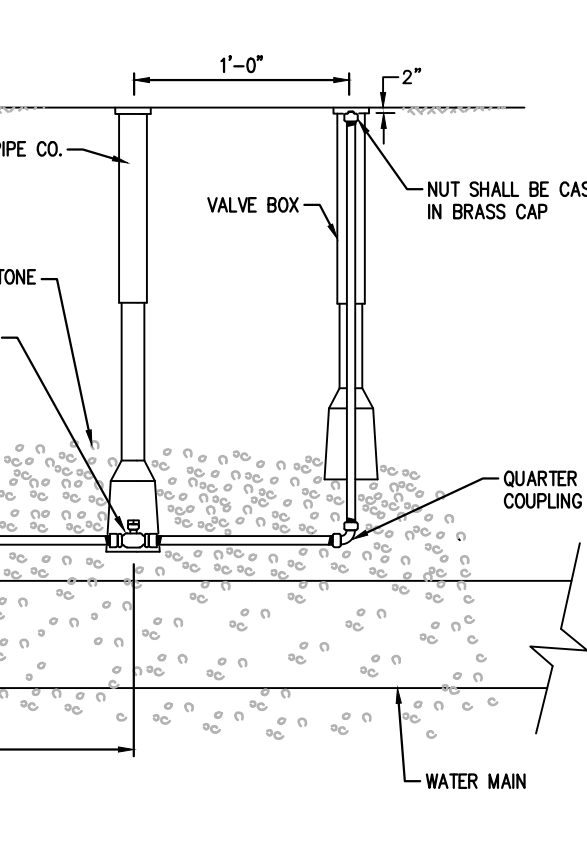
Type of Bearing Material and Allowable Loads, psf	BEARING AREA REQUIRED, SQUARE FEET											
	4" and less DEGREE BEND			6" and 8" DEGREE BEND			10" and 12" DEGREE BEND					
LOOSE SAND OR MEDIUM CLAY - 2,000	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90	11 1/4	22 1/2	45	90
PACKED GRAVEL AND SAND - 4,000	1.0	2.0	2.7	4.0	1.5	3.0	6.0	10.0	3.0	6.2	12.0	22.0
ROCK - 10,000	1.0	1.0	1.0	1.0	1.0	1.0	1.2	2.0	1.0	1.3	2.4	4.4



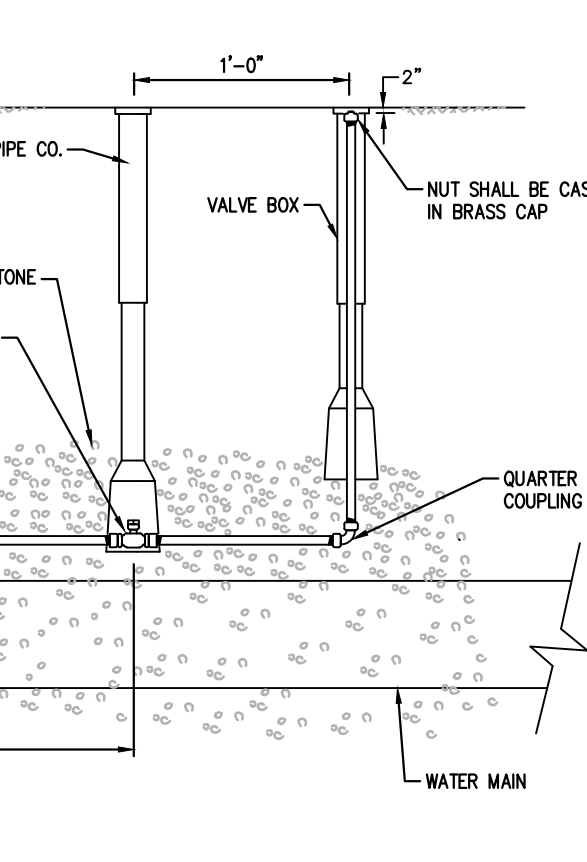
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



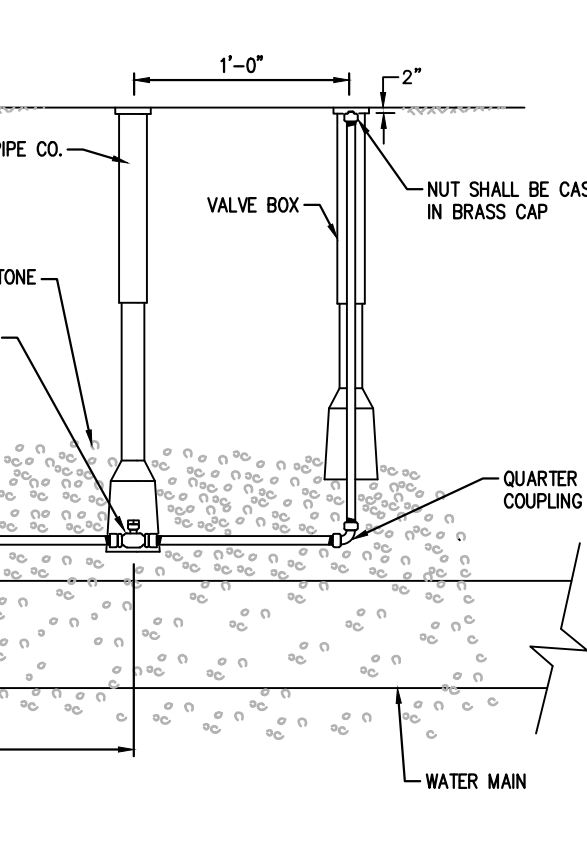
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



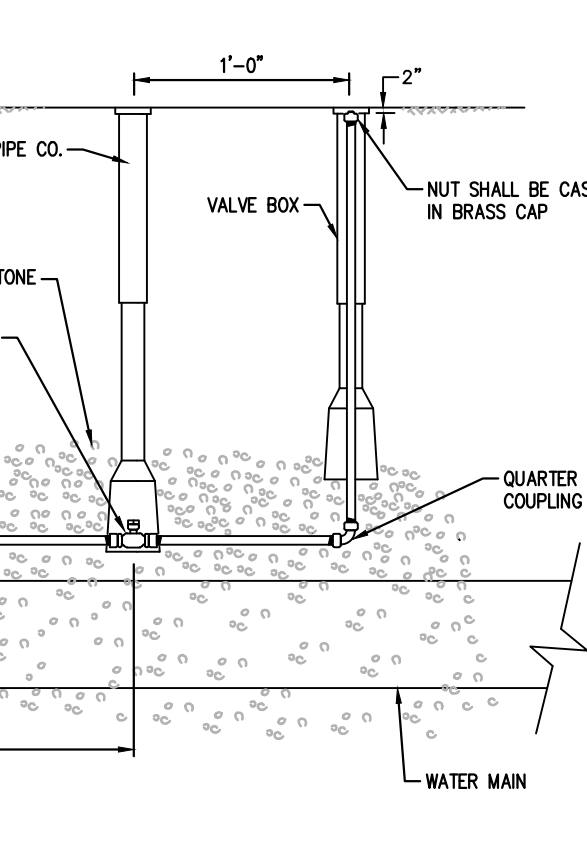
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



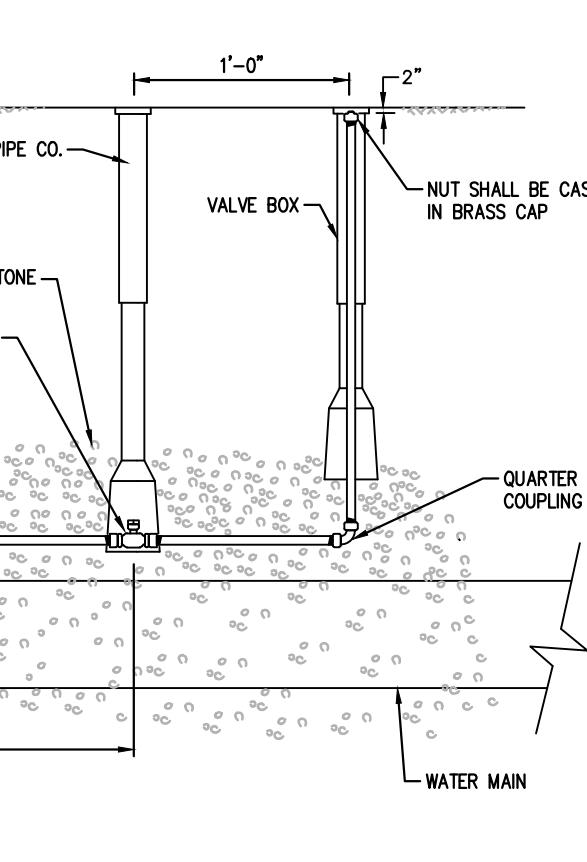
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



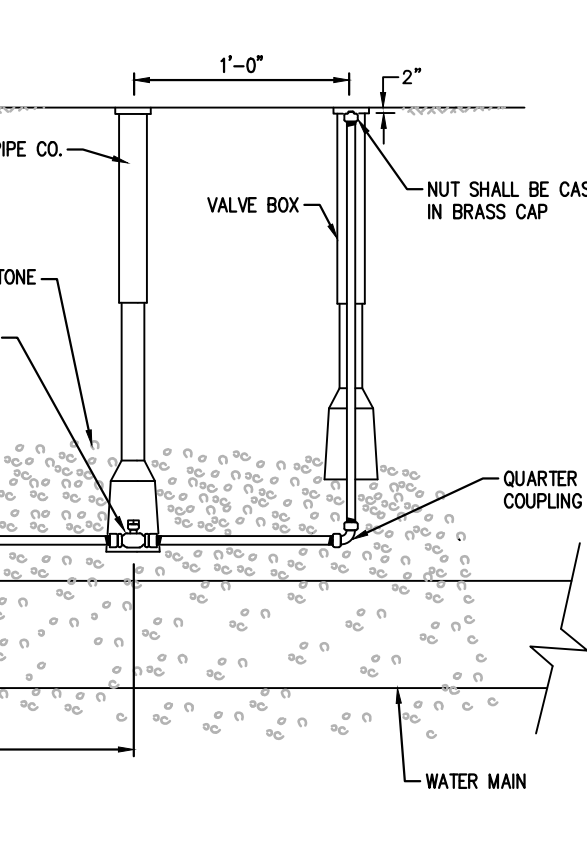
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



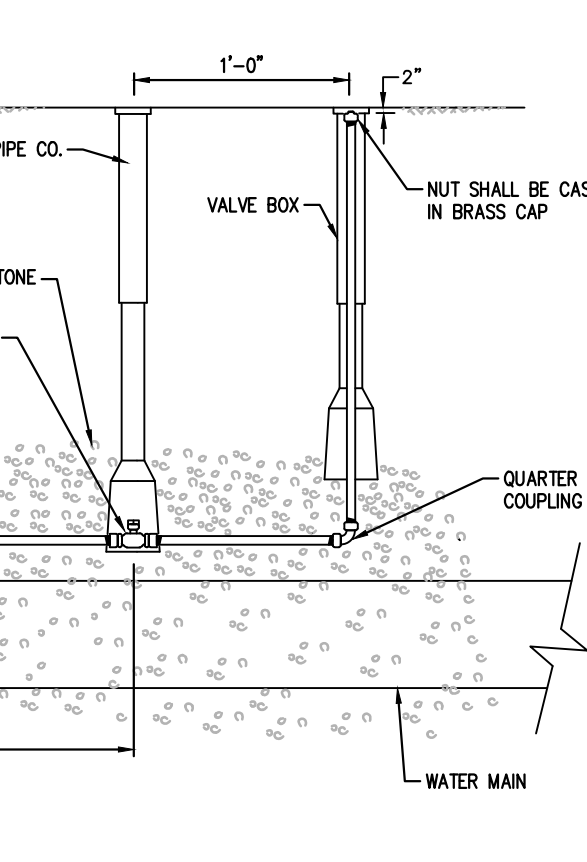
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



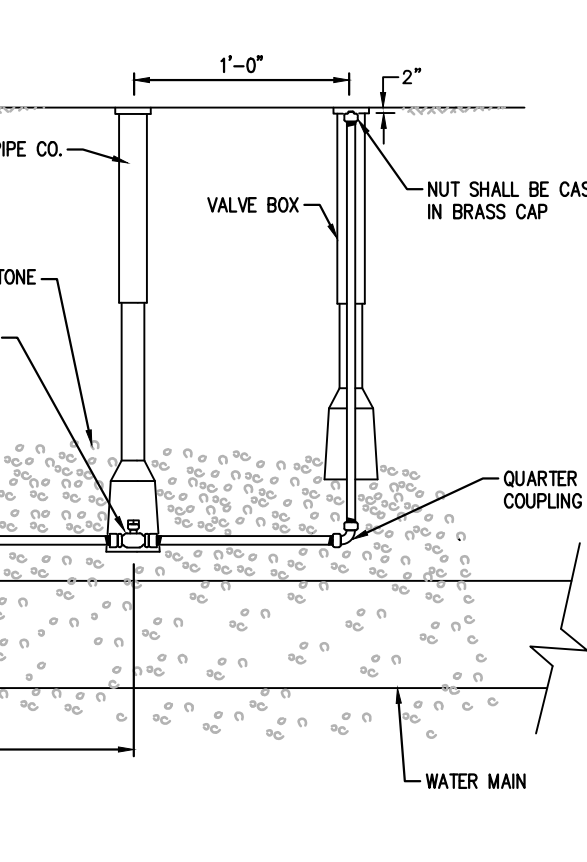
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



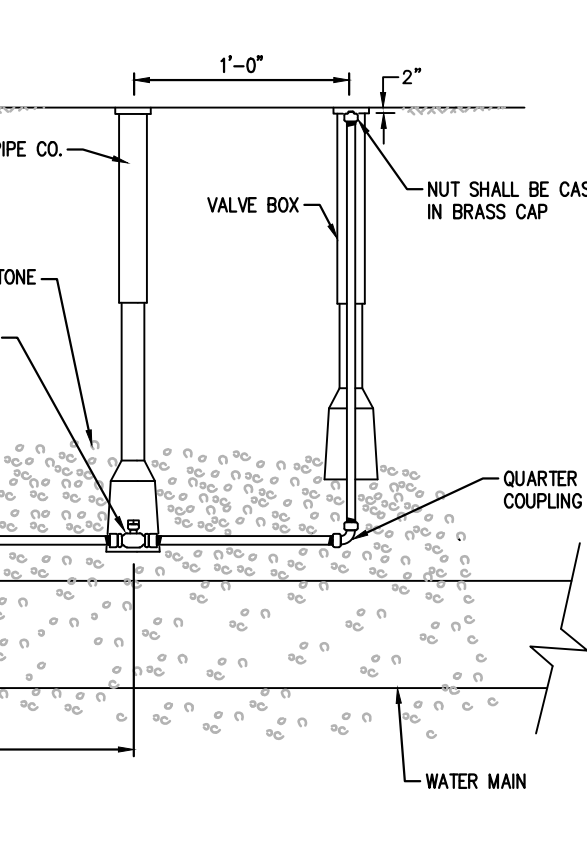
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



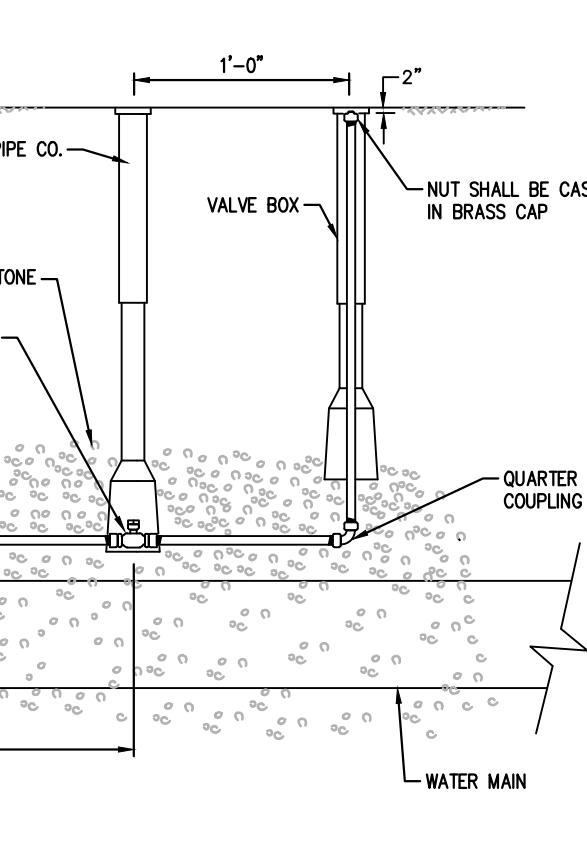
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



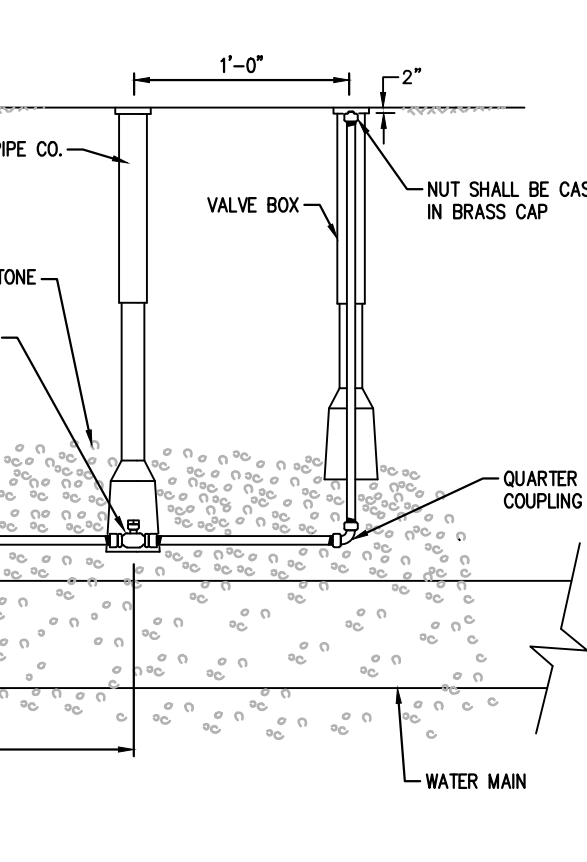
Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET											
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION								
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0				
PACKED GRAVEL AND SAND - 4,000	3.0	6.0	11.3	20.0	4.8	9.5	18.5	33.5				
ROCK - 10,000	1.2	2.4	4.5	8.0	2.0	3.8	7.4	13.5				



Type of Bearing Material and Allowable Loads	BEARING AREA REQUIRED, SQUARE FEET								
	14" and 16" DEGREE BEND OR DEFLECTION			18" and 20" DEGREE BEND OR DEFLECTION					
LOOSE SAND OR MEDIUM CLAY - 2,000	6.0	12.0	22.5	40.0	9.5	19.0	37.0	67.0	