

ESHELMAN RUN STREAMBANK STABILIZATION PHASE II

STRASBURG BOROUGH, LANCASTER COUNTY, PA

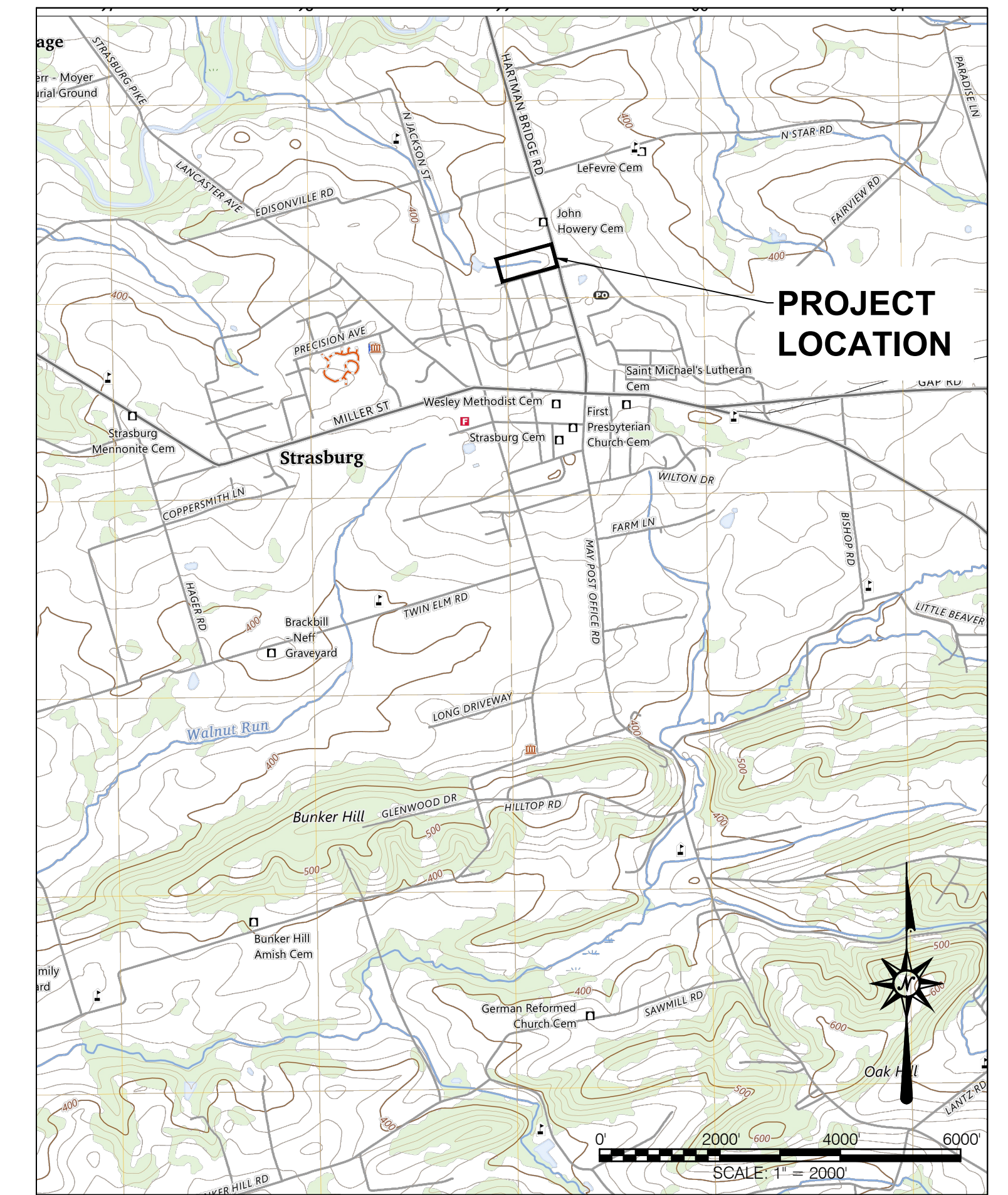


SITE MAP

1" = 100'

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LOCATION MAP

1" = 2,000'

USGS 7.5 MINUTE QUADRANGLE
QUARRYVILLE, PA

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SURVEY AND GENERAL PLAN NOTES

- THE PURPOSE OF THIS PLAN IS TO CONSTRUCT THE ESHELMAN RUN STREAM STABILIZATION PROJECT PHASE II.
- LANDSTUDIES INC. ASSUMES NO LIABILITY FOR USE OR REUSE OF THESE PLANS BY ANY INDIVIDUAL OR ENTITY OTHER THAN LANDSTUDIES' CLIENT.
- REVISIONS MADE TO THIS PLAN SHALL NOT BE THE RESPONSIBILITY OF LANDSTUDIES INC. REVISIONS, SUBSTITUTION OF MATERIALS, OR OTHER CHANGES REQUIRES WRITTEN PERMISSION FROM LANDSTUDIES AND MAY BE SUBJECT TO GOVERNING BODY APPROVAL. SUCH APPROVAL OF REVISIONS OR FIELD CHANGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- EXISTING CONDITIONS OF PHASE II SITE FEATURES AND TOPOGRAPHIC SURVEY WERE BASED ON A FIELD SURVEY PERFORMED ON 3/15/2024 BY:
 - LANDSTUDIES, INC.
 - 315 NORTH STREET
 - LITITZ, PA 17543
- EXISTING CONDITIONS OF PHASE I THAT COINCIDE WITH PHASE II WERE BASED ON A FIELD SURVEY PERFORMED ON 7/18/19 AND APRIL 2022 BY:
 - LANDGRANT SURVEYORS
 - 3904 ABEL DRIVE
 - COLUMBIA, PA 17512
- BOUNDARY SURVEY WAS PERFORMED BY:
 - Diehm & Sons, Inc.
 - 15 TOLL GATE ROAD
 - LITITZ, PA 17543
- AS BUILT TOPOGRAPHY OF PHASE I WAS SURVEYED ON 11/18/2022 BY:
 - LANDSTUDIES, INC.
 - 315 NORTH STREET
 - LITITZ, PA 17543
- ALL ELEVATIONS ARE BASED ON NAVD 88 WITH SURVEY CONTROL ESTABLISHED USING GPS WITH RTK CORRECTIONS FROM REFERENCE NETWORK.
- THE FOLLOWING UTILITIES ARE KNOWN TO EXIST WITHIN THE LIMITS OF EXCAVATION:
 - a. PPL ELECTRIC UTILITIES CORPORATION. CONTACT: RYAN HORNBERGER - RYAN@PPLWEB.COM
 - b. VERIZON PENNSYLVANIA LLC. CONTACT VIA PIKE TELECOM & RENEWABLES: JILL DELAROSA, JIDELAROSA@PIKE.COM
- APPROXIMATE UTILITY AND EASEMENT INFORMATION HAS BEEN PROVIDED BY THE UTILITY OWNER THROUGH THE PA 1-CALL DESIGN PROTOCOLS. THIS SURVEY/BASEMAPING HAS BEEN PROVIDED WITHOUT THE BENEFIT OF A PROPERTY TITLE SEARCH, AND THEREFORE DOES NOT GUARANTEE OR IMPLY THE PROPERTY IS NOT AFFECTED BY EASEMENTS, RIGHTS-OF-WAY OR OTHER RESTRICTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD LOCATE ALL UTILITIES AND COORDINATE APPROPRIATE RELOCATION EFFORTS WITH THE RESPECTIVE UTILITY COMPANIES.
- FLUVIAL SYSTEMS ARE DYNAMIC AND CHANGE OVER TIME. THE EXISTING CONDITIONS TYPOGRAPHY REPRESENTS THE CONDITIONS AT THE TIME OF THE FIELD SURVEY. DESIGN MODIFICATIONS MAY BE NECESSARY TO ACCOMMODATE CHANGES IN THE SITE CONDITIONS AT THE TIME OF CONSTRUCTION. LANDSTUDIES SHALL BE CONSULTED TO VERIFY THE EXISTING SITE CONDITIONS AND IDENTIFY CONSTRUCTION MODIFICATIONS THAT MAY BE NECESSARY BASED ON THOSE CONDITIONS.
- EXISTING FLOODWAY LINES AS SHOWN ON THESE PLANS REPRESENT A 5' OFFSET FROM THE TOP OF BANK.
- LANDSTUDIES, INC. COMPLETED A WETLAND PRESENCE/ABSENCE DETERMINATION ON THE SITE, INCLUDING A FIELD INVESTIGATION ON 3/15/2024 THE RESULTS OF THE INVESTIGATION INDICATE THE ABSENCE OF WETLANDS WITHIN THE PROJECT SITE.
- A COPY OF THE PROJECT SITE'S EROSION AND SEDIMENT POLLUTION CONTROL PLAN AND ITS ACCOMPANYING NARRATIVE MUST BE AVAILABLE ON-SITE DURING CONSTRUCTION UNTIL THE SITE HAS BEEN PERMANENTLY STABILIZED AND FOLLOWING VERIFICATION FROM THE APPLICABLE REGULATORY AUTHORITY.
- SOILS DATA WAS OBTAINED FROM THE USDA NRCS'S WEB SOIL SURVEY. PREDOMINANT SOILS IN THE PROJECT AREA ARE:
 - a. CLARKSBURG SILT LOAM, 0-5% SLOPES
 - b. LETORT SILT LOAM, 3-8% SLOPES
 - c. PENLAW SILT LOAM

CONTRACTOR NOTES

- THE CONTRACTOR SHALL ADHERE TO THE U.S. FISH AND WILDLIFE SERVICE'S IN-STREAM AVOIDANCE MEASURE, CARRYING OUT IN-STREAM WORK BETWEEN OCTOBER 1ST AND MARCH 31ST. SEE THE SIGNED PNDI THAT WAS SUBMITTED AS PART OF THE ORIGINAL PERMIT APPLICATION.
- THE CONTRACTOR SHALL SCHEDULE ALL NECESSARY INSPECTIONS AND COMPLY WITH ALL REQUESTS AND DIRECTIVES INCLUDING CORRECTING DEFECTIVE WORK AS REQUIRED TO OBTAIN FINAL APPROVAL OF THE WORK AND CLOSING OUT THE PROJECT.
- CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL REGULATIONS AND SPECIFICATIONS INCLUDING SAFETY STANDARDS AND ANY APPLICABLE GRANT REQUIREMENTS SHOULD THE PROJECT BE FUNDED BY ANY GRANTS.
- SITE CONSTRUCTION SHALL CONFORM TO THE PA BUILDING CODE AND AMERICAN WITH DISABILITIES ACT (ADA) AS APPLICABLE.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS AND/OR PROGRAMS.
- UNLESS APPROVED OTHERWISE, ALL STORMWATER FACILITIES SHOWN ON THESE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATIONS, LATEST ADDITION. ALL STORMWATER CONVEYANCE PIPING SHALL BE CONSTRUCTED WITH WATERTIGHT JOINTS. WHERE SLOPP PIPE IS NOTED, PIPE SHALL BE ADS (N-12) WITH ADS PRO-LINK W/T (WATERTIGHT) CONNECTIONS. ALL EMBEDMENT MATERIALS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL FOR HDPE PIPE SHALL CONFORM TO AASHTO SECTION 30 AND ASTM D-2321 AS PER MANUFACTURERS INSTALLATION REQUIREMENTS. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE ANY DEBRIS AND FLUSH OUT ALL EXISTING AND NEW STORM DRAINAGE FACILITIES WITHIN THE PROJECT LIMITS.
- WHERE ANY PART OF A STORM SEWER SYSTEM IS TO BE CONSTRUCTED WITHIN AN AREA OF FILL MATERIAL, THE CONTRACTOR SHALL COMPACT ALL SELECT FILL MATERIAL TO 95% OF ASTM D-698 (AASHTO T-99) WITH A MOISTURE CONTENT OF +/-3% OF OPTIMUM UP TO THE PIPE BEDDING.
- WORK WITHIN A DOT RIGHT-OF-WAY SHALL REQUIRE DOT APPROVAL AND SHALL BE CONSTRUCTED TO DOT STANDARDS.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY WITH THE MUNICIPALITY IF CONSTRUCTION IMPROVEMENTS SHALL BE SUBJECT TO MUNICIPAL IMPROVEMENT CONSTRUCTION MANUAL AND ADHERE TO THE CURRENT STANDARDS IN EFFECT.
- PRODUCTS SPECIFIED ON THESE PLANS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS/SPECIFICATIONS UNLESS INDICATED OTHERWISE.
- CONSTRUCTION OF ALL IMPROVEMENTS SHALL BE BASED ON ACTUAL FIELD STAKING BY A REGISTERED SURVEYOR, UNLESS APPROVED OTHERWISE. THE CONTRACTOR SHALL NOT DEVIATE FROM THE GEOMETRY OR DIMENSIONS INDICATED ON THE PLANS WITHOUT PRIOR APPROVAL FROM LANDSTUDIES.
- CONTRACTOR SHALL INSPECT THE SITE TO VERIFY THE EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY LAYOUT AND DIMENSIONS ON SITE PRIOR TO CONSTRUCTION. ANY DISCREPANCIES REGARDING EXISTING CONDITIONS OR PROPOSED LAYOUT SHALL BE REPORTED TO LANDSTUDIES, INC. PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL NOT CONSIDER DEMOLITION NOTES OR PLAN MARKINGS TO BE ALL-INCLUSIVE. IT IS THE CONTRACTORS RESPONSIBILITY TO ASSESS THE SITE AND PERFORM THE DEMOLITION AS REQUIRED TO PERFORM THE WORK/NEW CONSTRUCTION.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO LOCATE AND PROTECT THE EXISTING UTILITIES WITHIN THE PROJECT AREA WHILE MAINTAINING UNINTERRUPTED SERVICE. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES AND COORDINATE APPROPRIATE RELOCATION EFFORTS (AS MAY BE NECESSARY) WITH RESPECTIVE UTILITY COMPANIES. DAMAGE TO ANY UTILITY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER OF THE UTILITY COMPANY OR AUTHORITY, AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS FROM THE MUNICIPALITY RELATIVE TO THE CONSTRUCTION PROPOSED ON THIS PLAN THAT HAVE NOT PREVIOUSLY BEEN OBTAINED.
- CONTRACTOR SHALL ENSURE THAT GRADING PLAN IS IMPLEMENTED CORRECTLY AND THAT PROPER DRAINAGE IS PROVIDED DURING CONSTRUCTION OPERATIONS.
- THE CONTRACTOR IS RESPONSIBLE TO VERIFY EARTH-WORK QUANTITIES INCLUDING APPROPRIATE SOIL MATERIALS AND QUANTITIES TO SATISFY THE CONSTRUCTION REQUIREMENTS PRIOR TO THE START OF CONSTRUCTION.
- ALL UNSUITABLE MATERIALS WITHIN STRUCTURAL FILL AREAS MUST BE REMOVED AND REPLACED WITH SUITABLE MATERIAL TO A DEPTH AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND/OR THE MUNICIPALITY.
- THE CONTRACTOR SHALL VERIFY SUBSURFACE CONDITIONS TO HIS SATISFACTION PRIOR TO PLACEMENT OF ANY PAVEMENT MATERIALS.
- TOPSOIL MUST BE FREE OF ROCKS, LARGE DEBRIS, WOODY OR VEGETATED MATERIAL, FROZEN PARTICLES OR OTHER FOREIGN OR OBJECTIONABLE MATERIAL THAT WOULD INHIBIT VEGETATIVE ESTABLISHMENT OR GROWTH. TOPSOIL MUST BE SUITABLE TO SUPPORT A DIVERSE AND HEALTHY VEGETATIVE COVER AND PLANTINGS AS REQUIRED BY THE PROJECT SCOPE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL, TRENCH BARRICADES/COVERINGS, SHEETING AND SHORING AS NECESSARY TO COMPLETE THE WORK.
- CONTRACTOR SHALL PROVIDE DUST CONTROL TO AVOID NUISANCE TO SURROUNDING PROPERTY OWNERS, AND AS REQUIRED BY LOCAL AUTHORITIES. MAINTAIN ROADWAYS FREE OF DUST BUILD-UP BY MECHANICAL MEANS OR OTHER APPROVED METHODS. FURNISH AND APPLY CLEAN WATER OR CALCIUM CHLORIDE FOR THE PURPOSE OF ALLAYING DUST CONDITIONS AS REQUIRED.
- SAW CUTTING OF PAVEMENT, IF REQUIRED, JOINTS SHALL BE STRAIGHT, NEAT AND CLEAN.
- FAILURE TO SPECIFICALLY IDENTIFY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO PERFORM SUCH WORK.
- N.I.C. ABBREVIATION STANDS FOR "NOT IN CONTRACT" AND IS WORK NOT REQUIRED BY THE CONTRACTOR(S).
- CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PLANT MATERIAL UNLESS INDICATED OTHERWISE.

STREAM BANK STABILIZATION NOTES

- FLOODPLAIN RESTORATION REQUIRES DYNAMIC IMPLEMENTATION APPROACHES TO ACHIEVE OPTIMAL RESTORATION CONDITIONS. THE CONTRACTOR PERFORMING THE WORK SHALL HAVE RELATIVE EXPERIENCE WORKING WITH FLUVIAL SYSTEMS ON STREAM AND FLOODPLAIN RESTORATIONS. THE CONTRACTOR SHALL UNDERSTAND THAT VARIATIONS OF SOILS AND GROUNDWATER ELEVATION MAY IMPACT SITE AND SOIL CONDITIONS AND SHALL COORDINATE WITH THE ENGINEER TO IMPLEMENT ADAPTIVE MANAGEMENT STRATEGIES TO HANDLE SITE SPECIFIC CONDITIONS ARISING DURING CONSTRUCTION OR WHICH HAVE CHANGED SINCE THE INITIAL ASSESSMENT AND DATA COLLECTION UPON WHICH THE DESIGN IS BASED. ANY ADAPTIVE MANAGEMENT STRATEGIES THAT MAY BE IMPLEMENTED SHALL BE CONSIDERED INCIDENTAL TO THE RESTORATION CONSTRUCTION. A DETAILED DESCRIPTION OF THESE STRATEGIES MAY BE FOUND IN THE OPERATIONS AND MAINTENANCE PLAN. THESE STRATEGIES SHALL ONLY BE IMPLEMENTED AT THE DIRECTION OF THE ENGINEER. ADAPTIVE MANAGEMENT STRATEGIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - a. WOODY DEBRIS OR ROOT WAD PLACEMENT
 - b. LOG SILLS
 - c. STRAW BALES, FASCINES, BRUSH BUNDLES, COIR LOGS, WADDLES, AND MATTING ROLLS
 - d. SOD MAT PLACEMENT
 - e. ADDITIONAL ROCK UNDERLAYMENT
 - f. TARGETED MICROTOPOGRAPHY ADJUSTMENTS
 - g. RE-SEEDING/RE-MATTING
- MINIMIZING COMPACTION TO THE PROPOSED FLOODPLAIN FOOTPRINT IS A KEY TENET OF CONSTRUCTION INTENDED TO MAINTAIN THE INTEGRITY OF THE RESTORATION. FOR THIS REASON, ALL EXCAVATION WITHIN 18" VERTICALLY OF THE PROPOSED FLOODPLAIN FOOTPRINT SHALL BE CONDUCTED WITH A TRACKHOE WORKING BACKWARDS OFF THE FOOTPRINT TO ACHIEVE FINAL GRADE. WOODY DEBRIS AND OTHER FLOODPLAIN FEATURES SHALL BE CONSTRUCTED IN A SIMILAR MANNER IN CONCURRENCE WITH THE FLOODPLAIN GRADING AND UNDER DIRECT SUPERVISION OF THE ENGINEER. IF CONSTRUCTION TRAFFIC ON THE FLOODPLAIN FOOTPRINT IS NECESSARY TO ACCOMMODATE PORTIONS OF CONSTRUCTION, TRAFFIC SHALL BE LIMITED TO ONE PASS AND EQUIPMENT SHALL BE APPROVED IN ADVANCE BY, AND SUBJECT TO OVERSIGHT OF, THE ENGINEER.
- IT IS ANTICIPATED THAT DIVERSE SOIL TYPES & SUBSURFACE MATERIALS WILL BE ENCOUNTERED DURING CONSTRUCTION. AT THE DIRECTION OF THE ENGINEER, THE CONTRACTOR SHALL SEGREGATE MATERIALS BASED ON OVERALL SCOPE OF WORK AND UTILIZE SOIL TYPES BASED ON MOST SUITABLE APPLICATIONS. (I.E. GRAVEL FOR CHANNEL FEATURES; SUITABLE GROWING MEDIUM AT PROPOSED GRADE).
- TO THE EXTENT PRACTICAL, WORK SHALL BE PERFORMED DURING LOW-FLOW CONDITIONS, AVOIDING PERIODS DURING OR IMMEDIATELY FOLLOWING HEAVY PRECIPITATION.
- TO THE EXTENT PRACTICAL, NATIVE VEGETATION (FORBS, GRASSES, TREES AND SHRUBS) SHALL BE PRESERVED. NATIVE TREES AND SHRUBS SHALL BE WORKED AROUND AND/OR TRANSPLANTED IF SITE CONDITIONS PERMIT OR GRADING REVISIONS WILL BE WITHIN AN ACCEPTABLE TOLERANCE. THE ENGINEER SHALL FIELD VERIFY.
- ONCE FINAL GRADE HAS BEEN ACHIEVED, STABILIZATION SHOULD OCCUR WITHIN 48 HOURS IF CONDITIONS WOULD OTHERWISE RESULT IN SEDIMENT-LADEN RUNOFF LEAVING THE SITE. EXCEPTIONS INCLUDE TIE-INS TO THE EXISTING CHANNEL WHERE FLOW IS BEING MAINTAINED OR WHEN RAIN IS FORECASTED. IN THESE INSTANCES, STABILIZATION MUST OCCUR THE SAME DAY IF CONDITIONS WOULD OTHERWISE RESULT IN SEDIMENT-LADEN RUNOFF LEAVING THE SITE.
- THE SIZE, LOCATION AND ORIENTATION OF WOODY DEBRIS AND OTHER FLOODPLAIN FEATURES ARE APPROXIMATE AND FINAL LOCATION AND ORIENTATION WILL BE DETERMINED BY THE ENGINEER BASED ON SITE CONDITIONS FOUND DURING CONSTRUCTION. ROOT WADS AND WOODY DEBRIS WILL BE LIMITED TO THE AVAILABILITY OF MATERIAL REMOVED FROM THE PROJECT SITE.

PROJECT INSPECTION MILESTONES

THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER AT LEAST ONE WEEK PRIOR TO THE ANTICIPATED START OF EACH ACTIVITY SO THAT NECESSARY SITE INSPECTIONS CAN BE MADE AND GUIDANCE PROVIDED. THE ENGINEER MAY REQUIRE ADDITIONAL INSPECTION POINTS OR MULTIPLE INSPECTIONS OF A GIVEN FEATURE THROUGH THE COURSE OF CONSTRUCTION.

- PRIOR TO CLEARING/ TREES MARKED FOR REMOVAL
- STAKEOUT
- E&S CONTROLS
- START OF EXCAVATION
- INSTALLATION OF ROCK UNDERLAYMENT
- FIRST WOODY DEBRIS INSTALLATION
- ADDITIONAL REVIEW OF FLOODPLAIN AND STRUCTURE INSTALLATION AS REQUESTED BY PROJECT DESIGNER
- PRIOR TO SEEDING AND MATTING (BY SECTION)
- SEED, LABEL AND WEIGHT (BY SECTION)
- AFTER SEEDING AND MATTING (BY SECTION)
- TREE, SHRUB, PLUG MATERIAL ONSITE PRIOR TO AND FOLLOWING PLANTING
- PRIOR TO DEMOBILIZATION

OPERATIONS AND MAINTENANCE - MONITORING PLAN

1. INITIAL THREE-YEAR MONITORING

THE PROJECT WILL BE MONITORED FOR THREE YEARS, TWICE ANNUALLY FOR THE FIRST TWO YEARS AND ONCE ANNUALLY DURING THE THIRD AND FINAL YEAR TO SATISFY CHAPTER 105 PERMIT CONDITIONS. ADDITIONAL INFORMAL MONITORING INSPECTIONS WILL BE CONDUCTED ROUTINELY IN ACCORDANCE WITH THE BOROUGH'S MS4 PERMIT TO DETERMINE IF THE PROJECT CONTINUES TO FUNCTION AS DESIGNED. ANNUAL MONITORING WILL OCCUR DURING THE GROWING SEASON AND WILL INCLUDE PHOTO DOCUMENTATION, VISUAL CHANNEL INSPECTION, AND VISUAL RIPARIAN VEGETATION INSPECTION. ONE OF THE TWO MONITORING VISITS DURING THE FIRST TWO YEARS MAY OCCUR OUTSIDE OF THE GROWING SEASON TO OBSERVE CONDITIONS WHEN VEGETATION IS DORMANT. MONITORING REPORTS WILL BE PROVIDED TO THE BOROUGH ANNUALLY FOR THE FIRST 3 YEARS.

a. PHOTO DOCUMENTATION/ VISUAL INSPECTION

i. PHOTO DOCUMENTATION OF THE FLOODPLAIN, STREAM, AND RIPARIAN WETLAND RESTORATION PROJECT WILL BE OBTAINED AT DOCUMENTED PHOTO-LOCATION POINTS THROUGHOUT THE PROJECT REACH. THE PHOTO-LOCATION POINTS WILL BE ESTABLISHED IMMEDIATELY FOLLOWING CONSTRUCTION. PHOTOGRAPHS WILL BE TAKEN AFTER PROJECT COMPLETION AND THEN AT ALL SCHEDULED MONITORING VISITS.

b. STABILITY INSPECTION

- i. DURING EACH MONITORING VISIT, THE RESTORATION WILL BE VISUALLY INSPECTED FOR SIGNS OF EXCESSIVE UNDERMINING, SCOURING, OR MOVEMENT.
- ii. SUCCESS CRITERIA:

- PLANTED RIPARIAN AREAS APPEAR TO BE WELL-VEGETATED, FREE OF OBVIOUS AREAS OF POOR GERMINATION.
- RESTORATION APPEARS TO BE STABLE (NO LOSS OF VERTICAL GRADE CONTROL, FREE OF MAJOR EROSION OR SCOUR AREAS) AND WELL-VEGETATED. OUTER BANKS LACKING STRUCTURAL PROTECTION MAY BE VERTICAL AND UNDER-CUT, BUT SHOULD BE WELL VEGETATED.
- DEPOSITION IS NOT OCCURRING THAT WOULD ADVERSELY AFFECT THE STABILITY OF THE STREAM AND FLOODPLAIN SYSTEM. SOME DEPOSITION IS ANTICIPATED, ESPECIALLY NEAR THE UPSTREAM LIMITS OF THE RESTORATION AREA AND TRIBUTARIES. THIS DEPOSITION MAY RESULT IN FILLING OF THE CONSTRUCTED CHANNEL AND THE FORMATION OF A BAR OR ALLUVIAL FAN WITH ADDITIONAL CHANNELS. DEPOSITION OF THIS NATURE IS NOT ANTICIPATED TO REQUIRE CORRECTIVE ACTION OR BE CONSTRUED AS INSTABILITY.
- NOTE THAT SOME ACTIVE CHANNEL ADJUSTMENTS MAY OCCUR AND ARE PART OF A STABLE, DYNAMIC EQUILIBRIUM. THESE EVENTS SHOULD NOT BE INTERPRETED AS REQUIRING CORRECTIVE MEASURES. IT IS LIKELY THAT THE CHANNEL WILL ADJUST ACCORDINGLY BASED ON NATURAL CHANGES TO THE ECOSYSTEM OVER TIME.

c. VISUAL RIPARIAN VEGETATION INSPECTION

- i. RIPARIAN VEGETATION MONITORING WILL BE CONDUCTED ONE TIME ANNUALLY DURING THE GROWING SEASON FOR A FIVE-YEAR PERIOD. THE PROJECT SITE WILL BE EVALUATED FOR AERIAL COVER, PLANT SURVIVAL, AND THE PRESENCE OF INVASIVE SPECIES.
- ii. SUCCESS CRITERIA:

- TOTAL AERIAL COVER >60% OF NATIVE SPECIES AFTER FIRST ANNUAL INSPECTION
- TOTAL AERIAL COVER >85% OF NATIVE SPECIES AFTER TWO YEARS AND THEREAFTER

2. LONG-TERM MONITORING

FOLLOWING THE INITIAL THREE-YEAR MONITORING PERIOD, THE RESTORATION AREA SHALL BE VISUALLY INSPECTED ANNUALLY AND AFTER LARGE STORM EVENTS. THE FOLLOWING ITEMS SHALL BE EVALUATED:

- a. CONDITION OF VEGETATED COMMUNITY: ANY UNVEGETATED AREAS SHALL BE REVEGETATED, AND SIGNIFICANT INVASIVE SPECIES COMMUNITIES SHALL BE REMOVED AS DESCRIBED IN THE MAINTENANCE PLAN, BELOW.
- b. STABILITY OF THE STREAM BED AND BANKS: IF SIGNIFICANT AGGRADATION (SEDIMENT OR GRAVEL ACCUMULATION) OR DEGRADATION (EROSION) ARE OBSERVED, A QUALIFIED PROFESSIONAL SHALL BE CONSULTED TO DEVELOP APPROPRIATE CORRECTIVE MEASURES.

VEGETATION MAINTENANCE/MANAGEMENT STRATEGIES

1. MANAGE ANY INVASIVE SPECIES THAT MAY TRY TO OUT-COMPETE THE PROPOSED NATIVE RIPARIAN PLANTING COMMUNITY UNTIL VIABLE SUCCESSIONAL PROCESSES CAN NATURALLY BE SUSTAINED. A DESCRIPTION OF BASIC VEGETATION MANAGEMENT PRACTICES IS DESCRIBED BELOW. INVASIVE SPECIES CONTROL SHOULD BE IMPLEMENTED AS NECESSARY TO ACCOMPLISH THE SUCCESS CRITERIA USING THE APPROPRIATE METHODS DESCRIBED BELOW BASED ON SITE CONDITIONS.

2. VISUALLY INSPECT THE RESTORATION AREA. APPROPRIATE CORRECTIVE MEASURES SHALL BE IDENTIFIED BY A QUALIFIED PROFESSIONAL TO ADDRESS ANY NOTED INSTABILITIES. THE PROJECT APPLICANT SHALL BE RESPONSIBLE FOR ANY NECESSARY CORRECTIVE MEASURES.

3. THE FOLLOWING VEGETATION MANAGEMENT ACTIVITIES MAY BE USED TO CONTROL INVASIVE SPECIES AS DICTATED BY SITE CONDITIONS:

- a. SPOT SPRAYING
 - i. THE USE OF ANY HERBICIDE OR PESTICIDE MUST BE EXERCISED WITH EXTREME CARE TO PROTECT THE BENEFICIAL PLANTS (NATIVE VOLUNTEER AND PLANTED MATERIAL) AND AQUATIC RESOURCE. THE PLANTING PLAN, PREPARED BY LANDSTUDIES INC. SHOULD BE USED AS A REFERENCE FOR THE PLANTS GROWING WITHIN THE LIMITS OF THE RESTORED FLOODPLAIN. CARE SHOULD BE TAKEN TO PROTECT THESE PLANTS AND TO ENCOURAGE THE GROWTH OF OTHER VOLUNTEER NATIVE PLANT SPECIES. SPOT SPRAYING SHOULD ONLY BE EMPLOYED AFTER THE SEEDED MATERIAL IS ESTABLISHED.
 - ii. ALL PESTICIDES MUST BE APPLIED BY A PENNSYLVANIA CERTIFIED PESTICIDE APPLICATOR ENDORSED IN CATEGORY 9 AQUATICS. ALL PESTICIDE USE MUST BE IN COMPLIANCE WITH THE PENNSYLVANIA PESTICIDE CONTROL ACT, PENNSYLVANIA DEPARTMENT OF AGRICULTURE BUREAU OF PLANT INDUSTRY, ENVIRONMENTAL PROTECTION AGENCY, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND OTHER APPLICABLE REGULATIONS. CONSULT PRODUCT LABELS AND MSDS FOR PROPER USE, SAFETY PRECAUTIONS, APPLICATION RATES, INTENDED USES AND OTHER INFORMATION. LANDSTUDIES IS NOT LIABLE FOR MISUSE OF PESTICIDES BY OTHERS.
 - iii. SUGGESTED BROADLEAF SELECTIVE HERBICIDE, SOMETIMES APPROVED FOR AQUATIC USE:

- i. CHEMICAL NAME: TRICLOPYR; MANUFACTURERS: SEPRO, NUFARM, ETC.
- iv. SUGGESTED NON-SELECTIVE HERBICIDE, SOMETIMES APPROVED FOR AQUATIC USE:

- i. CHEMICAL NAME: GLYPHOSATE; MANUFACTURERS: NUFARM, BASF, DOW, MONSANTO, ETC.
- iv. MOWING
 - i. SELECTIVE MOWING MAY BE AN OPTION TO CONTROL CERTAIN INVASIVE PLANT SPECIES. SELECTIVE MOWING WOULD INCLUDE STRING TRIMMING AND EDGE MOWING ONLY AS NECESSARY TO CONTROL INVASIVE PLANTS. MOWING OF THE ENTIRE STREAMBANK IS NOT RECOMMENDED.

c. PRUNING

- i. THE PRUNING OF DEAD MATERIAL FROM THE PLANTINGS IS RECOMMENDED TO MAINTAIN THE HEALTH OF THE PLANTS.

Activity Summary		
Year [†]	Task [*]	Timeframe
Year 1	1st Visual Inspection	March-May
	2nd Visual Inspection	August-September
	Invasive species control	as required to address target species
Year 2	1st Visual Inspection	March-May
	2nd Visual Inspection	August- September
	Invasive species control	as required to address target species
Year 3	Visual Inspection	July - September
	Invasive species control	as required to address target species
Year 4 and beyond	Annual Visual Inspection with maintenance as needed based on field observations	July - September

^{*}Vegetation maintenance activities should be conducted by an individual with a clear understanding of native and non-native plant identification. All pesticides must be applied by a Pennsylvania certified pesticide applicator endorsed in Category 9 Aquatics

[†]The first year of monitoring will begin the first growing season after construction is complete for each segment.

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PROJECT:
 ESHELMAN RUN STREAMBANK STABILIZATION
 STRASBURG BOROUGH
 145 PRECISION AVENUE
 STRASBURG, PA

SHEET TITLE:
 GENERAL NOTES

REVISIONS		
NO.	DATE	DESCRIPTION
1	10/31/2025	PER RPCC COMMENTS
2	06/01/2026	PER PRE-BID MEETING
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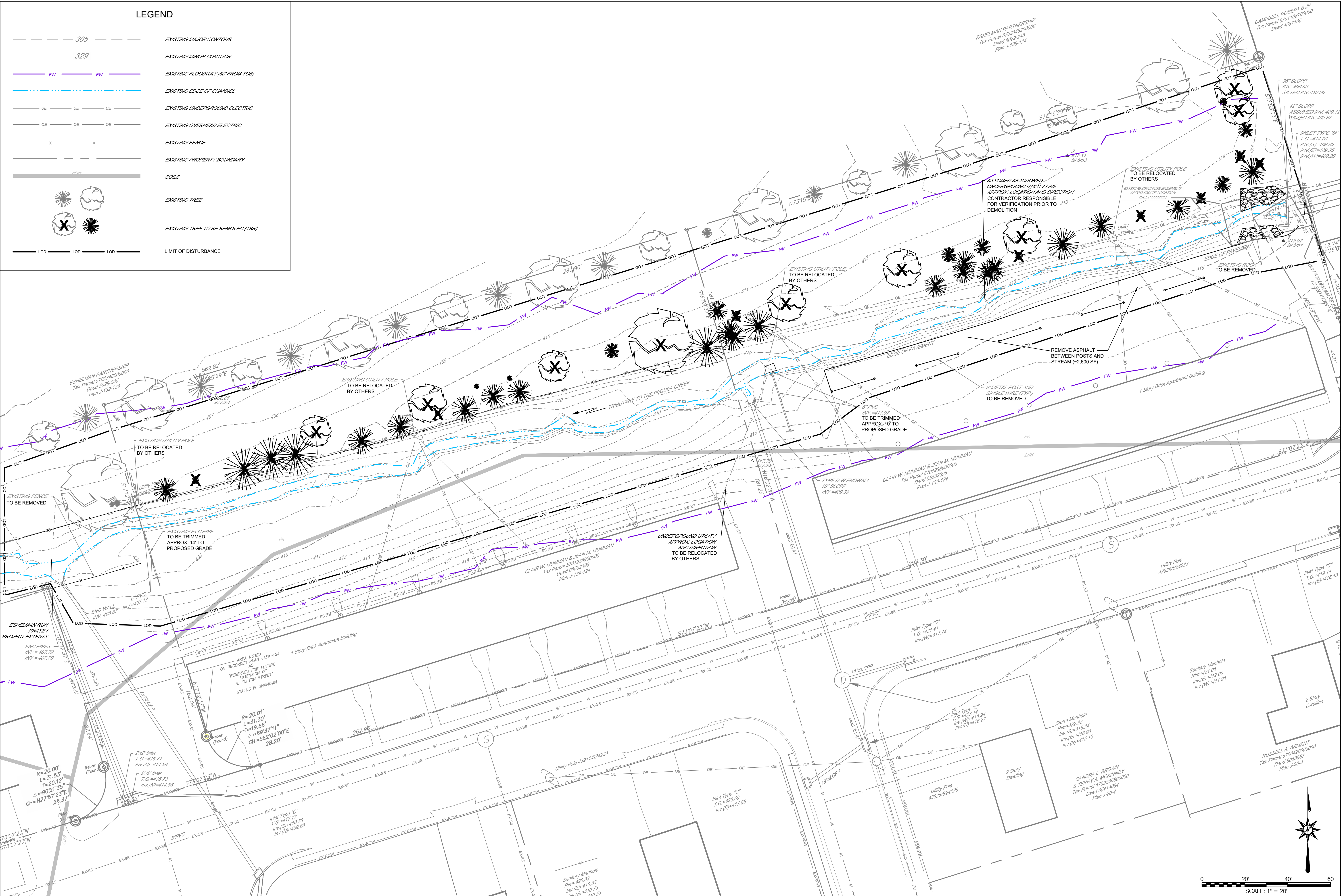
SIGNATURE BLOCK

PROJECT NUMBER: 1313.5-23
 DRAWN BY: CNM
 CHECKED BY: IKM
 DATE: 2025-07-03
 SCALE: N/A

SHEET NUMBER:
 2
 OF 11

LEGEND

- 305 EXISTING MAJOR CONTOUR
- 329 EXISTING MINOR CONTOUR
- FW EXISTING FLOODWAY (50' FROM TOB)
- EXISTING EDGE OF CHANNEL
- UE EXISTING UNDERGROUND ELECTRIC
- OE EXISTING OVERHEAD ELECTRIC
- EXISTING FENCE
- EXISTING PROPERTY BOUNDARY
- SOILS
- EXISTING TREE
- EXISTING TREE TO BE REMOVED (TR)
- LOD LIMIT OF DISTURBANCE



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 STRASBURG BOROUGH
 STRASBURG AVENUE
 STRASBURG, PA

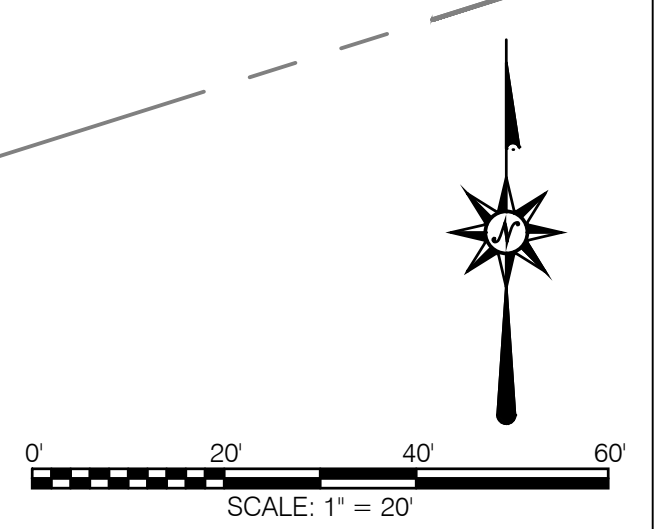
SHEET TITLE:
 EXISTING CONDITIONS & DEMOLITION PLAN

NO.	DATE	DESCRIPTION
1	06/01/2026	PER PRE BID MEETING

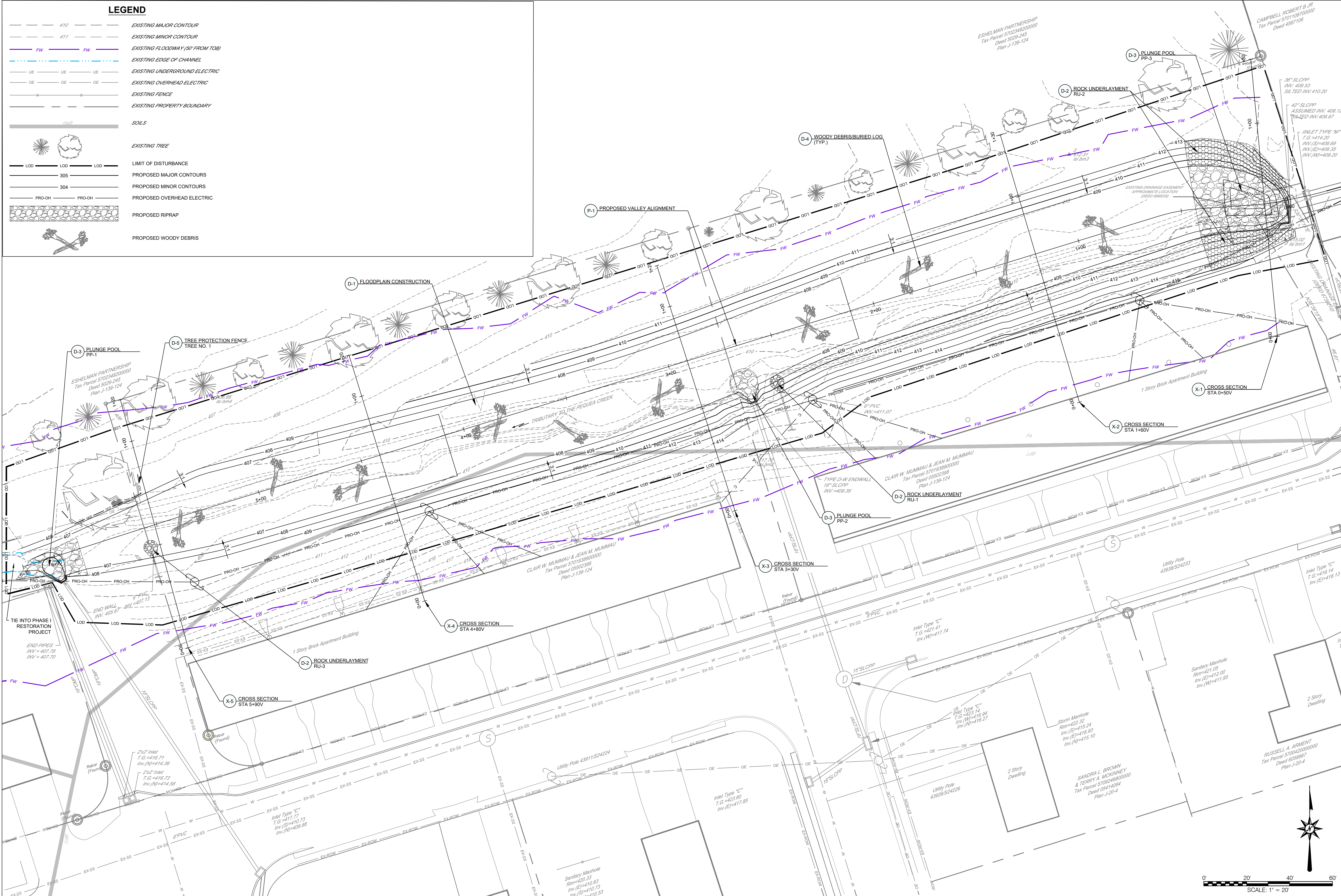
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 DRAWN BY: CNM
 CHECKED BY: IKM
 DATE: 2025-07-03
 SCALE: 1" = 20'

SHEET NUMBER:
3
 OF 11



LEGEND



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 315 North Street
 Lititz, PA 17543

PROJECT:
 ESHELMAN RUN STREAMBANK STABILIZATION
 STRASBURG BOROUGH
 145 PRECISION AVENUE
 STRASBURG, PA

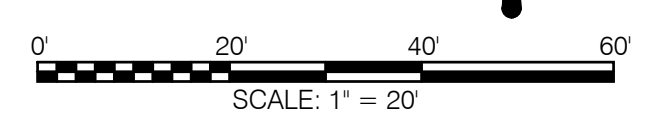
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 GRADING PLAN

NO.	DATE	DESCRIPTION
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2	06/01/2026	PER PRE-BID MEETING

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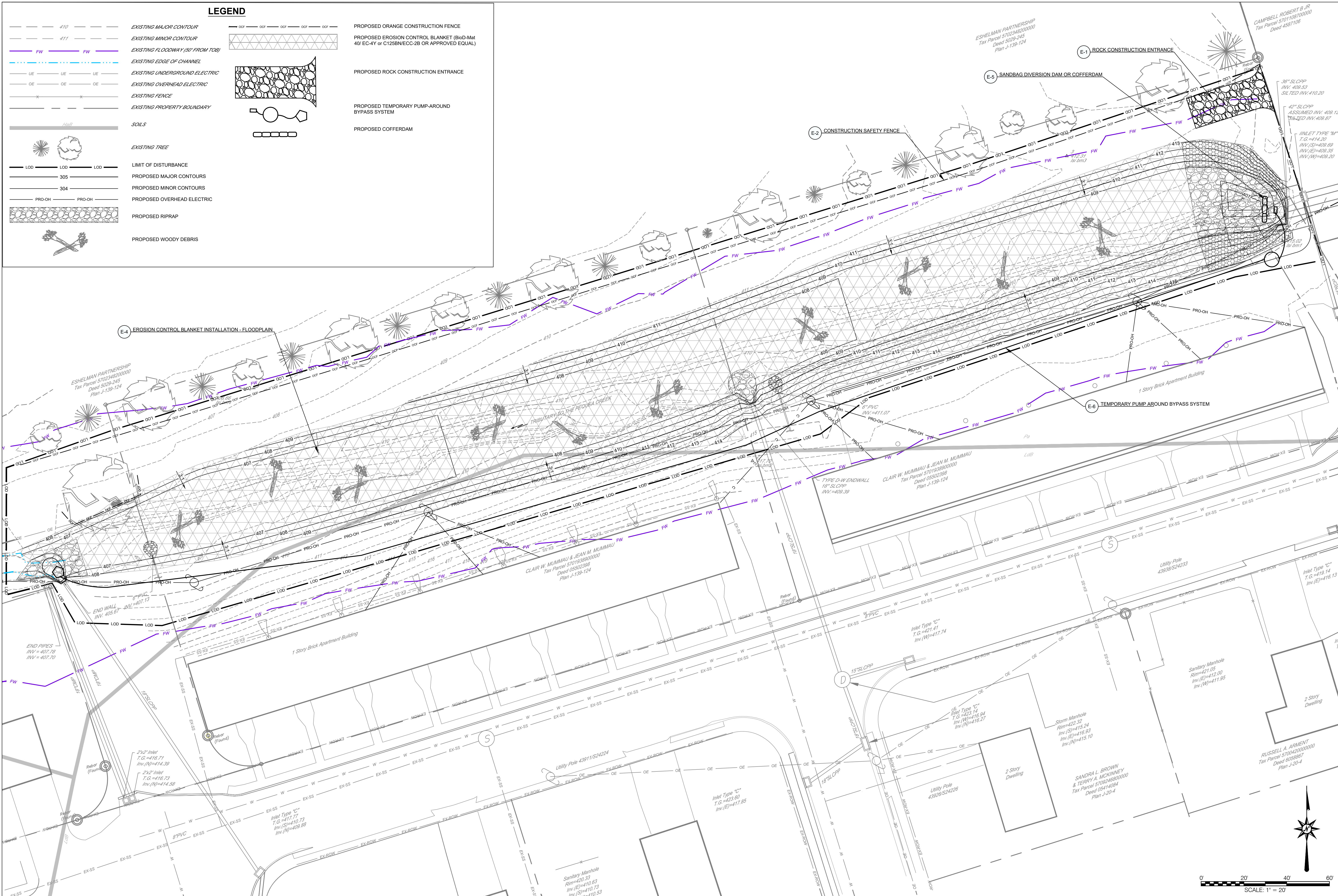
PROJECT NUMBER: 1313.5-23
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 SHEET NUMBER:

4
OF 11



LEGEND

- 410 --- EXISTING MAJOR CONTOUR
- 411 --- EXISTING MINOR CONTOUR
- FW FW EXISTING FLOODWAY (30' FROM TOB)
- --- EXISTING EDGE OF CHANNEL
- UE UE UE EXISTING UNDERGROUND ELECTRIC
- OE OE OE EXISTING OVERHEAD ELECTRIC
- --- EXISTING FENCE
- --- EXISTING PROPERTY BOUNDARY
- H&P SOILS
- EXISTING TREE
- LOD LOD LOD LIMIT OF DISTURBANCE
- --- PROPOSED MAJOR CONTOURS
- --- PROPOSED MINOR CONTOURS
- PRO-OH PRO-OH PROPOSED OVERHEAD ELECTRIC
- --- PROPOSED RIPRAP
- --- PROPOSED WOODY DEBRIS
- OCF OCF OCF OCF PROPOSED ORANGE CONSTRUCTION FENCE
- --- PROPOSED EROSION CONTROL BLANKET (BioD-Mat 40/ EC-4Y or C125B/IECC-2B OR APPROVED EQUAL)
- --- PROPOSED ROCK CONSTRUCTION ENTRANCE
- --- PROPOSED TEMPORARY PUMP-AROUND BYPASS SYSTEM
- --- PROPOSED COFFERDAM



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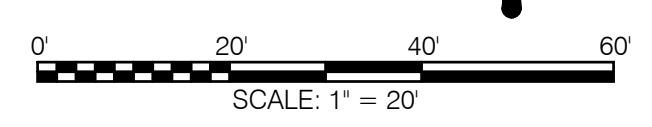
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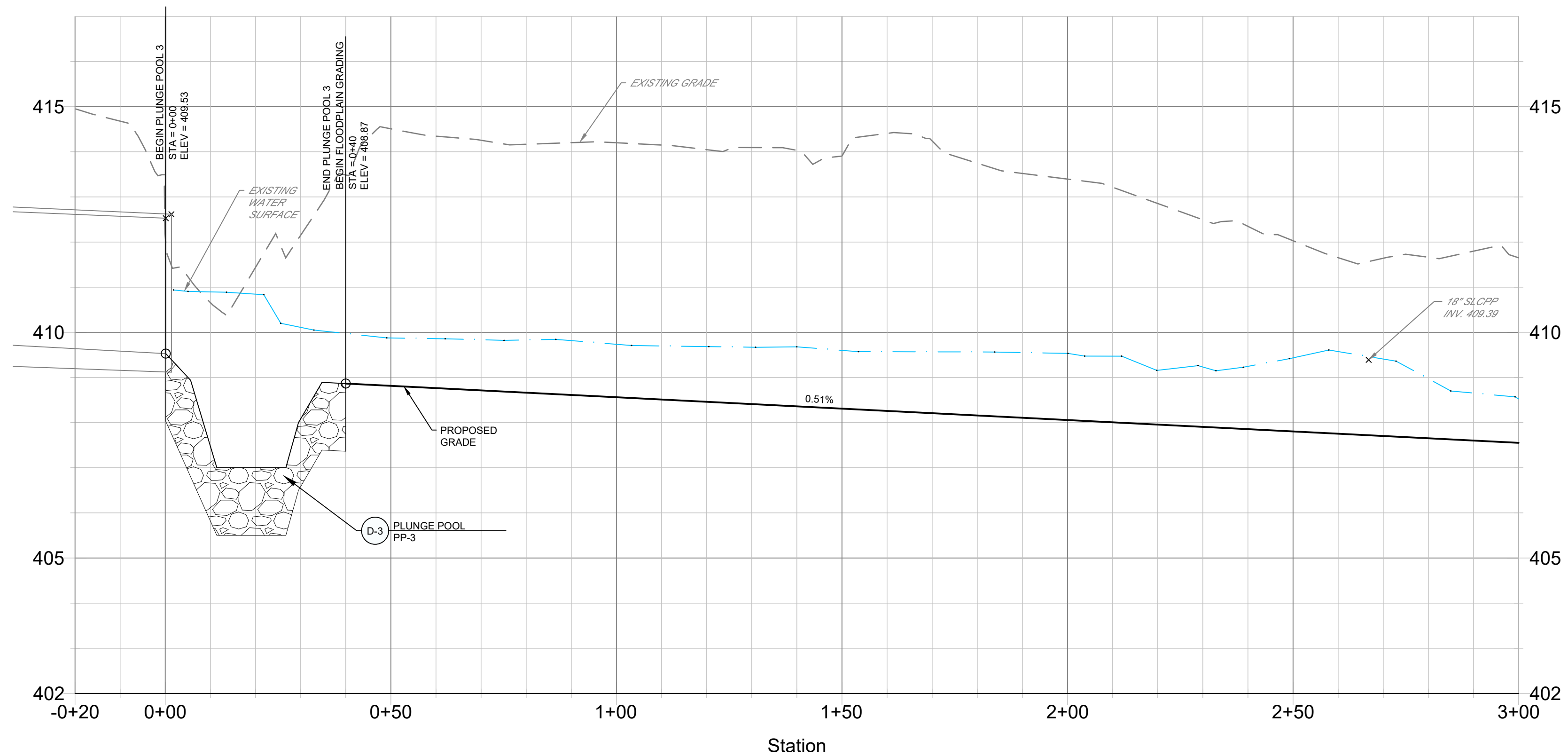
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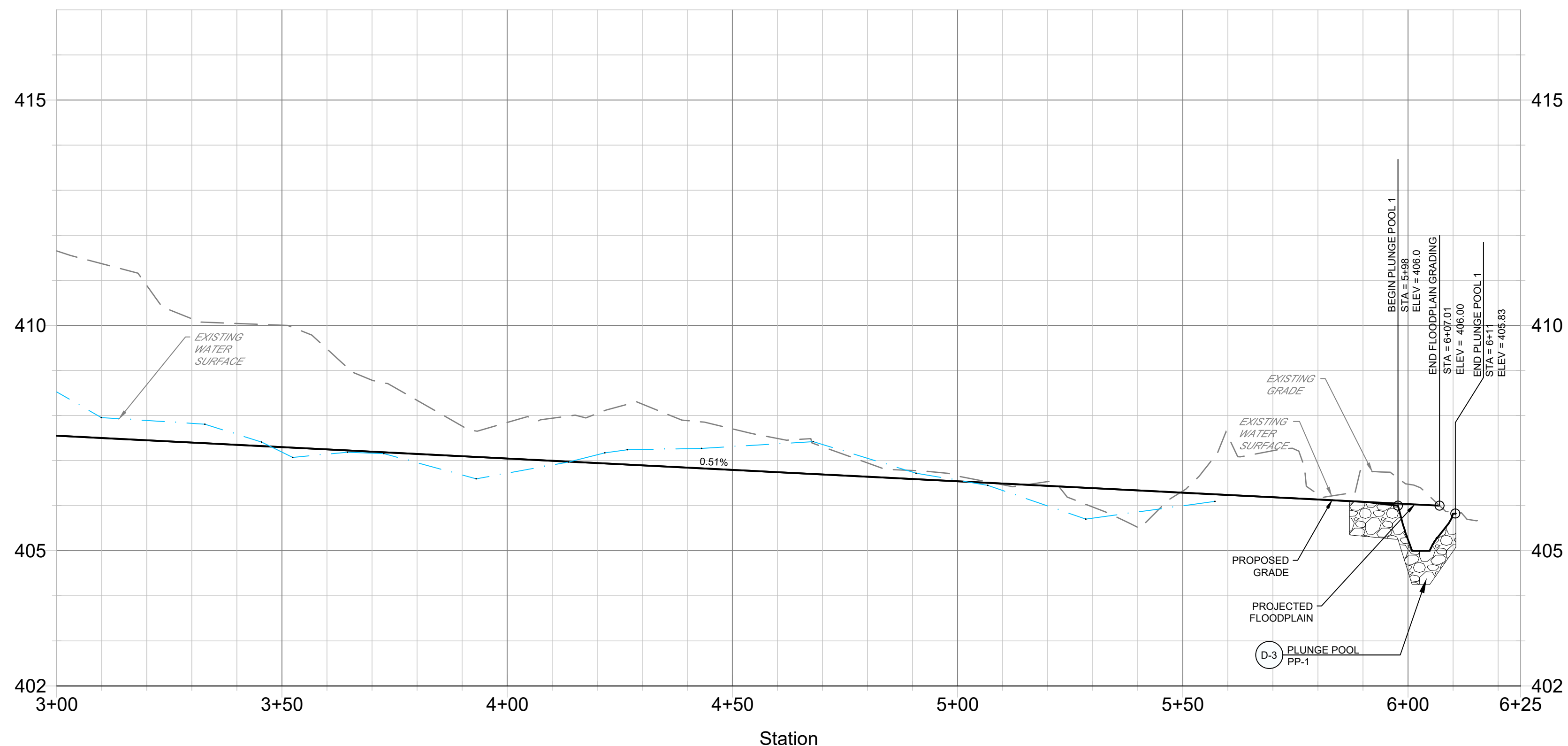
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5
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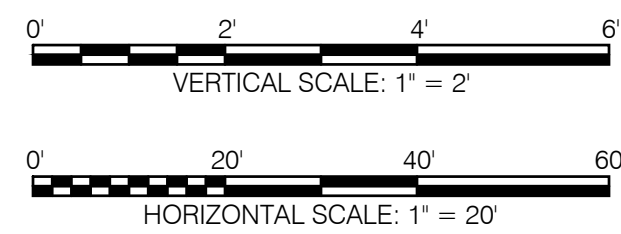




(P-1) PROPOSED VALLEY PROFILE
SCALE: H: 1"=20' V: 1"=2'



(P-1) PROPOSED VALLEY PROFILE
SCALE: H: 1"=20' V: 1"=2'



PROFILES

SHEET TITLE:

REVISIONS		
NO.	DATE	DESCRIPTION
1	10/24/2025	RPO COMMENTS

SIGNATURE BLOCK

PROJECT NUMBER:
1313.5-23
DRAWN BY:
CNM
CHECKED BY:
IKM
DATE:
2025-07-03
SCALE:
1" = 20'



CROSS SECTIONS

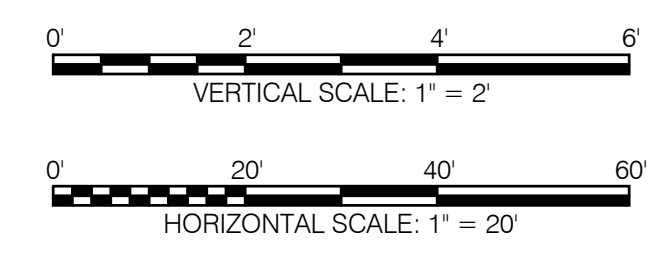
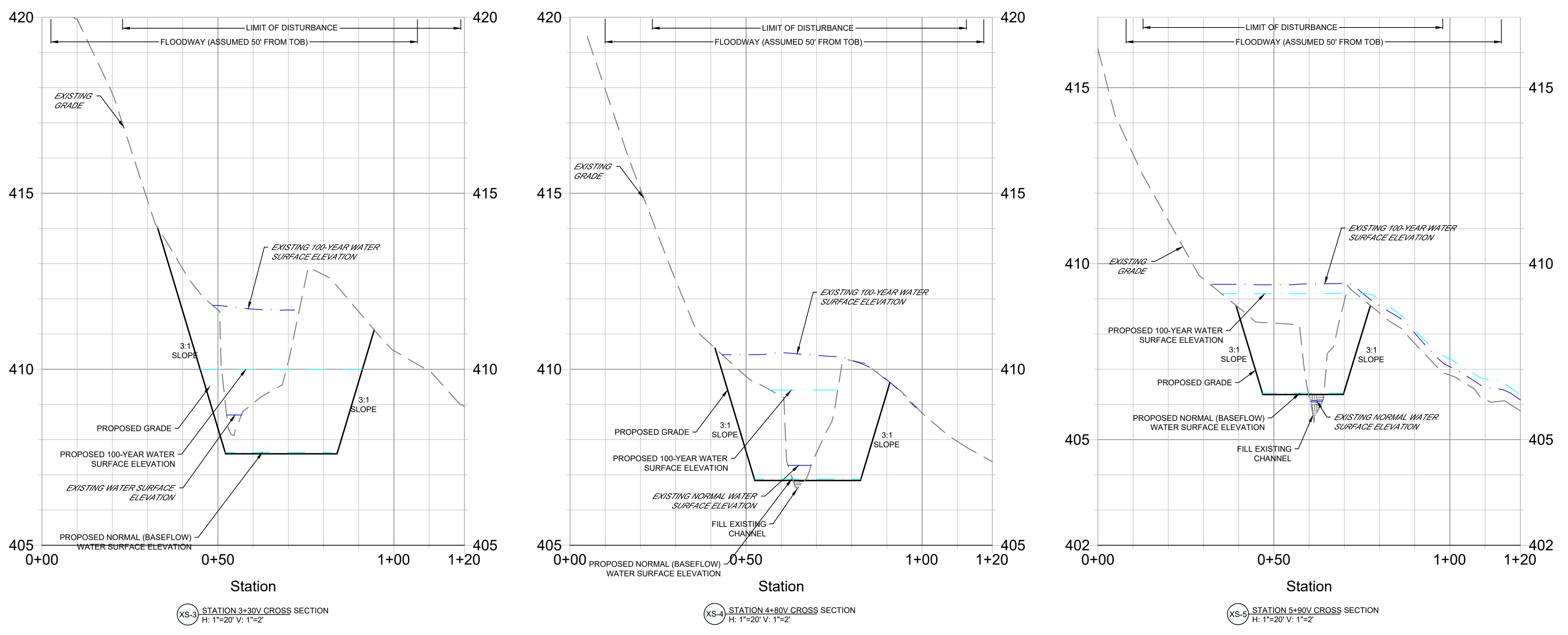
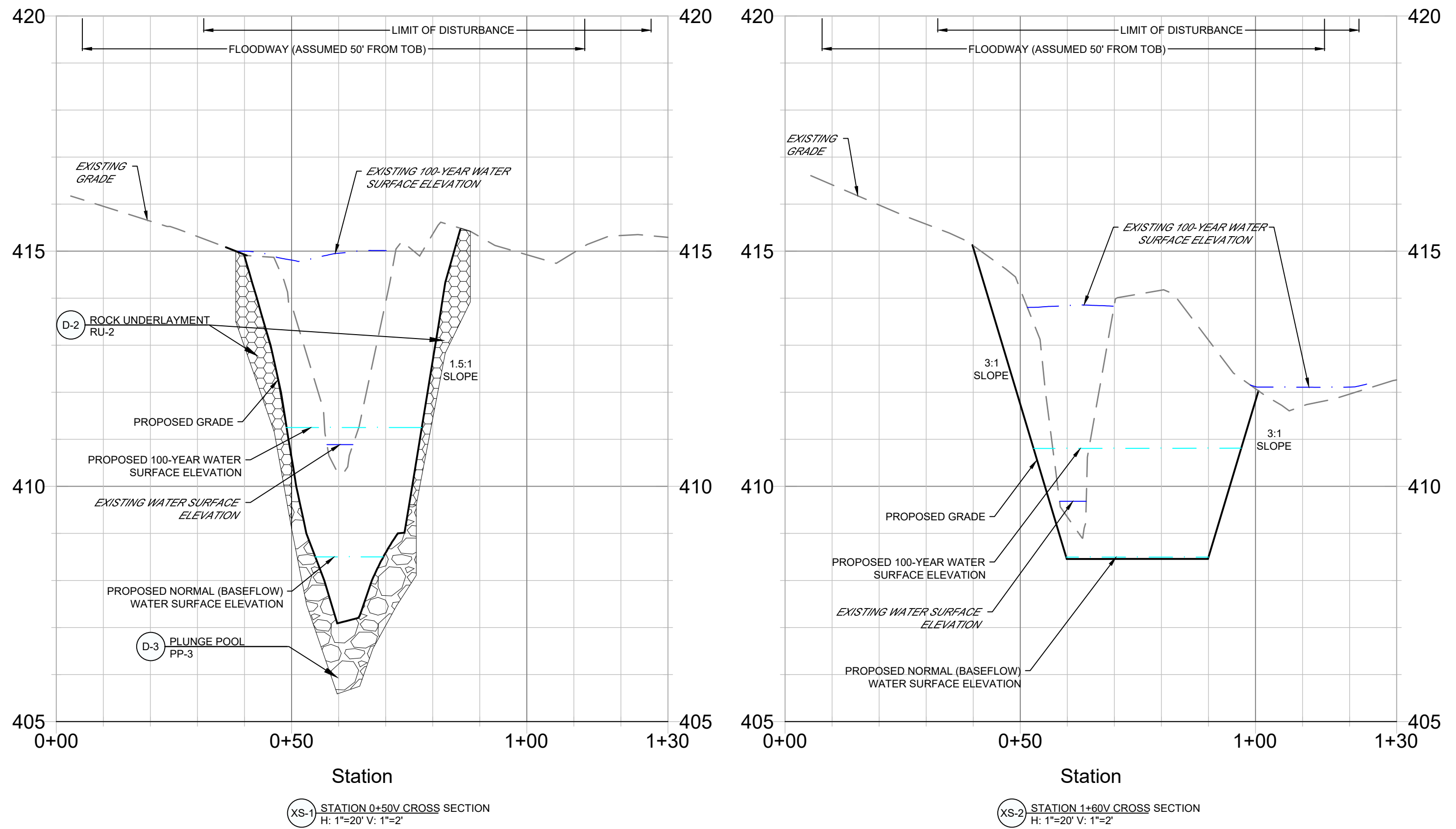
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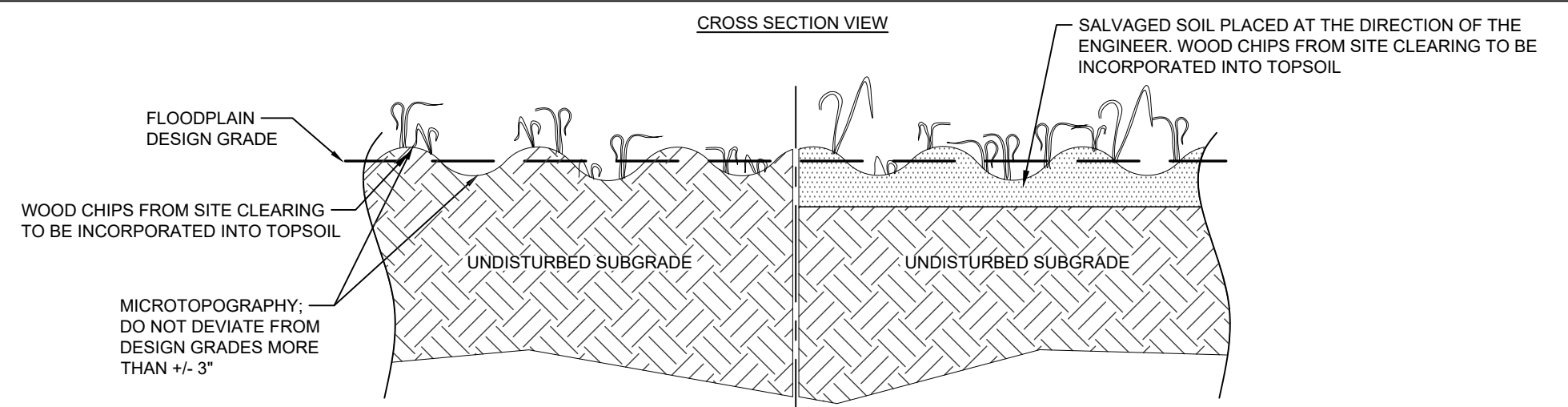
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1	10/31/25	PER RPCO COMMENTS

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 CNM
 CHECKED BY:
 IKM
 DATE:
 2025-07-03
 SCALE:
 1" = 20'

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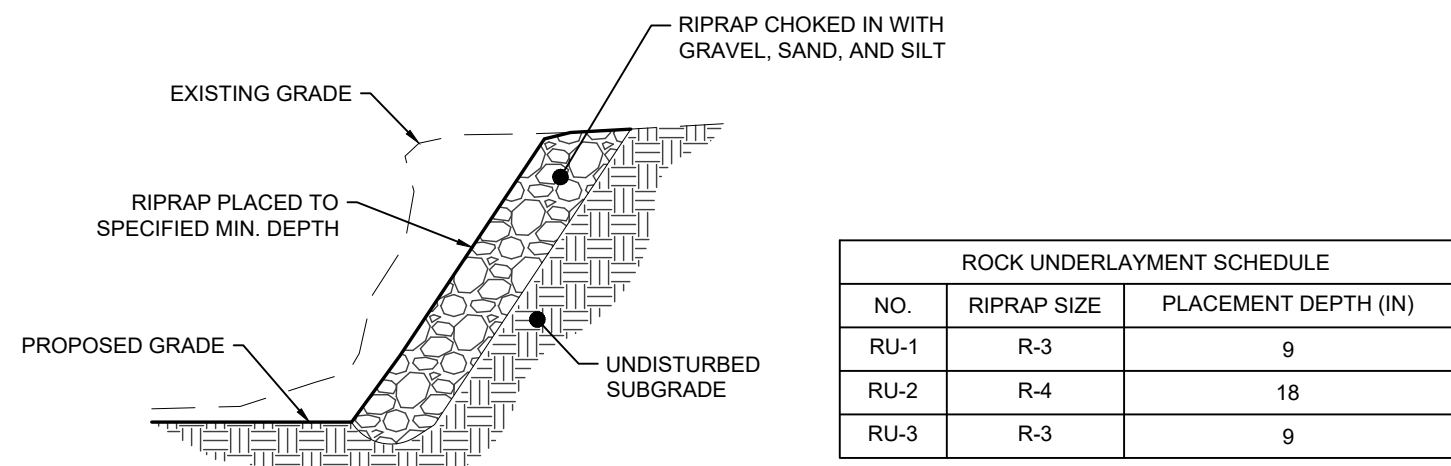




- NOTES:**
- FOR SITES WHERE OVEREXCAVATION IS ANTICIPATED TO BE BROADLY REQUIRED - TOPSOIL SHALL BE SALVAGED WITHIN PROPOSED FLOODPLAIN AND STOCKPILED FOR USE AS TOP DRESSING TO FINAL GRADE.
 - EXCAVATE PROPOSED FLOODPLAIN TO DESIGN ELEVATIONS AND PROCEED WITH THE NECESSARY APPROACH, DEPENDANT UPON WHAT TYPE OF MATERIAL IS PRESENT AT THE DESIGN ELEVATIONS AS DETERMINED AND APPROVED BY THE ENGINEER.
 - OPTION A:** IF SUITABLE GROWING MATERIAL IS PRESENT AT FINAL FLOODPLAIN ELEVATIONS, LEAVE THE MATERIAL IN PLACE AND PROCEED WITH CONSTRUCTION.
 - OPTION B:** IF UNSUITABLE GROWING MATERIAL IS PRESENT AT FINAL FLOODPLAIN ELEVATIONS, OVER-EXCAVATE BY 6" AND REPLACE WITH SALVAGED TOPSOIL TO FINAL FLOODPLAIN GRADE.
 - A THIN LAYER OF WOOD CHIPS FROM SITE CLEARING TO BE ADDED BETWEEN SUBGRADE AND TOPSOIL SO THAT THE UNDERLYING SOIL IS STILL VISIBLE AND GOOD CONTACT CAN BE ESTABLISHED BETWEEN SUBGRADE AND TOPSOIL. WOOD CHIPS SHALL NOT BE COMPRISED OF INVASIVE SPECIES OR BLACK WILLOW.
 - CHANNELS AND FLOODPLAIN FEATURES SHALL BE CONSTRUCTED AND INSTALLED WITH MINIMAL TRAFFIC ON THE FLOODPLAIN FOOTPRINT BY WORKING BACKWARDS OFF THE EXISTING GRADE. THE USE OF EQUIPMENT ON THE FINISHED FLOODPLAIN GRADE MUST BE APPROVED BY THE ENGINEER.
 - IRREGULARITIES IN FINAL GRADE ARE DESIRABLE TO CREATE MICRO-TOPOGRAPHY (NOT TO EXCEED +/- 3" FROM DESIGN ELEVATIONS), WHICH IS NOT DEPICTED BY PROPOSED CONTOURS. THIS MICRO-TOPOGRAPHY IS NOT TO BE CONSIDERED AN OVERALL TOLERANCE WHEN GRADING THE FLOODPLAIN. PROPOSED GRADES SHOULD BE MET FIRST AND THEN ROUGHENED ACROSS THE FULL WIDTH OF THE FLOODPLAIN.
 - WHERE IT IS NECESSARY TO TRAVERSE ACROSS THE FLOODPLAIN, ALL RUTS LEFT BY EQUIPMENT SHALL BE FILLED IF DEEMED NECESSARY BY THE PROJECT DESIGNER. DO NOT COMPACT THE FLOODPLAIN.

D-1 FLOODPLAIN CONSTRUCTION

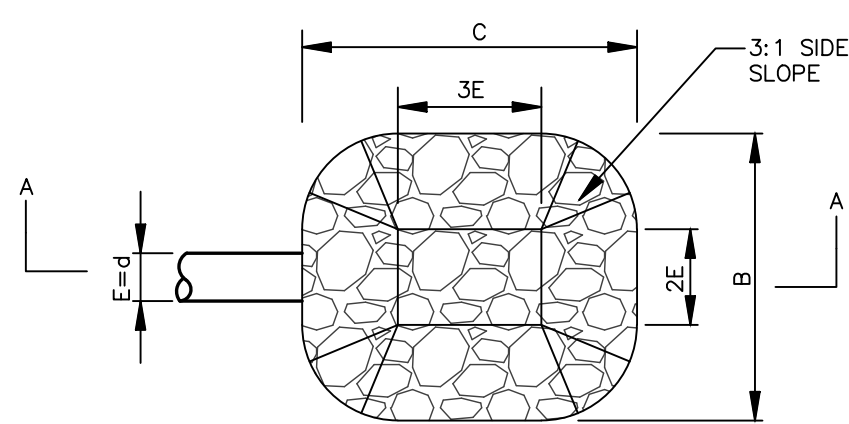
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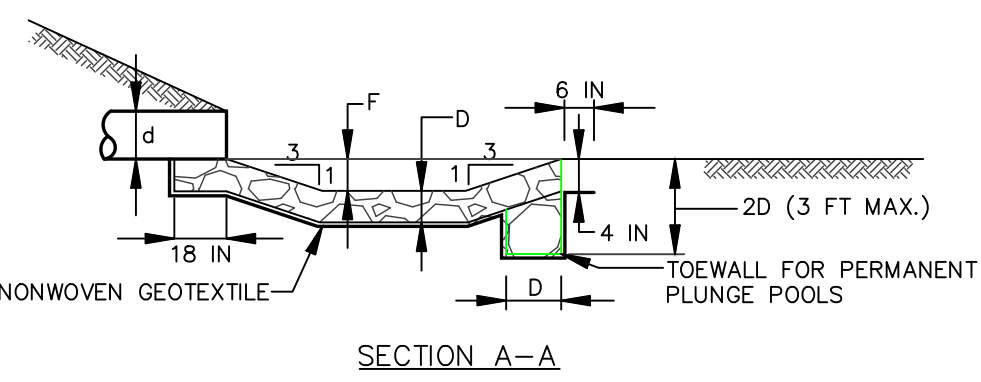
- NOTES:**
- MATERIAL SIZE SHOULD CONFORM TO PENNDOT RIPRAP STANDARDS FOR THE SIZE SPECIFIED ON THE PLAN.
 - THE SIZE, LOCATION, AND ORIENTATION OF ROCK UNDERLAYMENT INSTALLATIONS MAY BE MODIFIED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION, AS DIRECTED BY THE PROJECT DESIGNER. REGARDLESS OF ANY MODIFICATIONS, THE TOTAL QUANTITY OF ROCK INSTALLED SHALL NOT BE REDUCED, UNLESS OTHERWISE APPROVED BY THE PROJECT DESIGNER.
 - RIPRAP SHALL BE CHOKED WITH SAND, SILT, AND GRAVEL TO FILL ALL VOIDS. USE MATERIAL SALVAGED ON SITE TO CHOKE RIPRAP. FINAL MIX SHALL CONSIST OF 65% RIPRAP AND 35% OTHER MATERIAL, BY VOLUME. MIX MATERIALS PRIOR TO PLACEMENT.

D-2 ROCK UNDERLAYMENT

NOT TO SCALE



PLAN VIEW



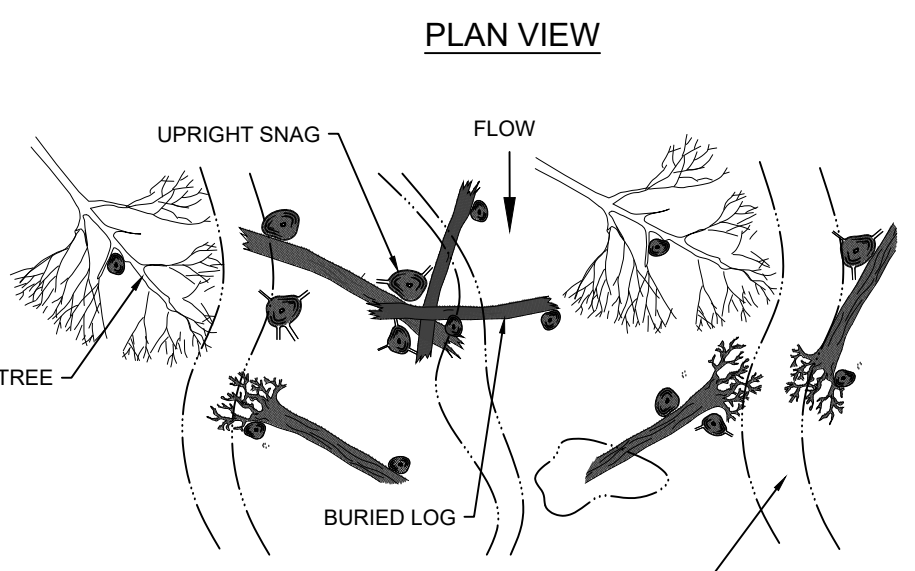
SECTION A-A

NO.	RIPRAP SIZE	d50	d	B	C	D	E	F
PP-1	R-3	0.25	1.50	12.00	13.50	0.75	1.50	1.50
PP-2	R-3	0.25	1.50	12.00	13.50	0.75	1.50	1.50
PP-3	R-4	0.5	3.50	17.50	21.00	1.50	3.50	1.75

- NOTES:**
- USE SPECIFIED CLASS OF RIPRAP.
 - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
 - PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 - EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
 - STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
 - AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
 - MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOGGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

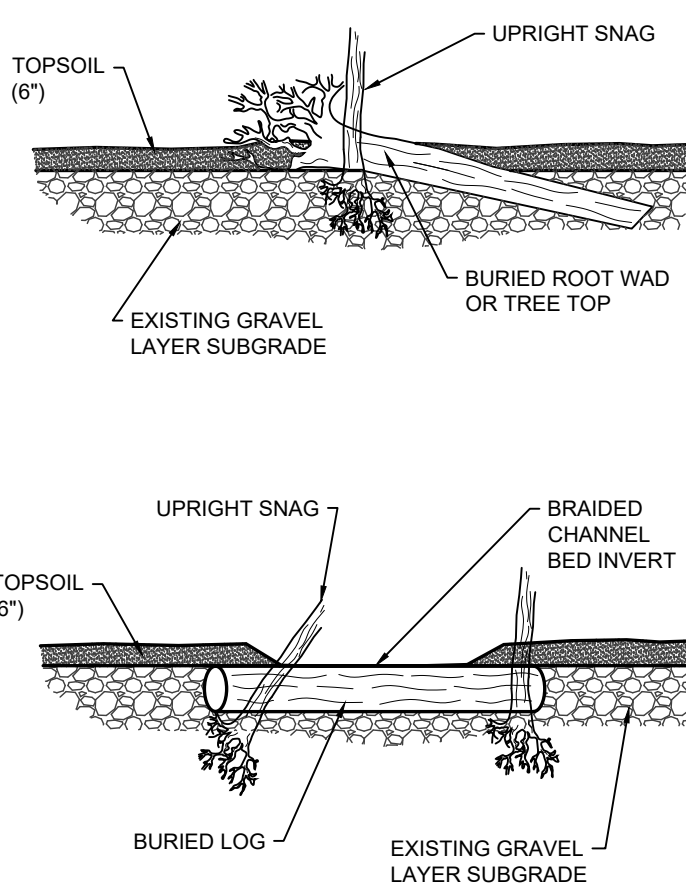
D-3 PLUNGE POOL

NOT TO SCALE



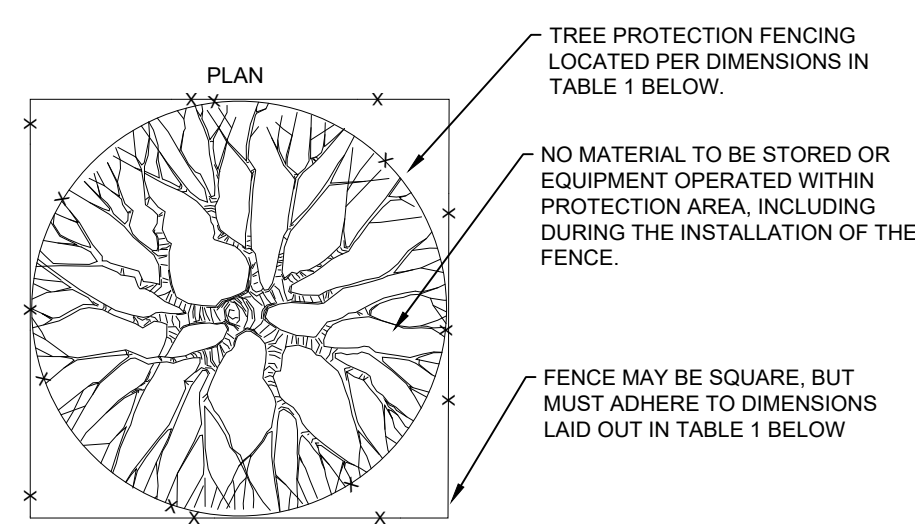
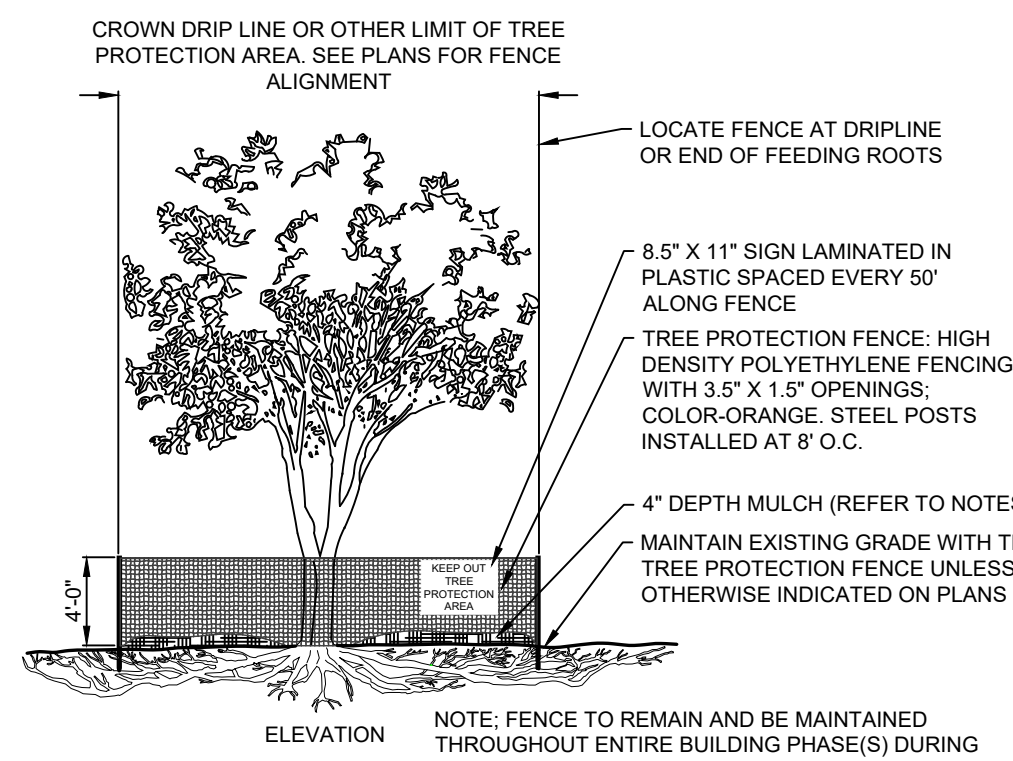
PLAN VIEW

CROSS SECTION VIEWS



- WOODY DEBRIS NOTES:**
- WOODY DEBRIS SHALL BE INSTALLED AT THE DIRECTION OF THE ENGINEER OR CONSTRUCTION MANAGER. THE SIZE, FINAL LOCATION, AND ORIENTATION OF PROPOSED WOODY DEBRIS MAY VARY AND WILL BE DETERMINED BY THE ENGINEER OR CONSTRUCTION MANAGER BASED ON SITE CONDITIONS DURING CONSTRUCTION AND AVAILABILITY OF MATERIALS.
 - WOODY DEBRIS SHALL CONSIST OF A COMBINATION OF INDIVIDUAL LOGS, ROOT WADS, AND TREE TOPS HARVESTED FROM TREES/BUSH THAT HAS BEEN CLEARED FROM THE SITE. IT IS ANTICIPATED THAT NO ADDITIONAL WOODY DEBRIS WILL NEED TO BE IMPORTED.
 - INVASIVE SPECIES AND BLACK WILLOW SHALL NOT BE USED AS WOODY DEBRIS AND SHALL BE REMOVED FROM THE SITE.
 - A MINIMUM OF 34 STRUCTURES SHALL BE INSTALLED IN THE GENERAL LOCATIONS SHOWN ON THE PLAN. TYPES AND SIZES OF STRUCTURES WILL BE DEPENDANT UPON AVAILABLE MATERIAL AND SHALL BE DETERMINED BY THE ENGINEER OR CONSTRUCTION MANAGER. A MINIMUM OF 15 LINEAL FEET TOTAL OF LOG AND/OR BRANCHES SHALL BE ASSUMED FOR EACH STRUCTURE.
 - ALL WOODY DEBRIS SHALL BE PARTIALLY BURIED AND/OR PINNED WITH UPRIGHT SNAGS SO AS NOT BE DISPLACED BY HIGH FLOWS.

D-4 WOODY DEBRIS/BURIED LOG



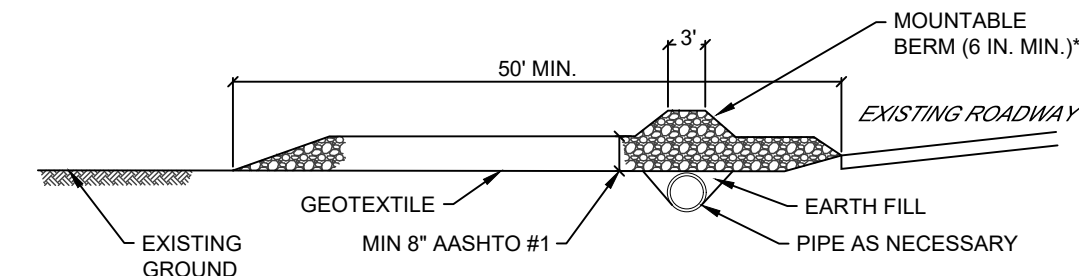
GUIDELINES FOR TREE PROTECTION ZONES		
TREE NO.	TREE SPECIES	ORANGE CONSTRUCTION FENCE DISTANCE FROM TRUNK
1	WILLOW	5 FT

- ROOT PRUNING NOTES:**
- WHERE ROOTS OF EXISTING TREE TO REMAIN ARE ENCOUNTERED, CONTRACTOR SHALL PERFORM ROOT PRUNING AT GRADING / EXCAVATION EXTENTS AS NOTED AND APPROVED BY THE OWNER. LENGTH OF ROOT PRUNING TRENCH SHOULD BE EXTENDED AS NECESSARY TO ENSURE PROTECTION OF TREE TO REMAIN.
 - ROOT PRUNING SHALL BE DONE WITH AN AIRSPADE AT THE LIMITS OF GRADING TO ADJACENT TREES TO A DEPTH OF 36". ALL ROOTS OVER 1.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT BREAK OR CHOP. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.
 - ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF AN ISA CERTIFIED ARBORIST UNLESS APPROVED OTHERWISE.
 - ROOT PRUNING WORK SHALL NOT BE DONE WHEN MORE THAN THE TOP 1 INCH OF SOIL IS FROZEN. ROOT PRUNING SHALL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.
 - ANY EXPOSED OR BROKEN/SPLINTERED ROOTS SHALL BE CUT WITH A CLEAN EDGE AT OR BELOW FINISHED GRADE.

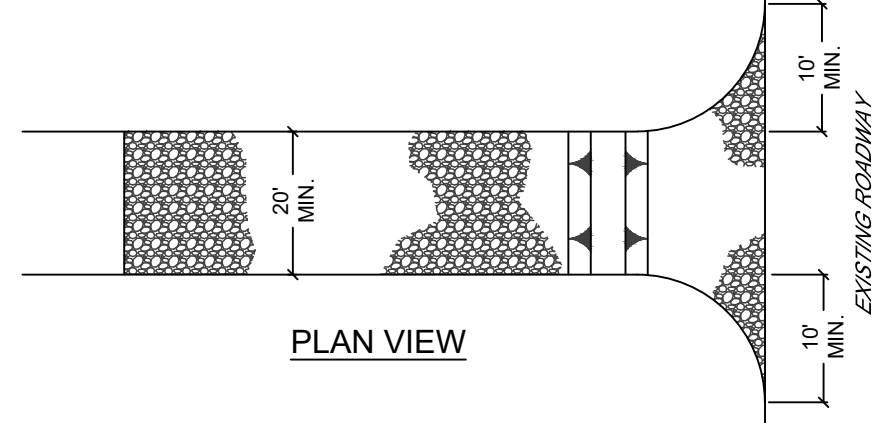
- NOTES:**
- TABLE 1: GUIDELINES FOR TREE PROTECTION ZONES TO BE POPULATED FROM FIELD DATA AND PENN STATE EXTENSIONS: A GUIDELINE TO PRESERVING TREES IN DEVELOPMENT PROJECTS

D-5 TREE PROTECTION FENCING

NOT TO SCALE



PROFILE

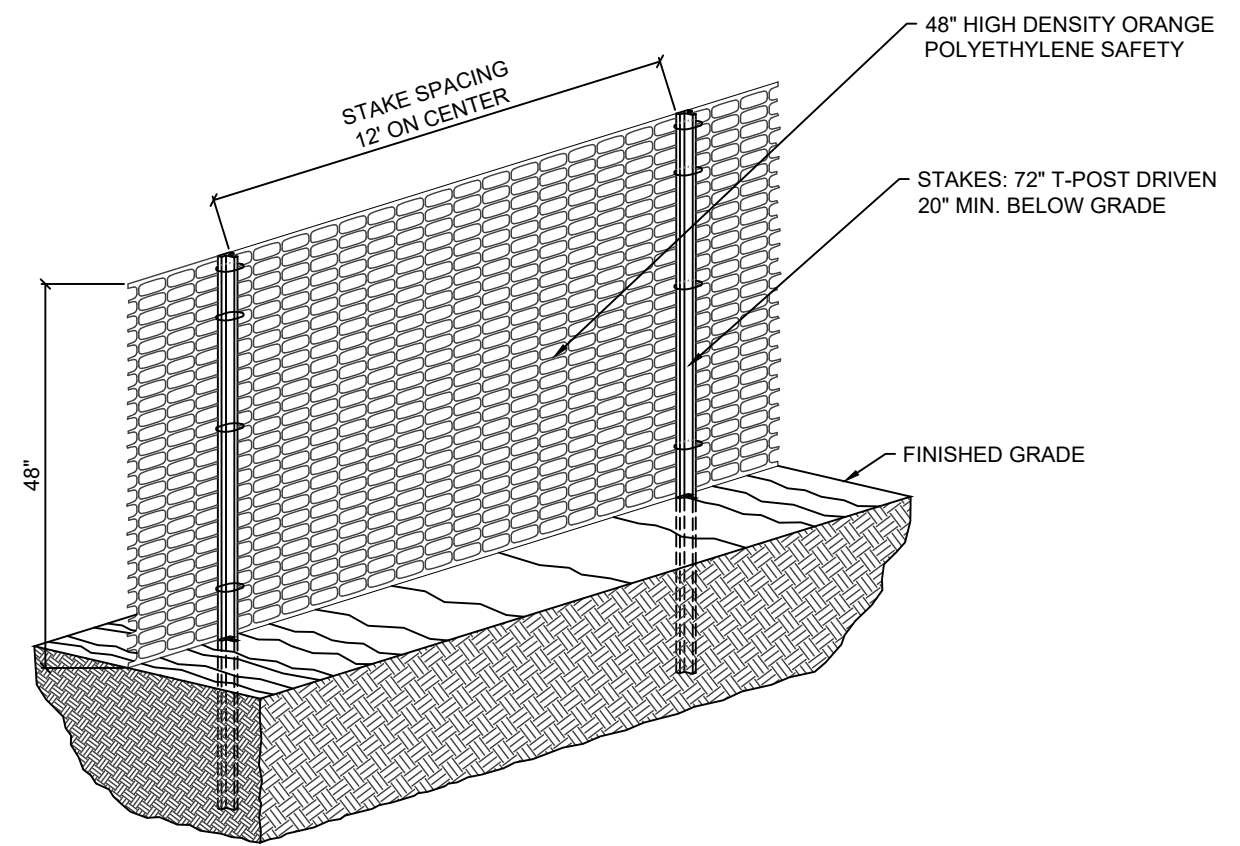


PLAN VIEW

- NOTES:**
- REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK COVER 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.

E-1 ROCK CONSTRUCTION ENTRANCE

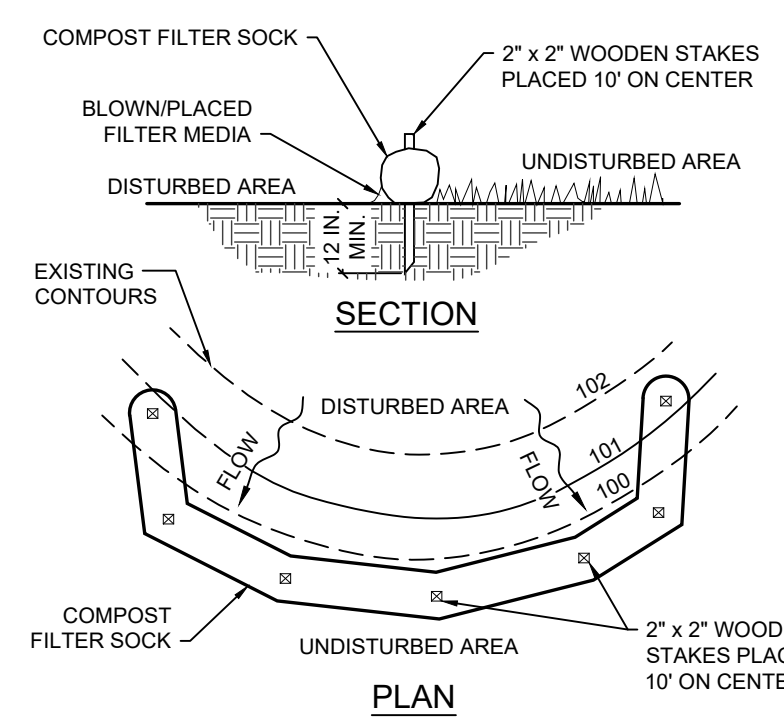
NOT TO SCALE



- NOTES:**
- FENCING SHALL BE FASTENED SECURELY TO THE T-POSTS.
 - FENCING MUST REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION; ANY CHANGE TO THE LOCATION OF THE FENCING MUST BE APPROVED.
 - TEMPORARY GATES MAY BE UTILIZED TO ALLOW ACCESS TO CONSTRUCTION EQUIPMENT, BUT MUST BE CLOSED WHEN NOT IN USE.

E-2 CONSTRUCTION SAFETY FENCE

NOT TO SCALE



- NOTES:**
- FILTER SOCK IS TO BE INSTALLED AS NECESSARY BASED ON CONSTRUCTION PHASING.**
- 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 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.

E-3 COMPOST FILTER SOCK (STD DTL 4-1)

NOT TO SCALE

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PROJECT:
ESHELMAN RUN STREAMBANK STABILIZATION
STRASBURG BOROUGH
145 PRECISION AVENUE
STRASBURG, PA

DESIGN & E&S DETAILS

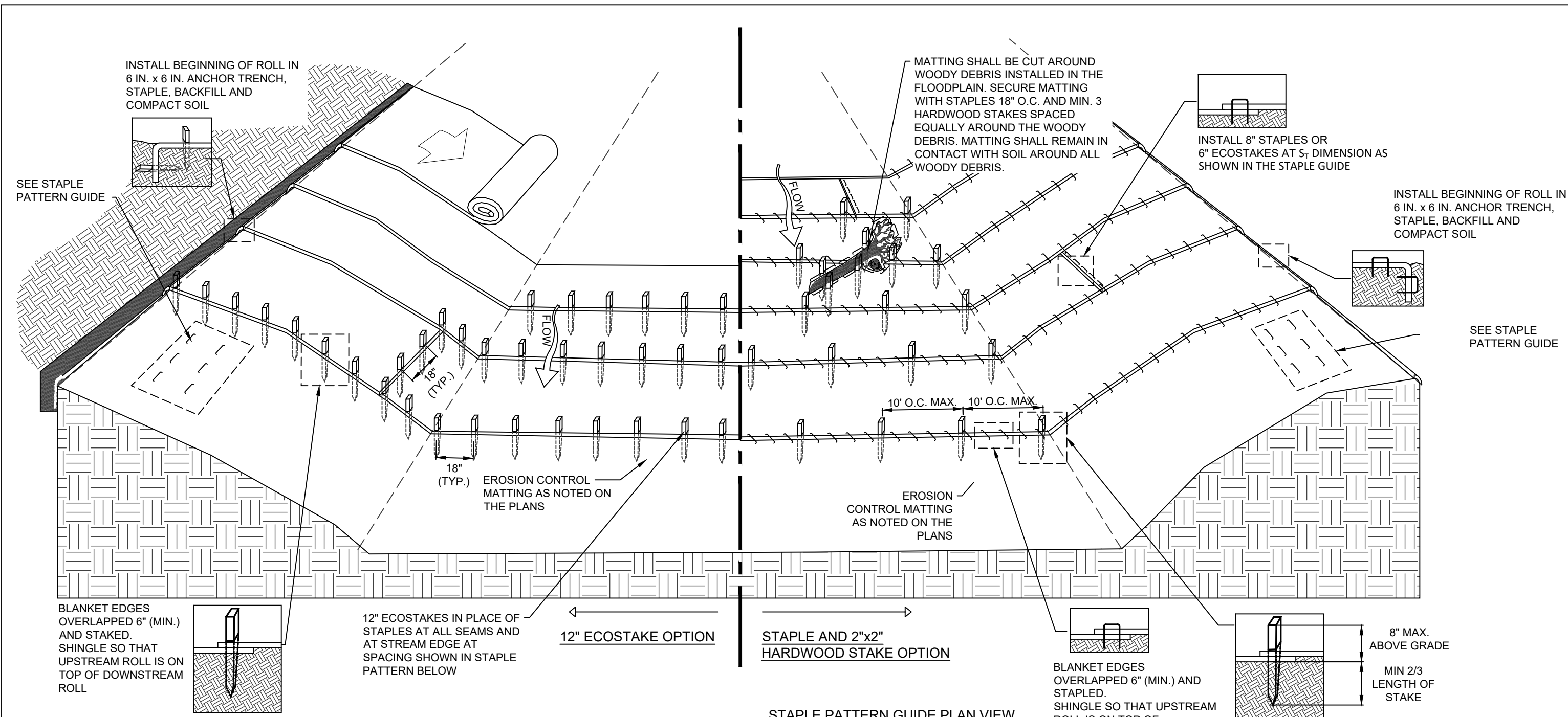
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2	10/01/2026	PER PRE-BID MEETING
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SIGNATURE BLOCK

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DRAWN BY: CNM
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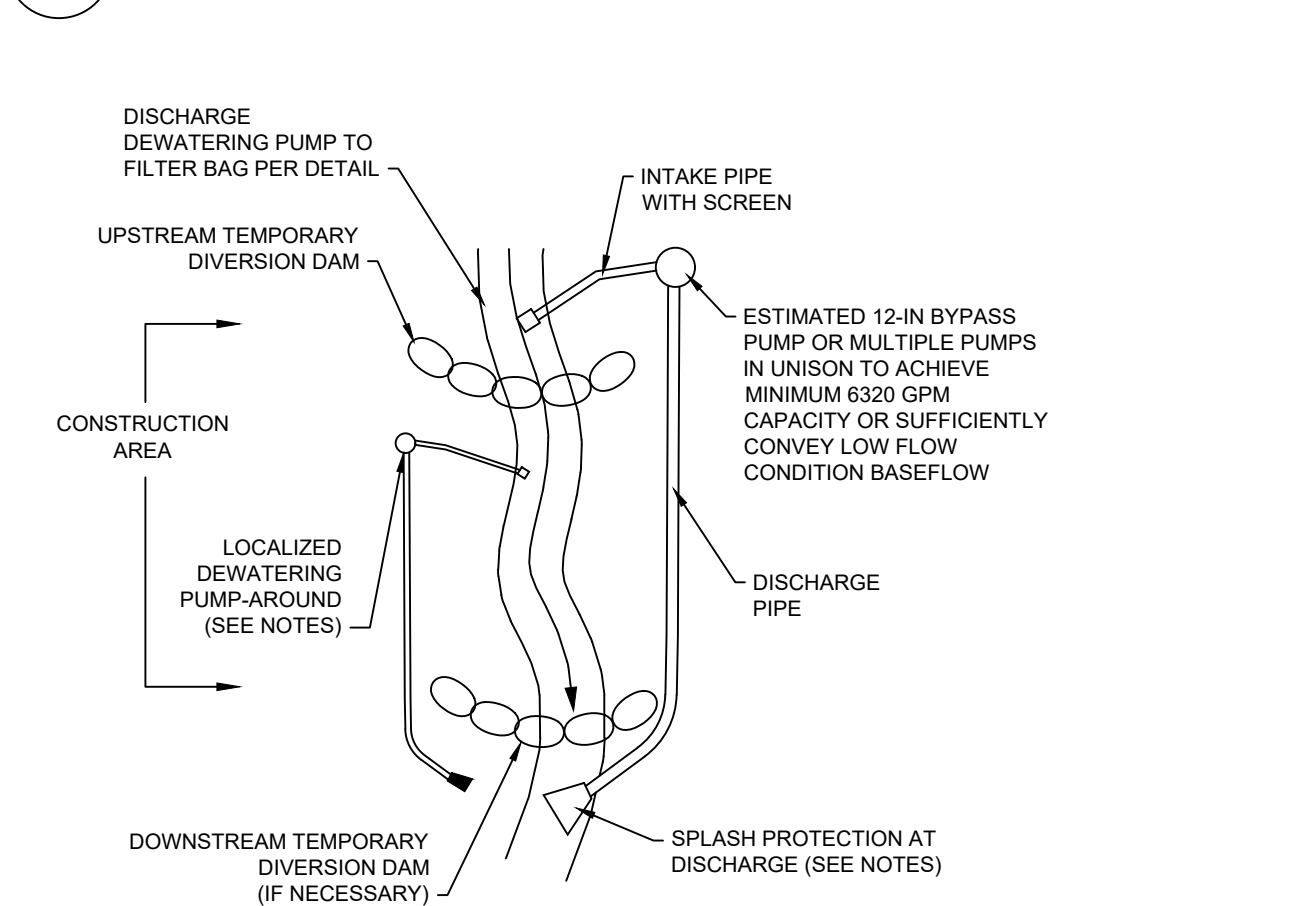


NOTES

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF SEED AS MAY BE DETAILED OR SPECIFIED IN THESE PLANS. GROUND SURFACE MUST BE SUFFICIENT TO ALLOW INTIMATE CONTACT OF THE RECP WITH THE SOIL OVER THE ENTIRETY OF THE INSTALLATION.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" DEEP X 6" WIDE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES SPACED AT S₁ APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING AND FOLD THE ROLL OVER DOWNSLOPE. SECURE RECPs OVER SOIL WITH A ROW OF STAPLES/STAKES/SPINS SPACED AT S₂ APART ACROSS THE WIDTH OF THE RECPs.
3. ROLL THE RECPs DOWN UNLESS APPROVED OTHERWISE BY THE PROJECT DESIGNER. ALL RECPs MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE UNLESS APPROVED OTHERWISE BY THE PROJECT DESIGNER.
4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH MINIMUM OF 6" OVERLAP.
5. CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE OVERLAPPED WITH THE UPSTREAM MAT ATOP THE DOWNSLOPE MAT (SHINGLE STYLE). THE OVERLAP SHALL BE 6" MINIMUM.
6. AT THE TERMINAL END, SECURE EACH MAT ACROSS THE WIDTH WITH A ROW OF STAPLES/STAKES SPACED AT S₂. IF EXPOSED TO FLOW, FOOT TRAFFIC, WIND UPLIFT OR OTHER DISRUPTION, TRENCH THE TERMINAL END IN AS SHOWN IN DETAIL.
7. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.
8. FASTENERS SHALL PROVIDE A MINIMUM OF TWENTY POUNDS OF PULLOUT RESISTANCE. MINIMUM OF 8" STAPLES OR 6" ECOSTAKES SHALL BE USED. IN LOOSE OR FLOODPLAIN SOILS, LONGER STAPLES MAY BE NECESSARY AS DIRECTED BY THE PROJECT DESIGNER AT THE TIME OF MATTING INSTALLATION.
9. HARDWOOD STAKES SHALL BE MIN 2"x2"x18".
10. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

E-4 EROSION CONTROL BLANKET INSTALLATION - FLOODPLAIN

NOT TO SCALE

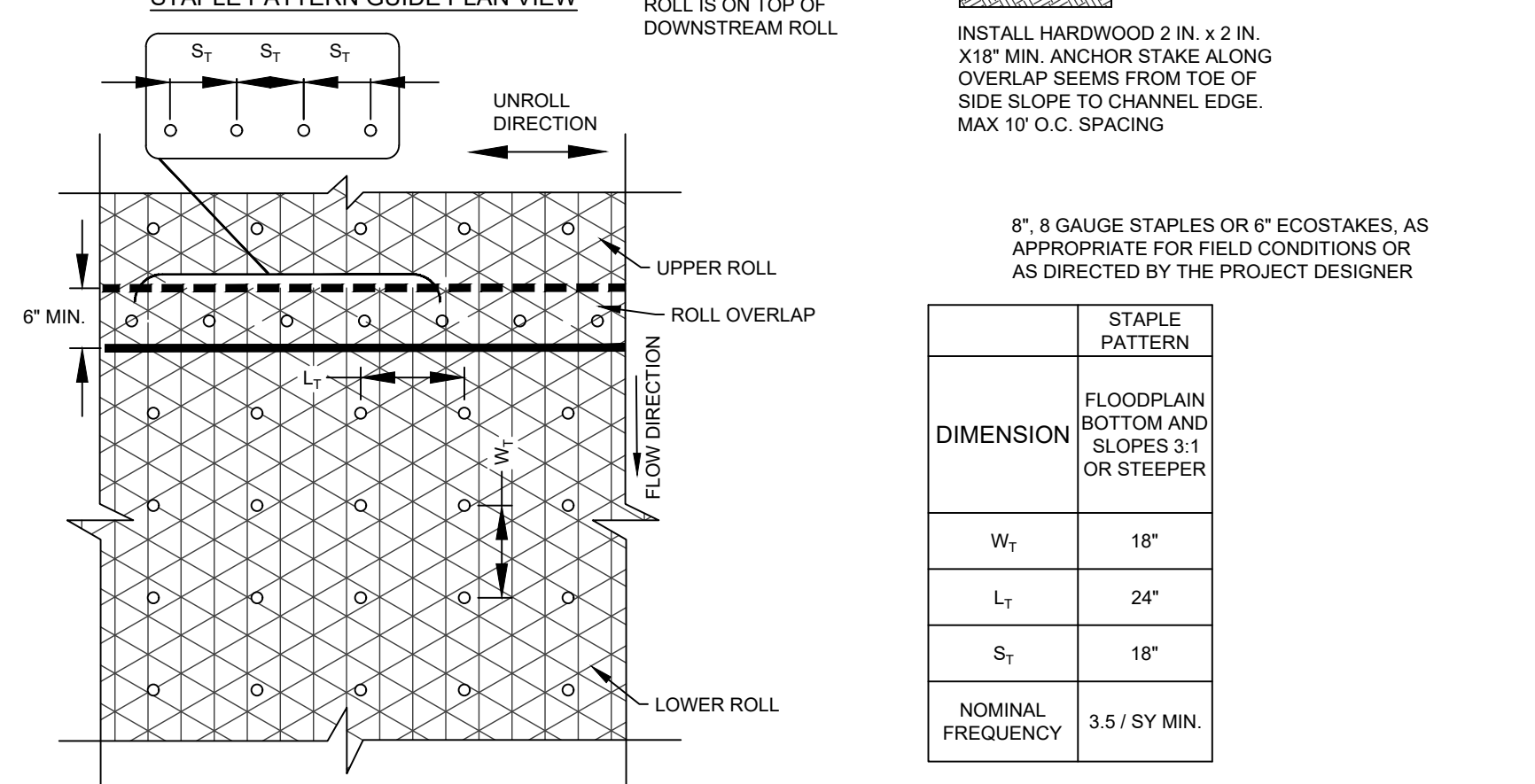


NOTES:
PUMP INTAKE SHALL BE MAINTAINED A SUFFICIENT DISTANCE FROM BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM. DO NOT EXCAVATE A SUMP AREA WITHIN THE STREAM CHANNEL FOR THE PUMP INTAKE.
PUMP AROUND BYPASS SHOULD ONLY BE IMPLEMENTED IF THE PUMP CAPACITY CAN EFFECTIVELY MANAGE THE EXISTING BASEFLOW DISCHARGE.
LOCALIZED PUMPS SHALL BE USED TO DEWATER THE IMMEDIATE WORK AREA. SEDIMENT-LADEN WATER SHALL BE DISCHARGED THROUGH A PUMPED WATER FILTER BAG IN ACCORDANCE WITH DETAIL.

FOR SPLASH PROTECTION, DISCHARGE OUTLET MAY BE SET UP PLASTIC SHEETING AND ORIENTED UPWARD TO CREATE FOUNTAIN-EFFECT, WHICH FALLS ON PLASTIC SHEETING BEFORE ENTERING STREAM DOWNSLOPE OF PROJECT SITE. ALTERNATIVE SPLASH PROTECTION SHALL BE APPROVED BY DESIGN ENGINEER.

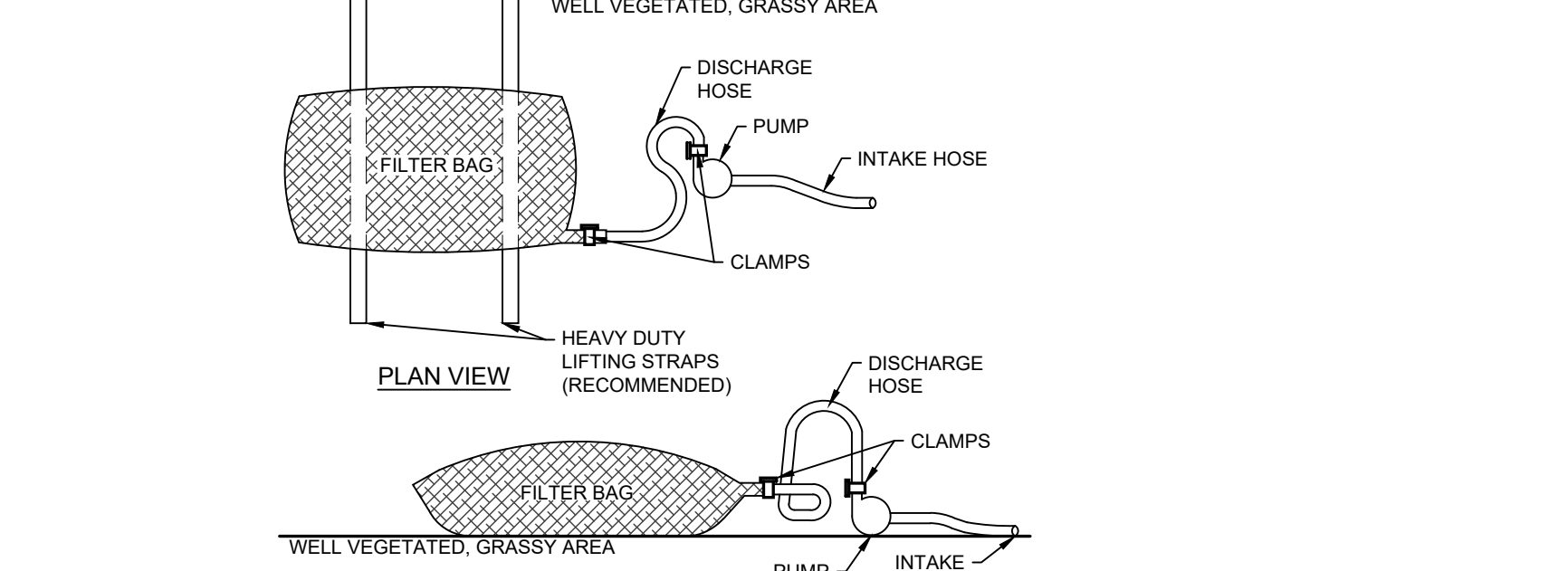
E-6 TEMPORARY PUMP AROUND BYPASS SYSTEM

NOT TO SCALE



E-5 SANDBAG DIVERSION DAM OR COFFERDAM (STD DTL #3-15)

NOT TO SCALE

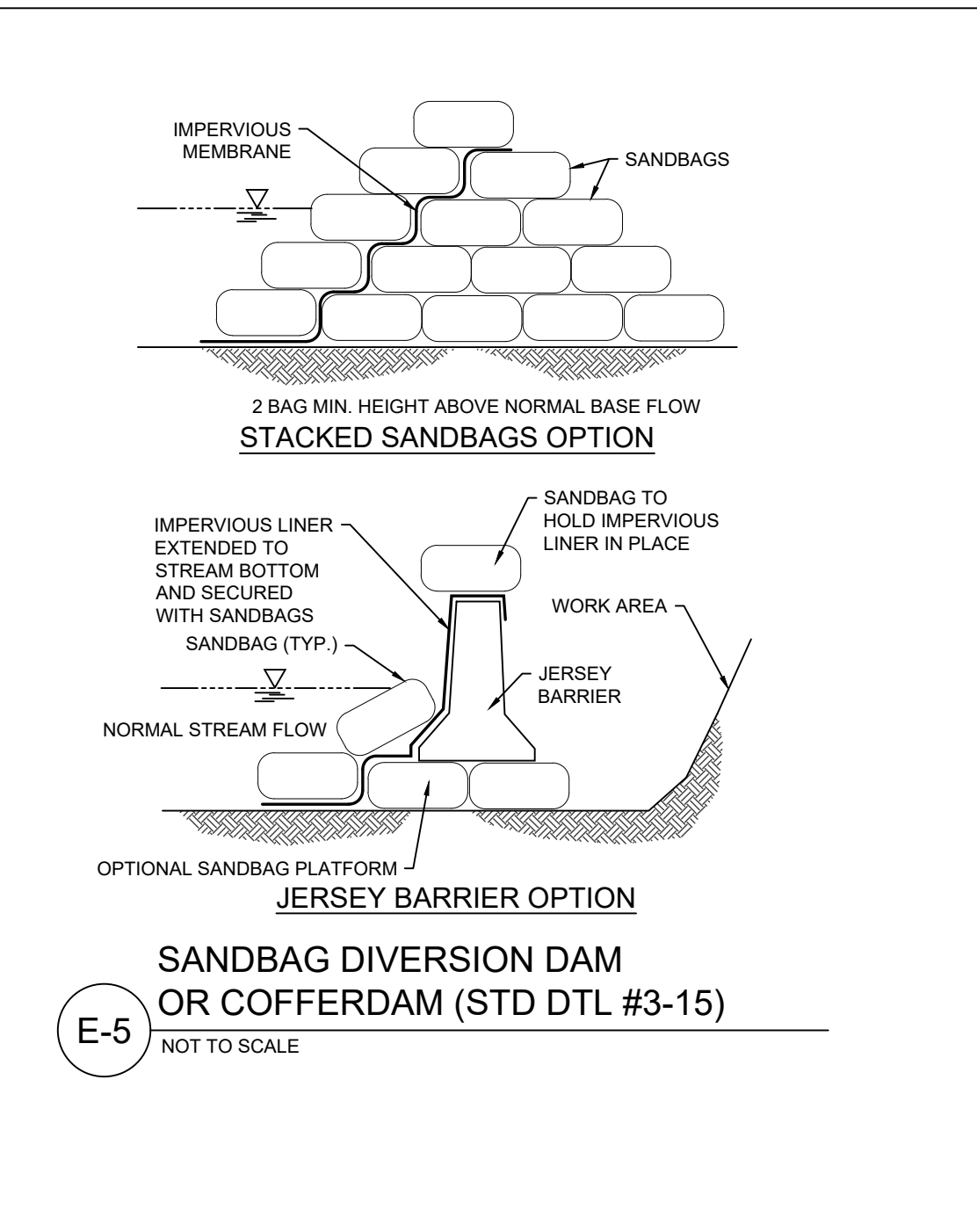


PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

1. 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.
2. 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.
3. NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OR ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.
4. 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.
5. 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 SORENEDED.
6. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

E-7 PUMPED WATER FILTER BAG (STD DTL #3-16)

NOT TO SCALE



STANDARD E&S PLAN NOTES

1. 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 DEP APPROVED DRAWINGS 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.
2. AT LEAST 10 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 ENGINEER, PA DEP REGIONAL PERMIT COORDINATION OFFICE, PA FISH AND BOAT COMMISSION, A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT, AND THE US ARMY CORPS OF ENGINEERS TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. 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.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. ANY DEVIATION TO THE SEQUENCE ASSOCIATED WITH THE CHAPTER 105 FLOODPLAIN EXCAVATION AND THE WETLAND CORRIDOR RESTORATION SHALL BE APPROVED IN WRITING FROM PA DEP'S CENTRAL OFFICE. ANY DEVIATION TO THE SEQUENCE ASSOCIATED WITH THE UPLAND BMP INSTALLATION SHALL BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. 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 SHALL 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.
7. 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.
8. 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 CENTRAL OFFICE OF THE DEPARTMENT.
- 8.1. THIS MAY INCLUDE, BUT NOT LIMITED TO STRAW MULCH, STRAW BALES, ROCK FILTERS, AND/OR OTHER TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION UNTIL PERMANENT STABILIZATION MEASURES ARE INSTALLED.
9. 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.
10. ALL HAUL OFF OF EXCESS MATERIAL SHALL BE PROPERLY DISPOSED OF AT THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. 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.
11. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS. VEHICLES AND EQUIPMENT MAY ENTER DIRECTLY FROM THE ALLEY OPPOSITE OF PLEASANT VIEW DRIVE.
12. 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 REINSEEDING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
14. 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.
15. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
16. ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
17. 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 OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
18. 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 THE LOCAL CONSERVATION DISTRICT OR CODES.
19. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
20. 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.
21. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
22. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
23. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE ALLOWED TO DISCHARGE INTO THE RESTORED FLOODPLAIN IN AN ECOLOGICALLY BENEFICIAL MANNER. SEEPS AND SPRINGS SHALL NOT BE PIPED OR CHANNELLED.
24. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDS ARE 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. IF RAIN IS FORECASTED AND FINAL GRADE HAS YET TO BE ACHIEVED IN AN AREA, THE CONTRACTOR SHALL UTILIZE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION.
25. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING PERIODS, MULCHING AND SEEDING SHALL BE CONDUCTED DURING EACH WORKDAY. EROSION AND SEDIMENT CONTROL MEASURES SHALL 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.
26. 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.
27. 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.
28. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES. ALL DISTURBED AREAS 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.
29. 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.
30. 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.

TEMPORARY CONTROL MEASURES

1. FILTER SOCK
 - 1.1. FILTER SOCK SHALL BE LOCATED AS SHOWN ON THE PLANS AND DOWN SLOPE OF ANY SPOIL AREAS OR DISTURBED AREAS WITH THE POTENTIAL TO RESULT IN SEDIMENT-LADEN RUNOFF LEAVING THE SITE.
2. TEMPORARY SEEDING
 - 2.1. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

Botanical Name	Common Name	Application Rate	Season/color
<i>Socias ornata</i>	CERIAL RYE	30 LBS/AC	JULY - MARCH
	OR		
<i>Avena sativa</i>	BARLY	20 LBS/AC	APRIL - JUNE
3. TEMPORARY STABILIZATION MATTING (EROSION CONTROL BLANKET) SHALL BE APPLIED WHERE SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE PLAN NOTES AND DETAILS UPON ACHIEVING FINAL GRADE OR AS NECESSARY TO PROVIDE TEMPORARY STABILIZATION:
 - 3.1. APR. 1 TO SEPT. 1 - NORTH AMERICAN GREEN (NAG) C125BN OR ECC-2B OR APPROVED EQUIVALENT.
 - 3.1.1. ROLANKA Bio-Mat 40 or EC-4Y (OR APPROVED EQUIVALENT) MAY ALSO BE USED
 - 3.2. SEPT. 1 TO APR. 1 - ROLANKA Bio-Mat 40 or EC-4Y (OR APPROVED EQUIVALENT).
 - 3.3. Bio-Mat 90 OR EC-9Y OR APPROVED EQUIVALENT AS SHOWN ON PLAN
4. DURING NON-GERMINATING PERIODS, TEMPORARY STABILIZATION ON OVERBANK AREAS SHALL BE ACHIEVED THROUGH MULCHING. SEE THE MULCHING SPECIFICATION BELOW.

PERMANENT CONTROL MEASURES

1. PERMANENT VEGETATION COVER
 - 1.1. ALL DISTURBED AREAS THAT ARE NOT PROPOSED TO BE ROCK COVER SHALL BE COVERED WITH VEGETATION IN ORDER TO MINIMIZE EROSION.
 - 1.2. PERMANENT COVER SHALL BE APPLIED PER THE SEEDING & PLANT SCHEDULES AND IN ACCORDANCE WITH THE LANDSCAPE PLAN.
2. MULCH
 - 2.1. STRAW MULCH SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE TO DISTURBED OVER-BANK SEEDING AREAS TO HELP ESTABLISH A PERMANENT PLANT COVER AND TO PREVENT EROSION.
 - 2.2. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER APPLICATION BY ONE OF THE FOLLOWING MEANS:
 - 2.2.1. A TRACTOR-DRAWN IMPLEMENT DESIGNED TO CRIMP THE STRAW INTO THE SOIL (A TRACKED VEHICLE SHOULD NOT BE USED FOR THIS PURPOSE)
 - 2.2.2. SYNTHETIC BINDERS APPLIED PER MANUFACTURER'S RECOMMENDATIONS
 - 2.2.3. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETTING STAPLED OVER MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS
3. LIME AND FERTILIZER
 - 3.1. LIME AND FERTILIZER SHALL BE APPLIED TO UPLAND TURF AREAS AS REQUIRED BY SOIL TESTS TO OBTAIN A UNIFORM EROSION RESISTANCE PERENNIAL VEGETATIVE COVERAGE.
 - 3.2. IN THE ABSENCE OF SOIL TESTING, 6 TONS OF AGRICULTURAL LIMESTONE PER ACRE AND 1,000 LBS OF 10-10-20 FERTILIZER PER ACRE IS RECOMMENDED FOR PERMANENT TURF SEEDING.
 - 3.3. TO AVOID POTENTIAL FOR INTRODUCING EXCESS NUTRIENTS TO THE WATERWAY, IN NO INSTANCE SHALL LIME AND FERTILIZER BE APPLIED WITHIN THE RESTORATION FOOTPRINT INCLUDING THE FLOODPLAIN FLOOR AND SIDE SLOPES.
 - 3.4. IN NO INSTANCE SHALL FERTILIZER OR LIME BE APPLIED TO AREAS WHERE NATIVE SEED MIXES ARE SPECIFIED.

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2. AT LEAST 10 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 ENGINEER, PA DEP REGIONAL PERMIT COORDINATION OFFICE, PA FISH AND BOAT COMMISSION, A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT, AND THE US ARMY CORPS OF ENGINEERS TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. 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.
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5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. 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 SHALL 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.
7. 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.
8. 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 CENTRAL OFFICE OF THE DEPARTMENT.
- 8.1. THIS MAY INCLUDE, BUT NOT LIMITED TO STRAW MULCH, STRAW BALES, ROCK FILTERS, AND/OR OTHER TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION UNTIL PERMANENT STABILIZATION MEASURES ARE INSTALLED.
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11. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS. VEHICLES AND EQUIPMENT MAY ENTER DIRECTLY FROM THE ALLEY OPPOSITE OF PLEASANT VIEW DRIVE.
12. 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 REINSEEDING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
14. 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.
15. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORKDAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
16. ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
17. 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 OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
18. 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 THE LOCAL CONSERVATION DISTRICT OR CODES.
19. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
20. 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.
21. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
22. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
23. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE ALLOWED TO DISCHARGE INTO THE RESTORED FLOODPLAIN IN AN ECOLOGICALLY BENEFICIAL MANNER. SEEPS AND SPRINGS SHALL NOT BE PIPED OR CHANNELLED.
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25. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING PERIODS, MULCHING AND SEEDING SHALL BE CONDUCTED DURING EACH WORKDAY. EROSION AND SEDIMENT CONTROL MEASURES SHALL 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.
26. 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.
27. 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.
28. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT MEASURES. ALL DISTURBED AREAS 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.
29. 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.
30. 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.

CONSTRUCTION SEQUENCE - GENERAL

THE CONTRACTOR SHALL ADHERE TO THE U.S. FISH AND WILDLIFE SERVICE'S IN-STREAM AVOIDANCE MEASURE, CARRYING OUT IN-STREAM WORK BETWEEN OCTOBER 1ST AND MARCH 31ST. SEE THE SIGNED PND THAT WAS SUBMITTED AS PART OF THE ORIGINAL PERMIT APPLICATION.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. DEVIATION FROM THIS SEQUENCE MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION. EACH STEP OF THE SEQUENCE SHALL BE COMPLETED BEFORE PROCEEDING TO THE NEXT STEP. EXCEPT WHERE NOTED, CONSTRUCTION MUST BE COMPLETED DURING LOW FLOW CONDITIONS. LEFT AND RIGHT STREAM BANK ORIENTATIONS ARE BASED ON LOOKING DOWNSLOPE.

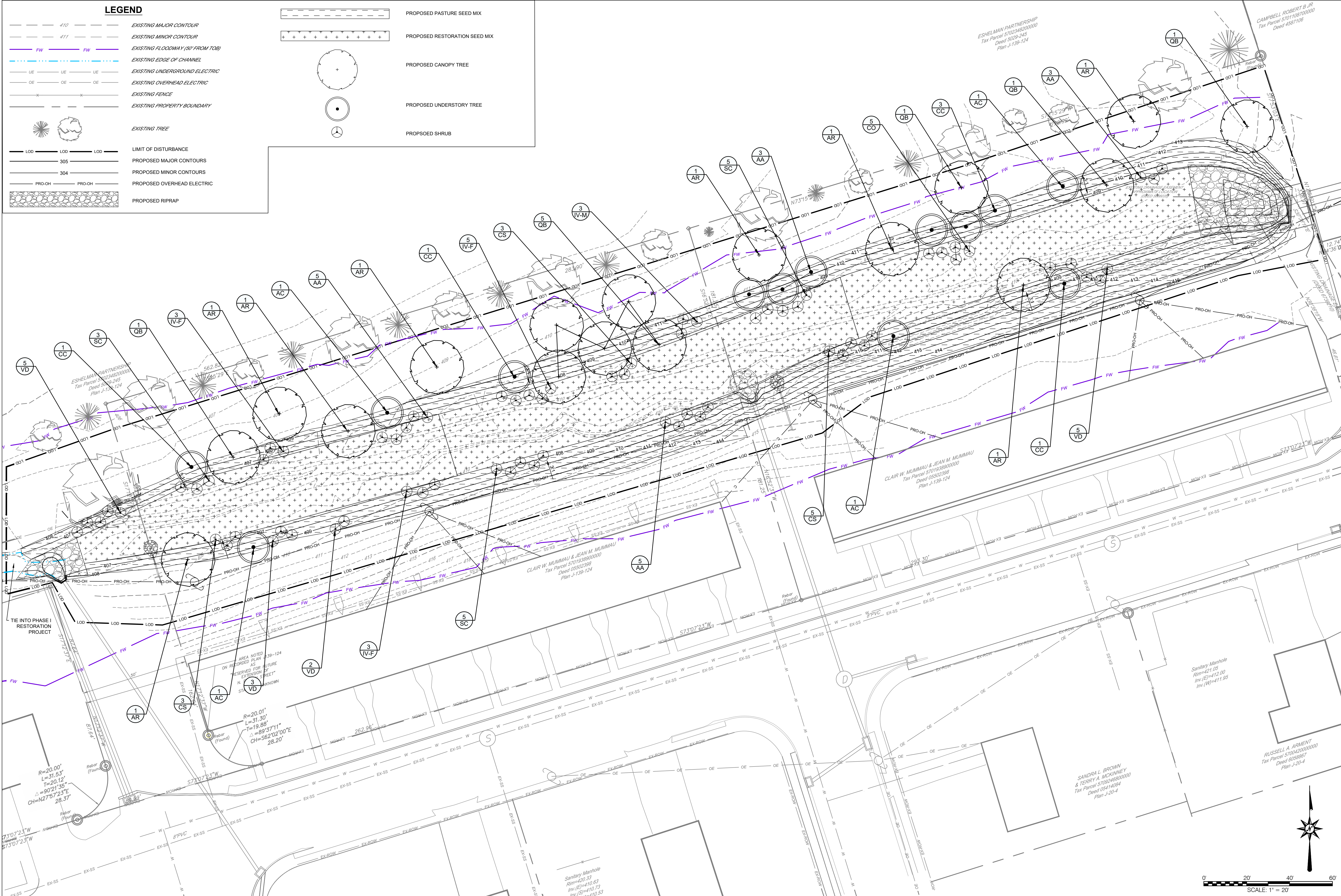
1. THE CONTRACTOR IS RESPONSIBLE FOR ACKNOWLEDGING AND ABIDING BY ALL PERMIT CONDITIONS RELATED TO THIS PROJECT.
 - 1.1. THE CONTRACTOR MUST PROVIDE NOTIFICATION OF PA FISH & BOAT OFFICE (717-626-0228) AT LEAST 10 DAYS PRIOR TO START OF CONSTRUCTION.
2. AT LEAST 10 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES (INCLUDING CLEARING AND GRUBBING) THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE REGULATORY OFFICIALS, AND THE ENGINEER TO AN ON-SITE PRE-CONSTRUCTION MEETING.
3. 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 OWNER SHALL PROVIDE NOTIFICATION TO ANY RELEVANT REGULATORY OFFICIALS.
4. 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.
5. THE LOD SHALL BE FIELD MARKED PRIOR TO ANY BMP INSTALLATION.
6. INSTALL ROCK CONSTRUCTION ENTRANCES AS SHOWN ON THE PLANS.
7. INSTALL ANY CONSTRUCTION SAFETY FENCING AS SHOWN ON PLANS AND INSTALL ANY COMPOST FILTER SOCK AS NECESSARY BASED ON CONSTRUCTION PHASING. FILTER SOCKS MUST BE INSTALLED DOWNHILL OF ANY DESTABILIZED AREA AT THE TEMPORARY STOCKPILE LOCATIONS. STRIP TOPSOIL FROM STOCKPILE LOCATIONS FOR REDISTRIBUTION.
8. PRIOR TO CLEARING AND GRUBBING, CONTRACTOR SHALL LOCATE AND MARK TREES NOT SUITABLE FOR INCORPORATION INTO THE RESTORATION, INCLUDING BUT NOT LIMITED TO WILLOW THAT MAY INHIBIT PROPOSED VEGETATION ESTABLISHMENT, TO BE DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE PROPOSED RESTORATION FOOTPRINT. COMMENCE CLEARING AND GRUBBING. ANY TREE SEGMENTS GREATER THAN 18" DBH AND 20' LONG THAT ARE FREE OF SIGNIFICANT ROT AND/OR SPLITS/BREAKS SHALL BE STOCKPILED FOR USE AS LOG SILLS. ROOTWAYS AND WOODY MATERIAL SHALL REMAIN AVAILABLE FOR INCORPORATION INTO THE FLOODPLAIN IN LOCATIONS SHOWN ON THE PLANS AND AT THE DIRECTION OF THE ENGINEER.
9. A PUMP-AROUND BYPASS IS NECESSARY FOR ANY WORK THAT WILL BE CONDUCTED IN AREAS WITH ACTIVE FLOW. CONSTRUCTION ACTIVITIES OUTSIDE OF THE ACTIVE FLOW MAY BE CONDUCTED WITHOUT USE OF THE PUMP-AROUND BYPASS IF THE ACTIVITIES ARE CONDUCTED PRIOR TO FINAL CONNECTION WITH ACTIVE STREAM FLOW. THOUGH IT MAY BE NECESSARY DURING INSTALLATION, CONTRACTOR SHALL MINIMIZE VEHICLE TRAFFIC IN THE STREAM PRIOR TO BYPASS SYSTEM BECOMING OPERATIONAL. ADDITIONAL LOCALIZED PUMPING MAY BE UTILIZED TO DEWATER THE IMMEDIATE VICINITY OF WHERE WORK IS BEING DONE. DEWATERING AND DISCHARGE SPLASH PROTECTION SHALL TAKE PLACE IN ACCORDANCE WITH PUMP-AROUND BYPASS SYSTEM DETAIL. ALTERNATIVE SOLUTIONS SHALL BE APPROVED BY THE ENGINEER. BYPASS PUMP SHALL PROVIDE CAPACITY TO SUFFICIENTLY CONVEY LOW FLOW CONDITION BASEFLOW. MULTIPLE PUMPS MAY BE USED IF NECESSARY. AS THE REACH IS DEWATERED, FISHES WITHIN THE DEWATERED AREA SHALL BE CAPTURED UTILIZING A SEINE OR OTHER NET, PLACED IN BUCKETS WITH WATER, AND IMMEDIATELY RELOCATED OUTSIDE OF THE WORK AREA.
10. WHEN ALL E&S CONTROLS HAVE BEEN INSTALLED, BEGIN REMAINING CONSTRUCTION IN ACCORDANCE WITH PLANS AND SEQUENCING BELOW. CONTRACTOR SHALL TAKE CARE TO MINIMIZE DISTURBED AREAS AND IMPLEMENT STABILIZATION EFFORTS IN ACCORDANCE WITH THE PLAN SET, DISTRIBUTING ONLY AS MUCH AREA AS CAN REASONABLY BE STABILIZED THE SAME DAY.

CONSTRUCTION SEQUENCE - RESTORATION

1. INSTALL TEMPORARY PUMP-AROUND BYPASS IF BASE FLOW IS PRESENT. PRIOR TO INSTALLMENT OF PLUNGE POOL 1 (PP-1), THE PUMP AROUND BYPASS MAY TEMPORARILY BE DISCHARGED DOWNSLOPE OF PP-1 IN ACCORDANCE WITH DETAIL E-6.
2. THE CONTRACTOR SHALL BEGIN GRADING AT THE DOWNSLOPE EXTENTS OF THE PROJECT (COINCIDENT WITH THE UPSTREAM EXTENTS OF THE ESHELMAN RUN PHASE I RESTORATION), PROGRESSING UP-VALLEY. THE CONTRACTOR SHALL EXCAVATE TO PROPOSED GRADE WHILE TAKING CARE TO AVOID COMPLICATION OF THE FLOODPLAIN FOOTPRINT.
3. TOPSOIL PLACEMENT, WOOD CHIPS, AND WOODY DEBRIS INSTALLATION SHALL OCCUR CONCURRENTLY WITH THE LINEAR PROGRESSION OF THE FLOODPLAIN AND IN ACCORDANCE WITH THE PLANS & APPLICABLE DETAILS.
4. INSTALL THE PLUNGE POOL 1 AND ADDITIONAL RIPRAP LOCATED FROM PROPOSED VALLEY STATION 5+86 TO 6+15. ONCE PLUNGE POOL IS INSTALLED, THE PUMP AROUND BYPASS SHOULD BE MOVED TO DISCHARGE AT THE PLUNGE POOL.
5. WOODY DEBRIS, PLUNGE POOLS 2 AND 3 LOCATED RESPECTIVELY AT PROPOSED VALLEY STATIONS 2+88 AND 0+00, ROCK UNDERLAYMENT 1 AND 2 LOCATED RESPECTIVELY AT PROPOSED VALLEY STATION 2+52 AND 0+00, AND ANY OTHER ASSOCIATED FLOODPLAIN COMPONENTS SHALL BE CONSTRUCTED IN CONCURRENCE WITH THE UP-VALLEY LINEAR PROGRESSION OF THE FLOODPLAIN AND IN ACCORDANCE WITH THE PLANS & APPLICABLE DETAILS.
6. ONCE FINAL GRADE HAS BEEN ACHIEVED, STABILIZATION MUST OCCUR WITHIN 48 HOURS (OR BY THE END OF THE WORKDAY IF RAIN IS FORECASTED) IF CONDITIONS WOULD OTHERWISE RESULT IN SEDIMENT-LADEN RUNOFF LEAVING THE SITE. STABILIZE THE FLOODPLAIN BY APPLYING TEMPORARY AND PERMANENT SEED AND MATTING IN ACCORDANCE WITH THE CONTROL

LEGEND

	410	EXISTING MAJOR CONTOUR		PROPOSED PASTURE SEED MIX
	411	EXISTING MINOR CONTOUR		PROPOSED RESTORATION SEED MIX
	FW	EXISTING FLOODWAY (90' FROM TOB)		PROPOSED CANOPY TREE
		EXISTING EDGE OF CHANNEL		PROPOSED UNDERSTORY TREE
	UE	EXISTING UNDERGROUND ELECTRIC		PROPOSED SHRUB
	OE	EXISTING OVERHEAD ELECTRIC		
		EXISTING FENCE		
		EXISTING PROPERTY BOUNDARY		
		EXISTING TREE		
	LOD	LIMIT OF DISTURBANCE		
	305	PROPOSED MAJOR CONTOURS		
	304	PROPOSED MINOR CONTOURS		
	PRO-OH	PROPOSED OVERHEAD ELECTRIC		
		PROPOSED RIPRAP		



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 315 North Street
 Lititz, PA 17543



PROJECT:
ESHELMAN RUN STREAMBANK STABILIZATION
 STRASBURG BOROUGH
 145 PRECISION AVENUE
 STRASBURG, PA

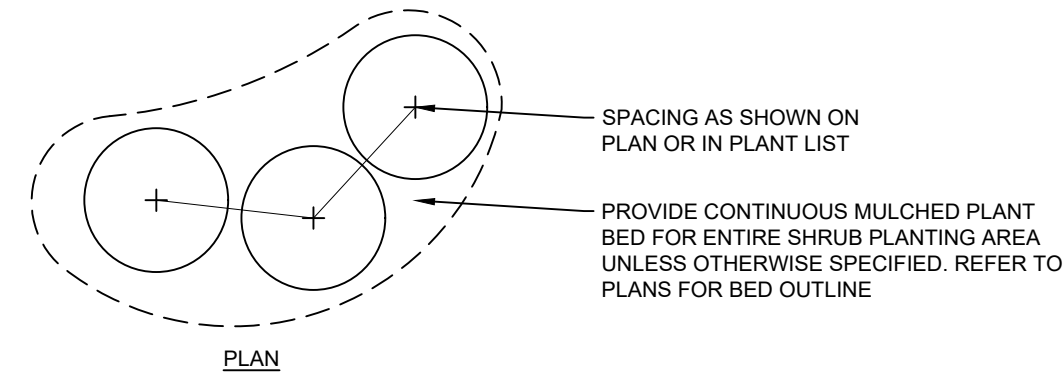
SHEET TITLE:
LANDSCAPE PLAN

REVISIONS		
NO.	DATE	DESCRIPTION

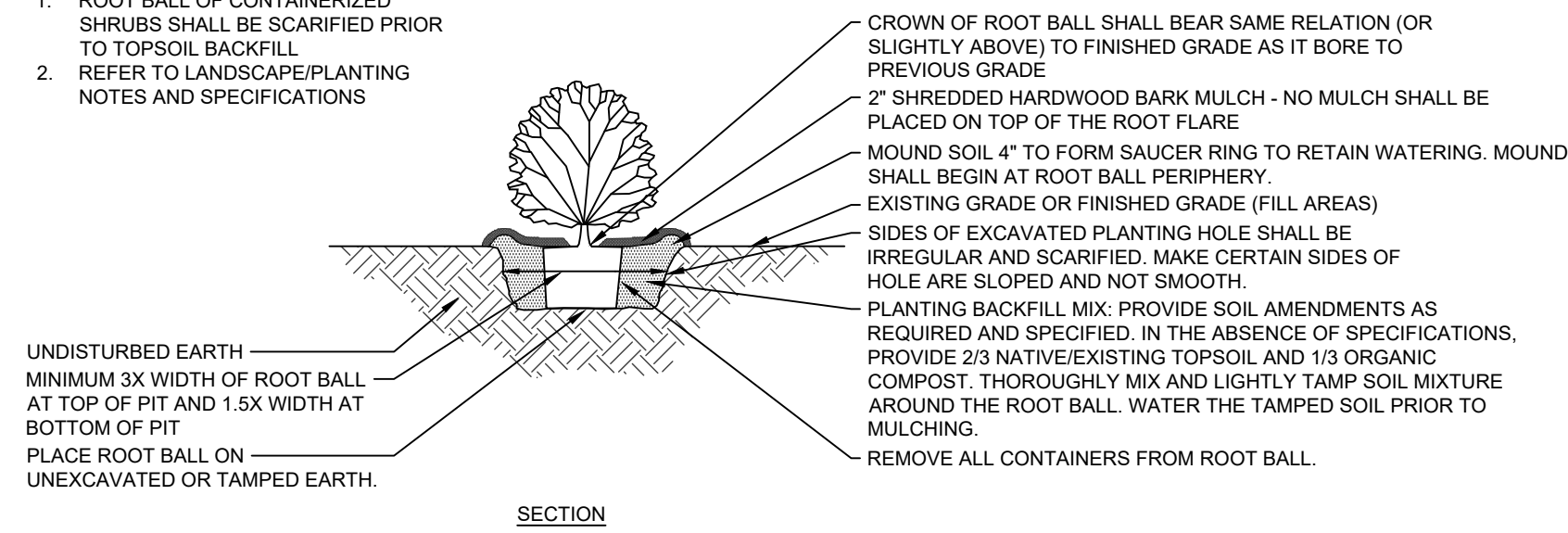
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 CHECKED BY: EL
 DATE: 6/5/25
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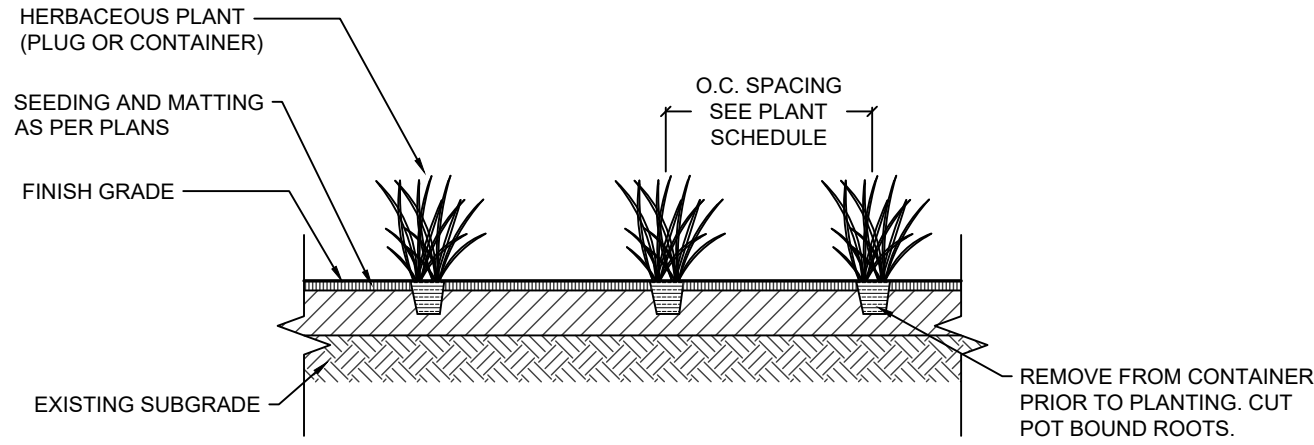
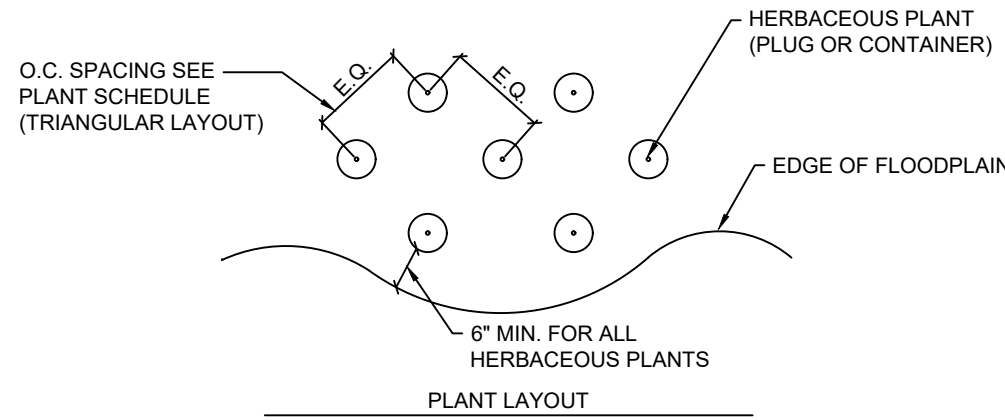
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10
OF 11



- NOTES:**
1. ROOT BALL OF CONTAINERIZED SHRUBS SHALL BE SCARIFIED PRIOR TO TOPSOIL BACKFILL.
 2. REFER TO LANDSCAPE/PLANTING NOTES AND SPECIFICATIONS.



L-1 SHRUB PLANTING - CONTAINER
NOT TO SCALE



- NOTE:**
1. PLUG PLANTINGS ARE INTENDED TO PROVIDE ADDITIONAL HERBACEOUS COVER WITHIN THE FLOODPLAIN IMMEDIATELY FOLLOWING CONSTRUCTION.
 2. PLUGS PLANTINGS SHALL BE CONCENTRATED IN THE MOST SATURATED AREAS WHERE SEED ESTABLISHMENT MAY BE MORE DIFFICULT.
 3. FINAL PLANTING LOCATIONS MAY BE ESTABLISHED AT THE DIRECTION OF THE PLAN PREPARER BASED ON SITE CONDITIONS AND IN ACCORDANCE WITH THE DETAIL.

L-4 HERBACEOUS PLUG PLANTING - FLOODPLAIN
NOT TO SCALE

LANDSCAPE NOTES

1. THE LANDSCAPE CONTRACTOR SHALL UTILIZE THE LANDSCAPE PLANS IN THE IMPLEMENTATION OF THE LANDSCAPE WORK FOR THIS PROJECT.
2. ALL DISTURBED AREAS SHALL BE SEEDED, SODDED, MULCHED OR LANDSCAPED UNLESS INDICATED OTHERWISE.
3. REFER TO LANDSCAPE PLANS AND/OR EROSION AND SEDIMENT CONTROL PLAN FOR SEEDING LIMITS.
4. PROTECT STRUCTURES, UTILITIES, PAVED SURFACES AND OTHER EXISTING IMPROVEMENTS INCLUDING LAWNS/VEGETATED AREAS AND PLANT MATERIAL FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR, RESTORE AND REPLACE DAMAGED MATERIALS IN KIND OR AS APPROVED BY THE OWNER.
5. PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION TO ENSURE THE PROTECTION OF ALL EXISTING TREES TO REMAIN. THESE EFFORTS SHALL ENSURE THAT EQUIPMENT DOES NOT DAMAGE TREE TRUNKS OR BRANCHES. ROOT ZONES ARE NOT COMPACTED BY VEHICLES OR CONSTRUCTION MATERIAL, AND THAT GRADE LEVEL WITHIN THE DRIP LINE OF EXISTING TREES IS NOT CHANGED UNLESS APPROVED OTHERWISE.
6. ALL TREES AND SHRUBS TO BE REMOVED SHALL HAVE ALL STUMPS AND ROOTS REMOVED BY MEANS OF STUMP GRINDING AND/OR MECHANICAL REMOVAL UNLESS INDICATED OTHERWISE. ALL BIODEGRADABLE PLANT MATERIAL FROM THE REMOVAL PROCESS SHALL BE COLLECTED AND REMOVED FROM THE SITE UNLESS INDICATED OTHERWISE.
7. REMOVE SURPLUS SOIL, UNDESIRABLE FOREIGN MATERIAL, WASTE MATERIAL INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH AND DEBRIS AND LEGALLY DISPOSE OF THEM AS APPROVED BY THE OWNER.
8. CONTRACTOR SHALL VERIFY FINISHED GRADES ARE MET/PROPER DRAINAGE SHALL OCCUR PRIOR TO LAYOUT OF PLANT MATERIAL AND PLANTING. LANDSTUDIES, INC. (LANDSTUDIES) SHALL BE CONTACTED TO APPROVE FINAL GRADES PRIOR TO PLANTING.
9. ALL PLANT SUBSTITUTIONS SHALL BE APPROVED BY LANDSTUDIES AND THE OWNER. SHOULD LANDSTUDIES DEEM APPROPRIATE, A MINIMUM 30 DAYS PRIOR TO DELIVERY AND/OR INSTALLATION ON SITE. PLANT SUBSTITUTIONS MAY BE SUBJECT TO MUNICIPAL APPROVAL AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY REQUIRED APPROVAL. THE INTENT OF LANDSCAPE DESIGN IS TO PRIMARILY USE PLANTS NATIVE TO THE PIEDMONT REGION OF THE CHESAPEAKE BAY WATERSHED. PLANT SUBSTITUTIONS (SPECIES OR SIZE) NOT APPROVED IN WRITING BY LANDSTUDIES 30 DAYS PRIOR TO DELIVERY AND INSTALLATION ON SITE MAY BE REJECTED FOR PAYMENT.
10. BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
11. REQUIREMENTS FOR PLANT MATERIAL INCLUDING BUT NOT LIMITED TO MEASUREMENT, BRANCHING, GRADING, QUALITY, BALLING AND BURLAPPING, SHALL CONFORM TO THE STANDARDS RECOMMENDATIONS AND STANDARDS LISTED IN THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1, CURRENT EDITION AS AMENDED, PUBLISHED BY AMERICANHORT (FORMALLY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION OR ANLA).
12. ALL PLANTINGS AND PLANTING PROCEDURES INCLUDING STAKING AND GUYING OF TREES SHALL CONFORM TO GOOD NURSERY AND LANDSCAPE PRACTICE AND THE STANDARDS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMAN.
13. UNLESS OTHERWISE SPECIFIED, ALL PLANT MATERIAL SHALL BE TYPICAL OF THEIR OF THEIR SPECIES AND VARIETY, HAVE NORMAL GROWTH HABITS, HAVE WELL DEVELOPED BRANCHES, BE DENSELY FOLIATED, VIGOROUS IN GROWTH, AND POSSESS HEALTHY ROOT SYSTEMS. ALL PLANT MATERIAL SHALL BE FREE OF DISEASE, INSECTS, INSECT EGGS AND LARVAE. PROVIDE SINGLE TRUNK STANDARD TREES UNLESS NOTED OTHERWISE.
14. ALL CONTAINER GROWN NURSERY STOCK SHALL BE HEALTHY, VIGOROUS, WELL ROOTED, AND ESTABLISHED IN THE CONTAINER IN WHICH IT IS GROWING. CONTAINER GROWN NURSERY STOCK SHALL HAVE A WELL-ESTABLISHED ROOT SYSTEM REACHING THE SIDES OF THE CONTAINER TO MAINTAIN A FIRM BALL WHEN THE CONTAINER IS REMOVED, BUT SHALL NOT HAVE EXCESSIVE ROOT GROWTH ENCIRCLING THE INSIDE OF THE CONTAINER.
15. ALL PLANTS TO BE NURSERY GROWN IN A CLIMATE SIMILAR TO THAT OF THE PROJECT.
16. CONTRACTOR SHALL VERIFY ALL PLANT COUNTS AND LOCATIONS PRIOR TO ORDERING MATERIALS. LANDSTUDIES AND THE OWNER ACCEPT NO RESPONSIBILITY FOR TYPOGRAPHICAL ERRORS OR QUANTITY MISCOUNTS. THE CONTRACTOR IS RESPONSIBLE TO INSTALL ALL PLANTINGS AS INDICATED/REQUIRED, AND SHALL NOTIFY LANDSTUDIES OF ANY DISCREPANCIES PRIOR TO THE START OF WORK.
17. TREES AND SHRUBS SHALL BE PLANTED DURING APPROVED TIMES OF THE YEAR. CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY ANY SPECIES ON THE PLANT LIST THAT REQUIRE PLANTING DURING SPECIFIC TIMES OF THE YEAR, AND OBTAINING APPROVAL BY THE OWNER AND LANDSTUDIES PRIOR TO PLANTING. PLANT DURING PERIODS NORMAL FOR OPTIMUM GROWTH, AS DETERMINED BY SEASON, WEATHER CONDITIONS, AND ACCEPTED PRACTICE. DO NOT PERFORM PLANTING WHEN GROUND IS FROZEN, SNOW COVERED, OR IN AN UNSATISFACTORY CONDITION.
18. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH RUBBLE FILL, ADVERSE DRAINAGE CONDITIONS, POOR SOILS OR OBSTRUCTIONS, NOTIFY LANDSTUDIES BEFORE PLANTING.
19. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED (AS MAY BE SPECIFIED OR DETAILED) TO FILL THE ENTIRE PLANTING BED AREA OR PIT UNLESS INDICATED OTHERWISE. INDIVIDUAL PLANTS NOT LOCATED WITHIN A BED SHALL HAVE A MULCHED CIRCLE. THE SIZE OF THE MULCHED CIRCLE SHALL BE DETERMINED ACCORDING TO THE OVERALL PLANT SIZE OR CALIPER. CONSULT LANDSTUDIES FOR CLARIFICATION IF REQUIRED. NO MULCH SHALL BE APPLIED AGAINST THE FOLIAGE, STEM, OR TRUNK OF ANY PLANT. MULCH SHALL BE ORGANIC, NATURAL, SHREDED HARDWOOD BARK, UNLESS APPROVED OTHERWISE. MULCH DEPTH SHALL BE BETWEEN 2-3 INCHES.
20. ALL TREES OR SHRUBS LOCATED WITHIN THE RESTORATION SEEDING AREA SHALL NOT BE MULCHED.
21. WATER ALL PLANTING INDIVIDUALLY WITH AN OPEN-ENDED GARDEN HOSE UPON COMPLETION OF PLANTING OPERATIONS. DO NOT USE MECHANICAL SPRINKLERS TO WATER PLANTS. MAINTAIN PROPER IRRIGATION TO ENSURE PLANT ESTABLISHMENT.

SEEDING NOTES:

1. DISTURBED AREAS OUTSIDE OF THE RESTORATION SEED MIX AND UPLAND SLOPE SEED MIX AREAS SHALL RECEIVE THE TURFGRASS SEED MIX.
2. SEEDING AREAS SHALL BE MEASURED USING A WHEEL OR TAPE AT THE TIME OF SEEDING TO ACCURATELY DETERMINE THE AMOUNT OF SEED FOR THE AREA TO BE SEEDED. SEED QUANTITY FOR SPECIFIED LIMITS TO BE SEEDED SHALL BE MEASURED BY WEIGHT USING A SCALE ON SITE. THE CONTRACTOR SHALL APPLY THE SEED IN 2 PERPENDICULAR APPLICATIONS USING HALF THE SEEDING RATE PER PASS TO ENSURE EQUAL DISTRIBUTION AND FULL COVERAGE OF SEED ACROSS THE SEEDING AREAS.

TURFGRASS SEED MIX - 0.62 ACRES

%	Botanical Name	Common Name
34.00%	<i>Festuca rubra</i>	Creeping Red Fescue
33.00%	<i>Festuca ovina</i>	Sheep Fescue
15.00%	<i>Festuca ovina</i> var. <i>duriscula</i> , <i>Gladiator</i>	Hard Fescue, <i>Gladiator</i>
5.00%	<i>Festuca ovina</i> var. <i>glauca</i> , <i>Azure</i>	Blue Fescue, <i>Azure</i>
5.00%	<i>Poa pretensis</i> , <i>'Selway'</i>	Kentucky Bluegrass, <i>'Selway'</i>
5.00%	<i>Poa pratensis</i> , <i>Appalachian</i>	Kentucky Bluegrass, <i>Appalachian</i>
3.00%	<i>Agrostis perennans</i> , <i>Albany Pine Bush</i>	Autumn Bentgrass, <i>Albany Pine Bush</i>

NOTES:

1. TURFGRASS SEED MIX TO BE INSTALLED IN ALL DISTURBED AREAS NOT SHOWN TO BE SEEDED WITH THE RESTORATION SEED MIX AND UPLAND SLOPE SEED MIX.

TREES AND SHRUBS PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	QTY	MIN. SIZE	CONDITION	NOTES
AA	<i>Aronia arbutifolia</i>	Red Chokeberry	16	#2	Container	
AC	<i>Amelanchier canadensis</i>	Shadbush Serviceberry	4	#7	Container	Multistem
AR	<i>Acer rubrum</i>	Red Maple	8	#7	Container	
CC	<i>Cercis canadensis</i>	Eastern Redbud	6	#7	Container	Multistem
CO	<i>Cephalanthus occidentalis</i>	Buttonbush	5	#2	Container	
CS	<i>Cornus sericea</i>	Redosier Dogwood	11	#2	Container	
IV-F	<i>Ilex verticillata</i> 'Red Sprite'	Winterberry	11	#2	Container	
IV-M	<i>Ilex verticillata</i> 'Jim Dandy'	Winterberry	3	#2	Container	
QB	<i>Quercus bicolor</i>	Swamp White Oak	9	#7	Container	
SC	<i>Sambucus canadensis</i>	American Elderberry	13	#2	Container	
VD	<i>Viburnum dentatum</i>	Arrowwood	15	#2	Container	

HERBACEOUS PLUGS

BOTANICAL NAME	COMMON NAME	QTY	SIZE	SPACING
<i>Amsonia tabernaemontana</i>	Blue Star Flower	50	DP50	24" O.C.
<i>Carex bicknellii</i>	Bicknell's Sedge	50	DP50	24" O.C.
<i>Carex brevior</i>	Shortbeak Sedge	50	DP50	24" O.C.
<i>Conoclinium coelestinum</i>	Blue Mistflower	50	DP50	24" O.C.
<i>Coreopsis tripteris</i>	Tall Coreopsis	50	DP50	24" O.C.
<i>Euthamia graminifolia</i>	Flat-Top Goldenrod	50	DP50	24" O.C.
<i>Juncus effusus</i>	Soft Rush	50	DP50	24" O.C.
<i>Lobelia cardinalis</i>	Cardinal Flower	50	DP50	24" O.C.
<i>Monarda didyma</i>	Scarlet Beebalm	50	DP50	24" O.C.
<i>Onoclea sensibilis</i>	Sensitive Fern	50	DP50	24" O.C.
<i>Penstemon digitalis</i>	White Beardtongue	50	DP50	24" O.C.
<i>Physostegia virginiana</i>	Obedient Plant	50	DP50	24" O.C.
<i>Scirpus cyperinus</i>	Woolgrass	50	DP50	24" O.C.
<i>Scirpus pungens</i>	Three Square Bulrush	50	DP50	24" O.C.
<i>Sisyrinchium angustifolium</i>	Narrowleaf Blue-Eyed Grass	50	DP50	24" O.C.
<i>Solidago rugosa</i>	Wrinkleleaf Goldenrod	50	DP50	24" O.C.
<i>Symphoricarum novi-belgii</i>	New York Aster	50	DP50	24" O.C.
<i>Vernonia lettermannii</i>	Narrowleaf Ironweed	50	DP50	24" O.C.
<i>Zizia aurea</i>	Golden Alexander	50	DP50	24" O.C.

NOTES:

1. QUANTITY ASSUMED TO BE 20% OF THE FLOODPLAIN.
2. PLUGS TO BE INSTALLED POST SEEDING AND MATTING WITHIN THE RESTORATION SEED MIX AREAS WITH SPACING NO CLOSER THAN 24" O.C., RANDOM DISTRIBUTION OF SPECIES SHALL OCCUR WITH NO LESS THAN 3 SPECIES PER 100 SQUARE FEET.
3. GROUPS OF LIKE SPECIES SHALL NOT BE PLACED IN A SINGLE LINEAR ROW.
4. INSTALL PLUGS IN WETTEST AREAS AND ALONG THE EDGE OF THE STREAM AND AS DIRECTED BY THE PLAN PREPARER.

RESTORATION SEED MIX - 0.37 ACRES

%	Botanical Name	Common Name
22.00 %	<i>Elymus virginicus</i>	Virginia Wildrye
20.00 %	<i>Bouteloua curtipendula</i>	Sideoats Grama
16.50 %	<i>Festuca ovina</i>	Sheep fescue
15.00 %	<i>Panicum clandestinum</i> , 'Tioga'	Deertongue, 'Tioga'
10.00 %	<i>Schizachyrium scoparium</i>	Little Bluestem
8.00 %	<i>Carex vulpinoidea</i>	Fox Sedge
2.00 %	<i>Juncus effusus</i>	Soft Rush
1.80 %	<i>Echinacea purpurea</i>	Purple Coneflower
0.90 %	<i>Rudbeckia hirta</i>	Blackeyed Susan
0.70 %	<i>Zizia aurea</i>	Golden Alexanders
0.50 %	<i>Asclepias incarnata</i>	Swamp Milkweed
0.50 %	<i>Aster umbellatus</i>	Flat Topped White Aster
0.50 %	<i>Scirpus cyperinus</i>	Woolgrass
0.50 %	<i>Monarda fistulosa</i>	Wild Bergamot
0.50 %	<i>Coreopsis lanceolata</i>	Lanceleaf Coreopsis
0.40 %	<i>Solidago juncea</i>	Early Goldenrod
0.10 %	<i>Penstemon hirtus</i>	Hairy Beardtongue
0.10 %	<i>Pycnanthemum muticum</i>	Big Leaf Mountain Mint

APPLICATION RATE: 50 LBS / ACRE

NOTES:

1. TO BE SEEDED WITH NURSE CROP SEED MIX.

PASTURE SEED MIX - 0.34 ACRES

%	Botanical Name	Common Name
40.00 %	<i>Dactylis glomerata</i> , 'Tekapo'	Orchardgrass, 'Tekapo'
28.00 %	<i>Lolium perenne</i> , 'Crave', 'Tetraploid	Perennial Ryegrass, 'Crave', Tetraploid
20.00 %	<i>Festuca arundinacea</i> , 'Teton'	Tall Fescue, 'Teton'
5.00 %	<i>Pheum pratense</i> , Climax	Timothy, Climax
5.00 %	<i>Poa pratensis</i> , 'Ginger'	Kentucky Bluegrass, 'Ginger'
2.00 %	<i>Bromus biebersteinii</i> , 'Fleet'	Meadow Brome, 'Fleet'

APPLICATION RATE: 30 LBS / ACRE

NOTES:

1. TO BE SEEDED WITH NURSE CROP SEED MIX.

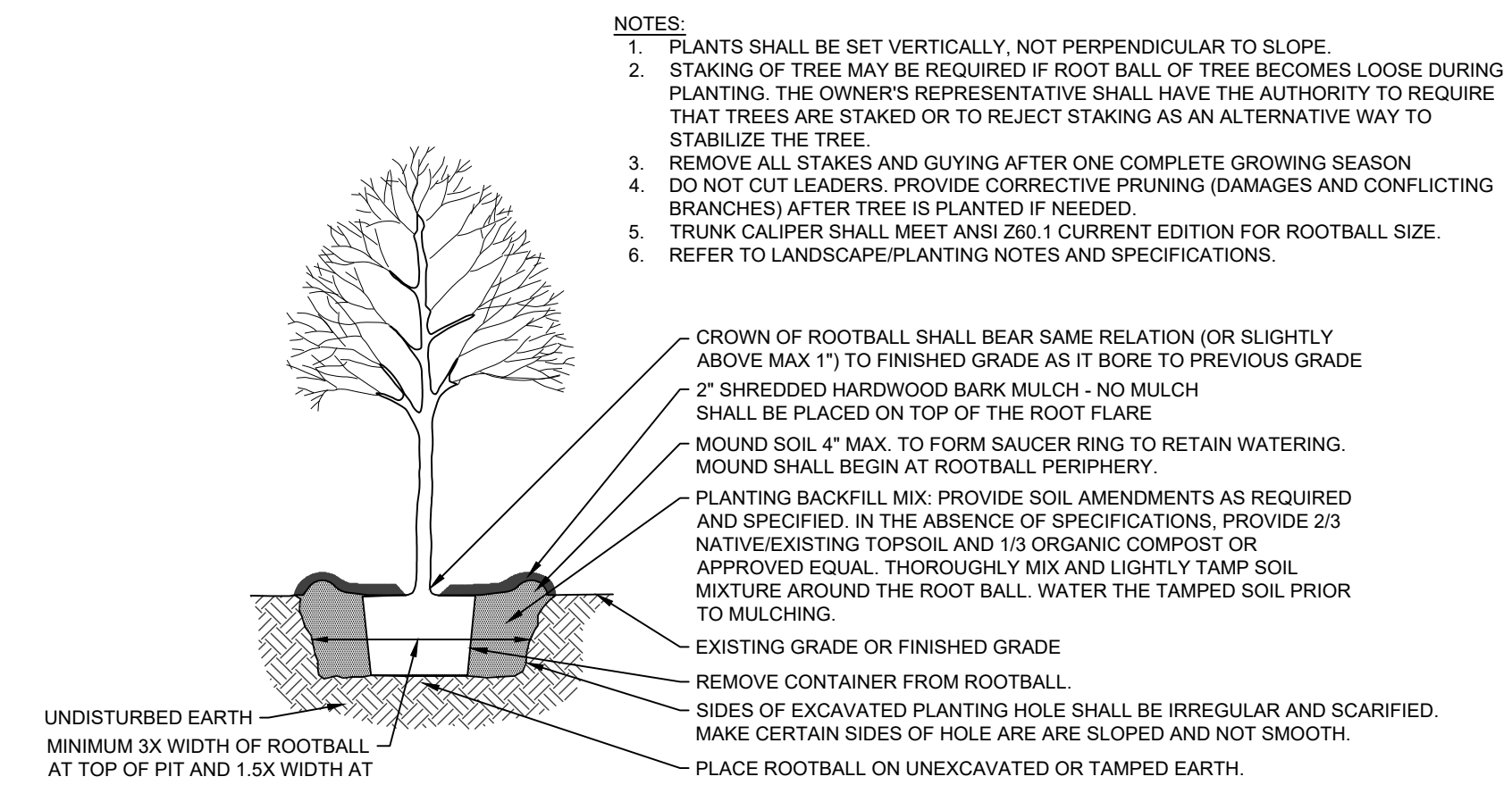
NURSE CROP SEED MIX

Botanical Name	Common Name	Application Rate	Timing
<i>Secale cereale</i>	CEREAL RYE	20 LBS/AC	SEPT - MARCH
OR			
<i>Avena sativa</i>	OATS	20 LBS/AC	APRIL - AUGUST

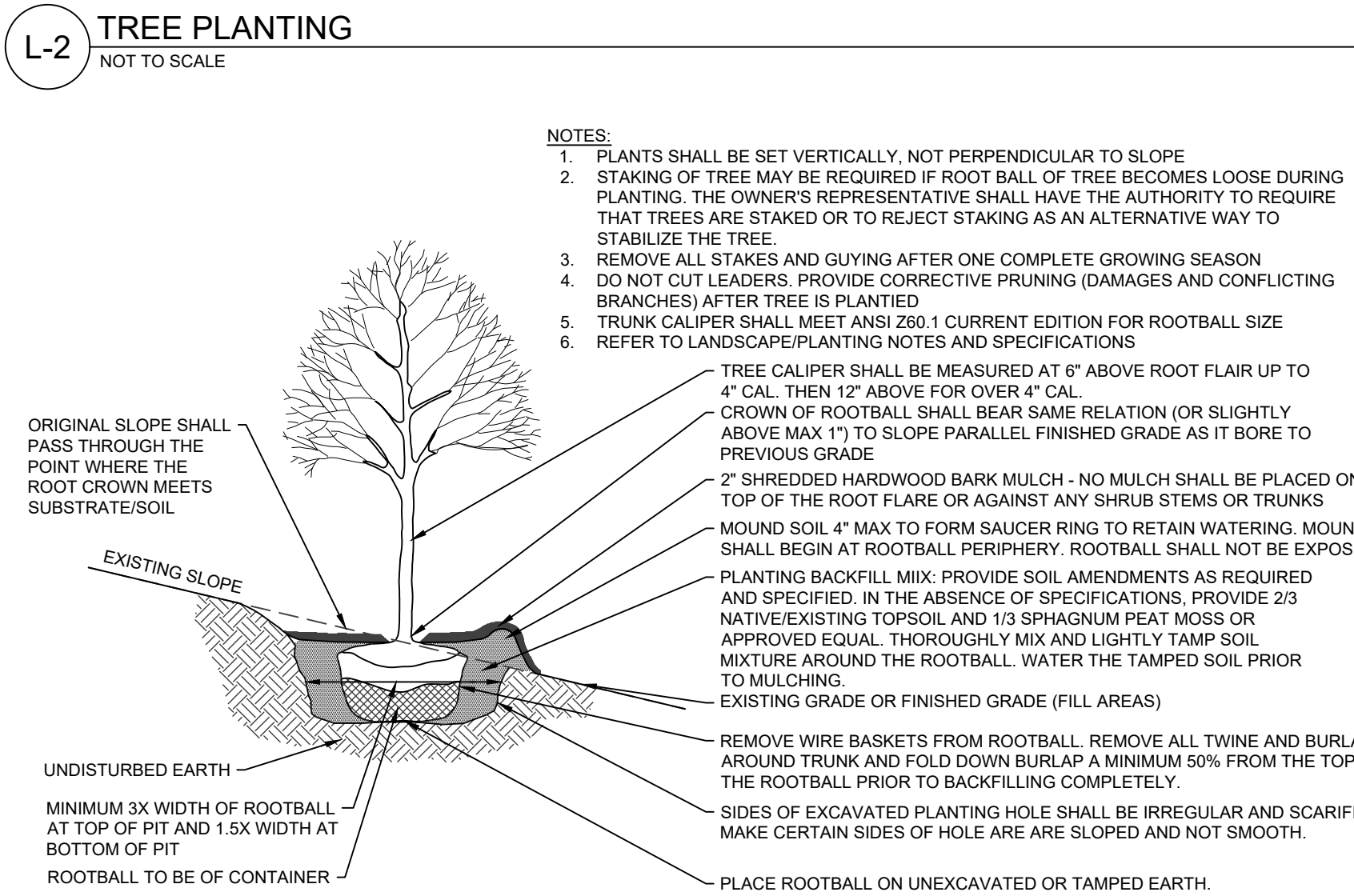
NOTES:

1. TO BE SEEDED IN ADDITION TO RESTORATION SEED MIX AND UPLAND SLOPE SEED MIX AREAS ONLY.
2. NURSE CROP IS NOT TO BE SEEDED ANYWHERE THE TURFGRASS SEED MIX IS INSTALLED.
3. ANNUAL RYE SHALL NOT BE USED IN THE SEEDING AREAS.

L-2 TREE PLANTING
NOT TO SCALE



L-3 TREE PLANTING - SLOPE
NOT TO SCALE



NO.	DATE	DESCRIPTION
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SIGNATURE BLOCK