LINETYPE LEGEND:	
ROADWAY CENTERLINE	
RIGHT-OF-WAY	
PROPERTY LINES	
EXISTING EASEMENTS	
EXISTING RIPARIAN SETBACK	
PROPOSED EASEMENTS	
BUILDING FOOTPRINTS	
PROPOSED PIPE NETWORKS	
PROPOSED SWALE CENTERLINE	
EXISTING CONTOURS	i ———
EXISTING STORM SEWER	— ST —
EXISTING GAS LINE	— G —
EXISTING SANITARY SEWER	— SAN —
PROPOSED SILT FENCE	
PROPOSED RIFFLE	000
PROPOSED CASCADE	
PROP REINFORCED TURF DRIVE	
PROP STABILIZED CONSTRUCTION	
PROP ACCESS DRIVE TO BE DETERMINED BY CONTRACTOR	
PROPOSED TREE OR SHRUB REMOVAL	
PROPOSED TREE OR SHRUB REMOVAL - LESS	•
THAN 12" AS PART OF CLEARING AND GRUBBING	

ABBREVIATIONS LEGEND:

PROP......PROPOSED BM. BENCH MARK SAN SANITARY SEWER STASTATION STM STORM SEWER (DND). DO NOT DISTURB (TBA) (TO BE ABANDONED) ÈL. ELEVATION (TBR).....(TO BE REMOVED) EX. EXISTING (TYP).TYPICAL INV INVERT

EARTH DISTURBED AREAS

LF.....LINEAR FEET

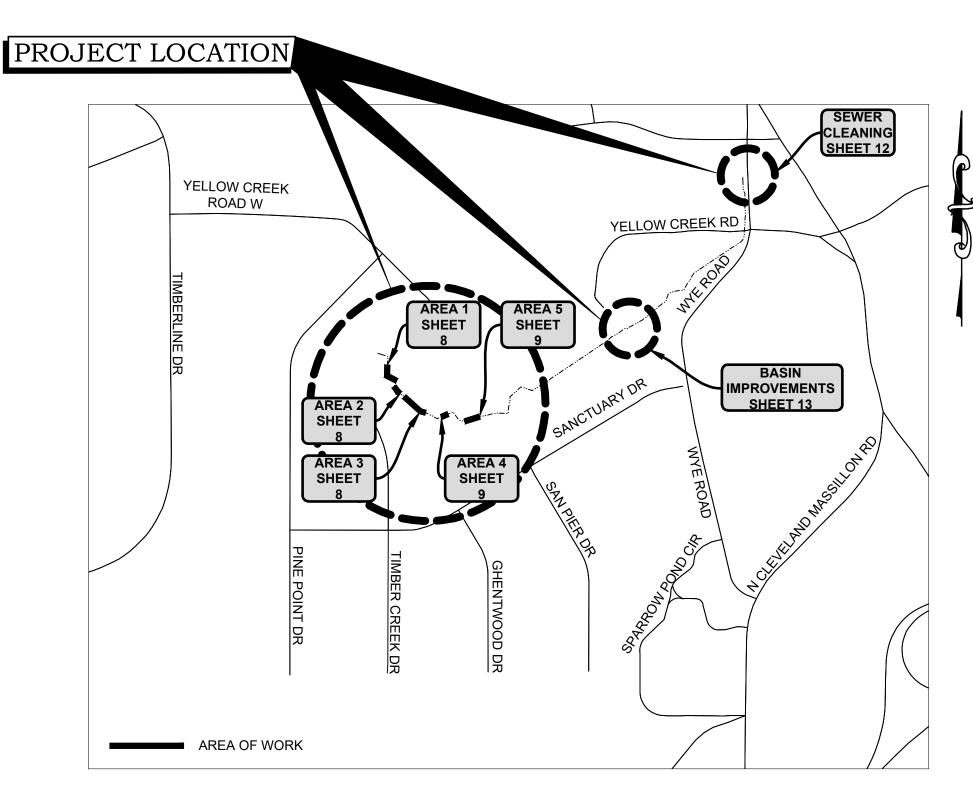
PROJECT EARTH DISTURBED AREA: NOTICE OF INTENT EARTH DISTURBED AREA: 1.65 ACRES

PER THE OHIO EPA CONSTRUCTION GENERAL PERMIT (CGP) (OHCO00006) SECTION B.1, THIS PROJECT CAUSES EARTH DISTURBANCE THAT EXCEEDS 1 ACRE, RESULTING IN THE NEED FOR A NOTICE OF INTENT (NOI). PER SECTION G.2.E.III OF THE CGP, STREAM RESTORATION ACTIVITIES ARE EXEMPT FROM POST-CONSTRUCTION STORMWATER BMPS, ALTHOUGH THE DISTURBANCE EXCEEDS THE DE MINIMIS THRESHOLD OF 1 ACRE.

STATE OF OHIO **COUNTY OF SUMMIT**

SURFACE WATER MANAGEMENT DISTRICT WYE ROAD FLOOD MITIGATION AND IMPROVEMENT PLANS

WYE ROAD PHASE 2 - 100% DESIGN **JUNE 2024**



VICINITY PLAN

PROJECT DESCRIPTION

THIS PROJECT INCLUDES IMPROVEMENTS TO AN EXISTING INLINE DETENTION BASIN ON WYE CREEK, IN ADDITION TO GENERAL STREAM CLEANUP AND STABILIZATION WITH HAND TOOLS AND THE INCORPORATION OF NATURAL CHANNEL IMPROVEMENTS (STEP POOLS) TO REDUCE CHANNEL VELOCITIES, SCOUR, AND FLOODING OF WYE CREEK IN THE SANCTUARY NEIGHBORHOOD IN SUMMIT COUNTY, OHIO.

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

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SUMMIT COUNTY

REVIEWED BY___ DAVID L. KOONTZ, PE, SI

DATE _____

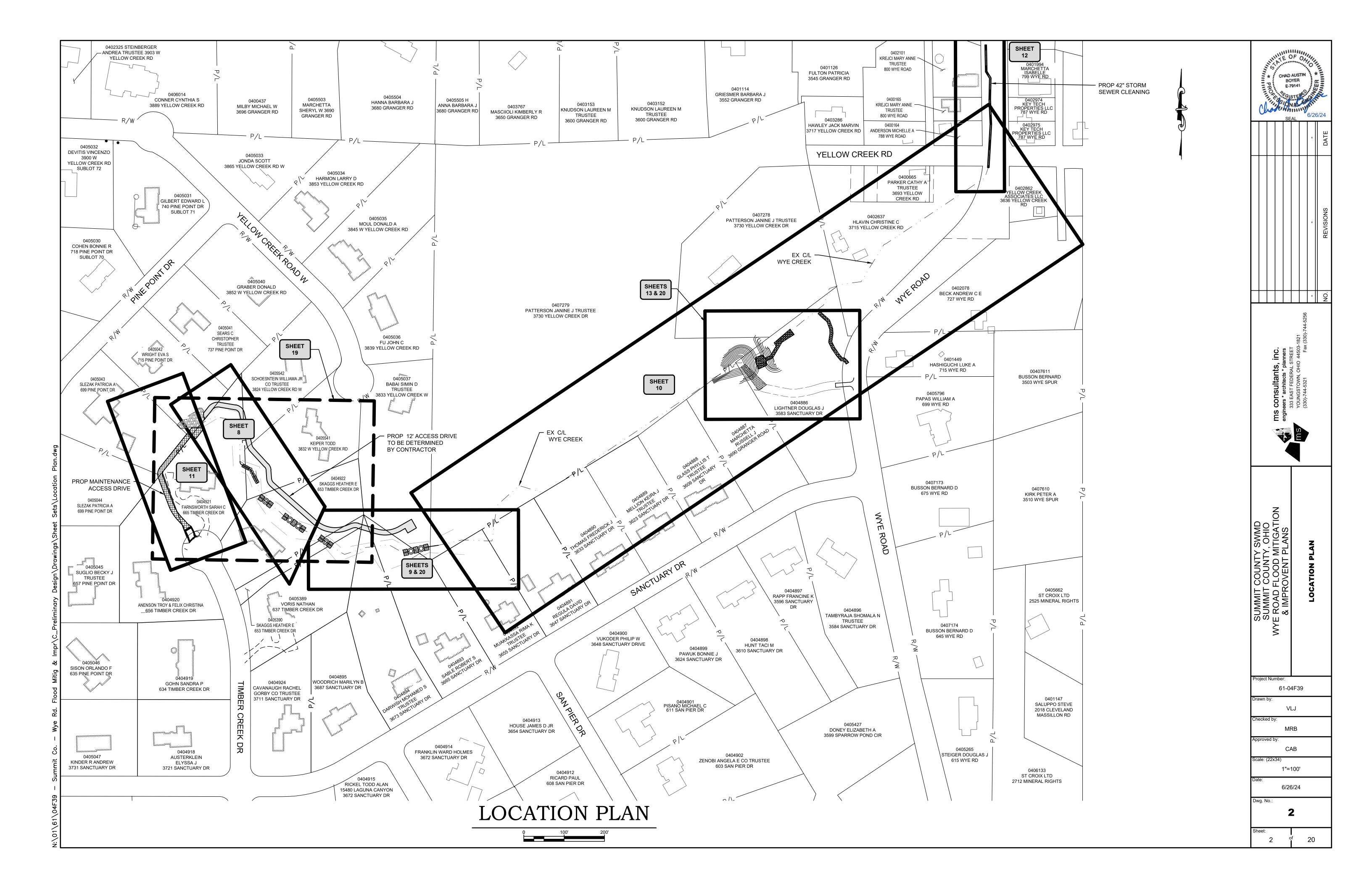
APPROVED.

B. ALAN BRUBAKER, PE, PS SUMMIT COUNTY ENGINEER

DATE _____







THE LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS

PLAN LOCATIONS ARE ESTIMATED BASED ON SCHEMATIC PLANS PROVIDED BY, OR LOCATIONS MARKED IN THE FIELD BY, EACH UTILITY.

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE OWNER, 12. ACCESS FOR EMERGENCY VEHICLES IS TO BE MAINTAINED AT ALL TIMES. THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY.

THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY-EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY ARE INSTALLED. THE MARKING OR LOCATION SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION. THE FOLLOWING UTILITIES AND OWNERS ARE KNOWN TO BE LOCATED WITHIN THE WORK LIMITS OF THIS

CITY OF AKRON WATER ATTN: BOB LEACH 1460 TRIPLETT BLVD AKRON, OHIO 44306 PHONE: 330-375-2420 EMAIL: DLEACH@AKRONOHIO.GOV

CITY OF AKRON SEWER ATTN: JEFF KAJIMURA AKRON ENGINEERING BUREAU - 166 S. HIGH STREET, UNIT 701 AKRON, OHIO 44308 PHONE: 330-375-2355 EMAIL: JKAJIMURA@AKRONOHIO.GOV

DOMINION ENERGY OHIO - AKRON 320 SPRINGSIDE DRIVE, SUITE 320 AKRON, OHIO 44333 ATTN: RELOCATION DESIGN PHONE: 330-664-2575 EMAIL: W.MICHAEL.NORTH@DOMINIONENERGY.COM

OUPS TICKET # A334901865-00A

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS. THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, OHI0811, THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEADQUARTERS (MICHELLE CHANEY AT 330-786-2267) AND ALL NON-REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ALL AREAS.

DOMINION ENERGY OHIO: IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LATERAL AND SUBJACENT SUPPORT OF DOMINION ENERGY'S PIPELINE(S), IN COMPLIANCE TO 29 CFR, PART 1926, SUBPART P, (SAFE EXCAVATION & SHORING). ONE-FOOT MINIMUM VERTICAL AND HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN DOMINION ENERGY OHIO'S (DEO) EXISTING PIPELINE(S) AND ALL OTHER IMPROVEMENTS. EXTREME CARE SHOULD BE TAKEN NOT TO HARM ANY DEO FACILITY (PIPELINES, ETC.) OR APPURTENANCE (PIPE COATING, TRACER WIRE, CATHODIC PROTECTION TEST STATION WIRES & DEVICES, VALVE BOXES, ETC.). DEO FACILITIES MUST BE PROTECTED WITH A TARP DURING BRIDGE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE AND LIABLE FOR ENSURING THAT ALL DEO EXISTING FACILITIES, ABOVE AND BELOW GROUND, REMAIN UNDAMAGED, ACCESSIBLE AND IN WORKING ORDER. THE CROSSING OF DEO'S PIPELINE WITH ANOTHER STEEL FACILITY MAY CREATE A POTENTIAL CORROSION ISSUE FOR THE PROPOSED FACILITY AND THE EXISTING DEO FACILITY. AT POINTS WHERE THE LOCATION AND ELEVATION OF DOMINION'S PIPELINE NEEDS TO BE KNOWN, THE CONTRACTOR MAY EXCAVATE BY HAND DIGGING TO TEMPORARILY EXPOSE THE PIPELINE AND OBTAIN THE NECESSARY INFORMATION. IN ADDITION TO HAND DIGGING, THE CONTRACTOR MAY USE NON-DESTRUCTIVE LOCATION METHODS, SUCH AS VACUUM POTHOLING AND GROUND PENETRATING RADAR (GPR). CONTACT OHIO811 PRIOR TO EXCAVATION OR HAND DIGGING AND SUBMIT AN EXCAVATION TICKET.

IF THE GAS PIPELINE IS FOUND TO BE IN CONFLICT DURING CONSTRUCTION, CONTRACTOR SHALL CONTACT MICHAEL NORTH AT 330-664-2575 (W.MICHAEL.NORTH@DOMINIONENERGY.COM) SO THAT THE LINE CAN BE CAPPED.

UTILITY MAINTENANCE

THE WORK OF THIS CONTRACT SHALL IN NO WAY INTERFERE WITH MAINTAINING CONTINUOUS FLOW IN THE EXISTING SEWER SYSTEM, STORM SYSTEM, WATER LINES, POWER, TELEPHONE, CABLE TV, GAS, OR ANY OTHER SYSTEM THAT MAY BE ENCOUNTERED DURING FOR STORM SEWER LINE INSTALLATION UNLESS OTHERWISE ITEMIZED IN THE PROPOSAL CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL POLES INCLUDING HOLDING THEM IN PLACE. IF NECESSARY OR AS DIRECTED BY UTILITY OWNER. NOTHING SHALL BE DONE BY ANY CONTRACTOR FOR THIS PROJECT WHICH WILL IN ANY WAY REDUCE THE UALITY OR QUANTITY LEVEL OF SUCH OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE OWNER ONE (1) WEEK PRIOR TO MODIFYING ANY EXISTING FACILITIES.

GENERAL

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, AND EXERCISE PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF ALL PERSONS, INCLUDING EMPLOYEES, AND PROPERTY. CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AT ALL TIMES, PARTICULARLY WHEN WORKING NEAR UNDERGROUND OR OVERHEAD ELECTRICAL LINES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, PAYING ALL FEES, SCHEDULING AND OBTAINING ALL INSPECTIONS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SHOP DRAWING SUBMITTALS TO THE NECESSARY AGENCIES FOR PERMITS AND APPROVALS. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN ROAD OPENING PERMITS FOR ANY WORK. ANY DEFECTS IN CONSTRUCTION, INCLUDING MATERIALS OR WORKMANSHIP, SHALL BE CORRECTED BY REMOVAL AND REPLACEMENT OR OTHER APPROVED METHODS PRIOR TO ACCEPTANCE BY THE OWNER. THE COST SHALL BE AT THE EXPENSE OF THE CONTRACTOR. ANY MODIFICATIONS TO THE WORK AS SHOWN ON THESE APPROVED PLANS SHALL HAVE PRIOR WRITTEN APPROVAL OF THE OWNER.

- BARRICADES, LIGHTS, AND OTHER PROTECTIVE MEASURES DEEMED NECESSARY BY THE OWNER.
- EXISTING UTILITIES SHALL CONTINUE WITH UNINTERRUPTED SERVICE DURING THE CONSTRUCTION PERIOD. THE EXISTING UTILITIES SURVEY DOCUMENTATION THERE SHALL BE NO CLAIMS FOR EXTRA PAYMENT BASED UPON THE ACTUAL LOCATION OF ANY EXISTING UTILITIES.
- STABILIZED SITES, SUCH AS STREAM BANKS OR ANY OTHER SITE WHERE THE FLOWS COULD CAUSE EROSION.
- EXCAVATED MATERIAL SHALL BE LOADED AND TRANSPORTED TO AND STORED AT AN APPROVED LOCATION UNTIL NEEDED. EXCAVATED MATERIAL THAT IS NOT SUITABLE FOR USE OR EXCEEDS THE AMOUNT OF FILL REQUIRED FOR THE PROJECT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAUL AWAY AND REMOVE. PAYMENT SHALL BE PART OF THE UNIT BID PRICE FOR EXCAVATION.
- EQUIPMENT, TOPSOIL, AND/OR FILL MATERIALS ARE NOT TO BE STOCKPILED UNDER (WITHIN THE DRIP LINE) OR NEAR EXISTING TREES, WOODLANDS, OR ANY OTHER ENVIRONMENTALLY SENSITIVE AREA.
- ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND FASHION AND IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS. DUMPING OF CONSTRUCTION DEBRIS WITH PERMISSION BY AND ON A PRIVATE LANDOWNER'S PROPERTY MUST ALSO BE PERFORMED IN AN ENVIRONMENTALLY ACCEPTABLE MANNER.
- NOISE CONTROL: ALL MOTORIZED EQUIPMENT MUST BE EQUIPPED WITH MUFFLERS AND INTAKE SILENCERS.
- IF DURING THE COURSE OF CONSTRUCTION, EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHAEOLOGICAL INTEREST IS FOUND, CEASE OPERATIONS AFFECTING THE FIND AND NOTIFY THE OWNER, WHO SHALL NOTIFY THE STATE HISTORICAL DEPARTMENT. NO FURTHER DISTURBANCE OF THE DEPOSITS SHALL ENSUE UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT HE MAY PROCEED. THE OWNER SHALL ISSUE A NOTICE TO PROCEED ONLY AFTER THE STATE OFFICIAL HAS SURVEYED THE FIND AND MADE A DETERMINATION OF VALUE AND EFFECT AND HAS SUBMITTED SUCH DETERMINATION TO THE OWNER.
- THE CONTRACTOR SHALL VERIFY TO HIS OWN SATISFACTION THE TYPE OF SURFACE AND BASE OF EACH STREET AND DRIVE PRIOR TO THE SUBMISSION OF BIDS. PAVEMENT REPLACEMENT SHALL CONSIST OF THE MATERIALS AS SHOWN ON THE DETAILS.

- 10. CONTRACTOR'S OPERATION WITHIN THE RIGHT-OF-WAY SHALL NOT REMOVE OR DISTURB LANDSCAPING ITEMS AND FIXED AS-BUILT DRAWINGS STRUCTURES UNLESS ABSOLUTELY NECESSARY OR CALLED FOR IN THE PLANS. PRESERVATION SHALL TAKE PRECEDENCE OVER AT THE END OF THE PROJECT, CONTRACTOR SHALL PROVIDE REDLINE MARKUPS WITH, AT MINIMUM, THE FOLLOWING INFORMATION: REMOVAL WHERE FEASIBLE.
- 11. IN PROJECT AREA, ALL DRIVEWAY CROSSINGS ARE TO BE COMPLETED IN ONE DAY.
- 13. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL COMPLETELY CLEAN ALL ROAD AND DRIVEWAY SURFACES OF ALL DIRT, DEBRIS AND FOREIGN MATTER. THE CONTRACTOR SHALL PROVIDE A POWER BROOM FOR THIS TASK.
- 14. ALL MANHOLE CASTINGS, INLET GRATES, VALVE BOXES ETC., LOCATED WITHIN THE NEW PAVEMENT SECTION ARE TO BE ADJUSTED TO GRADE AS REQUIRED.
- 15. THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION DRAWINGS ARE TO BE CONSIDERED A PART OF THIS PLAN ONLY FOR MATERIALS AND INSTALLATION METHODS.
- 16. EXPANSION JOINTS SHALL BE INSTALLED AT JOINTS BETWEEN NEW AND EXISTING CONCRETE SURFACES.
- 17. ALL MATERIALS AND CONSTRUCTION ITEMS SHALL BE IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (2023) OR LATEST EDITION.
- 18. ODOT-304 COMPACTED STRUCTURAL BACKFILL SHALL BE USED IN ALL TRENCHES WITHIN PAVEMENT LIMITS AND UNDER CURB AND DRIVEWAY APPROACHES, AND WITHIN 5-FEET OF THE PAVEMENT EDGE.
- 19. BUILDERS AND CONTRACTORS MUST HOLD TO THE GRADES AND ELEVATIONS ESTABLISHED BY THE ENGINEER.
- 20. ALL DEWATERING FLOWS ARE TO BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH FILTERS BEFORE DISCHARGE TO STABILIZED SITES, SUCH AS STREAM BANKS OR ANY OTHER SITE WHERE THE FLOWS COULD CAUSE EROSION.
- 21. CONTRACTOR SHALL AT ALL TIMES INSURE THAT SWPPP MEASURES PROTECTING EXISTING DRAINAGE FACILITIES BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY PHASE OF THE SITE CONSTRUCTION OR LAND ALTERATION.
- 22. UPON COMPLETION OF PROJECT, CONTRACTOR SHALL CLEAN THE PAVED AREAS PRIOR TO REMOVAL OF TEMPORARY SEDIMENT CONTROLS, AS DIRECTED BY THE CITY AND/OR CONSTRUCTION/PROJECT MANAGER. IF POWER WASHING IS USED, NO SEDIMENT LADEN WATER SHALL BE WASHED INTO THE STORM SYSTEM. ALL SEDIMENT LADEN MATERIAL ON PAVEMENT OR WITHIN THE STORM SYSTEM SHALL BE COLLECTED AND REMOVED FROM THE SITE AT CONTRACTOR'S EXPENSE.
- 23. NO RECYCLED MATERIAL SHALL BE PERMITTED UNLESS OTHERWISE AUTHORIZED. GRANULATED SLAG (GS) SHALL NOT BE PERMITTED.

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET FORTH IN THESE PLANS ARE TO BE USED "AS DIRECTED BY THE OWNER", AND SHALL BE MADE A MATTER OF RECORD BY INCORPORATIONS INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT. WHERE, DUE TO CONSTRUCTION ACTIVITIES, UTILITIES CANNOT BE AVOIDED, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SAFE, TEMPORARY FACILITIES TO MAINTAIN SERVICE THROUGHOUT THE PROJECT. CONTRACTOR SHALL SUBMIT A PLAN FOR GENERAL NOTES CONTINUED TO SHEET 4 ANY REQUIRED TEMPORARY UTILITY SERVICES FOR ENGINEER'S APPROVAL.

RESTORATION OF EXISTING FACILITIES

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND MACHINES NEEDED AND NECESSARY TO REPAIR AND RECONSTRUCT TO THEIR ORIGINAL CONDITION OR BETTER, MEDIANS, RETAINING WALLS, BRIDGES IN PART, SIDEWALKS, CURBS, CATCH BASINS, MAILBOXES, SIGNS, FENCES, STORM SEWERS, WATER LINES, VALVES, HYDRANTS, GAS LINES, WATER SERVICE LINES, GAS SERVICE LINES, EXISTING MANHOLES, TREES, SHRUBS, (TREES TO BE REPLACED SHALL BE 3" CALIPER MEASUREMENT AND SHALL BE REPLACED IN KIND) AND ANY OTHER STRUCTURES WHICH HAVE BEEN REMOVED, RELOCATED, AND/OR DISTURBED IN PART OR WHOLE AS THE RESULT OF THE FACILITIES AND APPURTENANCE THERETO. THE WORK SHALL ALSO INCLUDE THE REMOVAL AND DISPOSAL OF EXCESS MATERIALS RESULTING FROM REPAIR, RECONSTRUCTION AND RESTORATION. LIGHTS, SIGNS AND BARRICADES SHALL BE PROVIDED AND TRAFFIC MAINTAINED. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPLICABLE STORM SEWER LINE PIPE AS PER PLAN, UNLESS SPECIFICALLY ITEMIZED AND PROVIDED FOR IN THE PROPOSAL

FIELD DRAINS, MISC. DOWNSPOUTS AND OTHER DRAINS

WHERE SO REQUIRED, THE CONTRACTOR SHALL RECONSTRUCT ALL FIELD DRAINS, MISCELLANEOUS DOWNSPOUTS AND OTHER DRAINS DISTURBED DURING CONSTRUCTION IN KIND TO THE SATISFACTION OF THE ENGINEER. THE ENGINEER SHALL DIRECT THE CONTRACTOR TO INSTALL ADDITIONAL CONDUIT TO THE CLOSEST CATCH BASIN OR STORM SEWER. THE COST FOR CONNECTION TO EXISTING DRAIN, CONDUIT, FITTINGS, CONNECTIONS TO CATCH BASINS, AND ALL RELATED APPURTENANCES SHALL BE INCLUDED IN THE UNIT PRICE BID

ALL AREAS RECEIVING NEW FILL, AND ALL AREAS AT GRADE TO RECEIVE PAVEMENT SHALL BE COMPACTED IN THE UPPER 12 INCHES OF EXPOSED SUBGRADE TO A MINIMUM 98 PERCENT OF THE MAXIMUM DENSITY OBTAINABLE IN ACCORDANCE WITH ASTM D-698 (STANDARD) WITHIN +/-2 PERCENT OF OPTIMUM MOISTURE CONTENT, AND PROOFROLLED. AREAS TO BE CUT SHOULD BE CUT TO THEIR FINAL GRADE PRIOR TO COMPACTING AND PROOFROLLING. COMPACTION AND PROOFROLLING SHOULD BE PERFORMED IN ACCORDANCE WITH ODOT

PROOFROLLING SHALL BE PERFORMED USING RUBBER-TIRED EQUIPMENT WEIGHING A MINIMUM OF 20 TONS, AND MUST BE OBSERVED. BY THE ENGINEER.

REVIEW OF DRAINAGE FACILITIES

THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO NOT DISRUPT STORM OR WATER FLOWS THROUGH EXISTING FACILITIES. SHOULD ANY EXISTING FACILITY REQUIRE BEING MOVED. REPLACED. RELOCATED. OR BE ALTERED AS TO LINE OR GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR CONTINUOUS, UNINTERRUPTED USE OF SAID FACILITY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL PERMITS NECESSARY TO PERFORM ALL WORK WITHIN AND/OR ADJACENT AT NIGHT AND AT ALL TIMES WHEN WORK IS NOT IN PROGRESS, THE CONTRACTOR SHALL PROTECT ANY OPENINGS AND/OR TO THE RIGHT-OF-WAY OF ALL ROADS AND HIGHWAYS. ALL FEES, BONDS, INSURANCES AND ANY OTHER COSTS REQUIRED BY THE EXCAVATION BY PLACEMENT OF A PROPERLY SECURED "SNOW FENCE" AROUND THE EXCAVATION, IN ADDITION TO NECESSARY OWNER OF SAID ROADS AND HIGHWAYS SHALL BE PROVIDED BY THE CONTRACTOR. COST OF SECURING PERMITS, FEES, BONDS, INSURANCE FEES, ETC. SHALL BE INCLUDED IN THE BID PRICE FOR BONDS AND INSURANCE.

ARE SHOWN BASED ON AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION. THE CONTRACTOR IS REQUIRED TO FIELD SURVEY & DOCUMENT ALL EXISTING AND PROPOSED UTILITIES (WATER, GAS, SEWER, ELECTRIC, ETC.) AS A RECORD FOR FUTURE WORK. THE CONTRACTOR IS REQUIRED TO FIELD SURVEY AND DOCUMENT ALL CONSTRUCTION ACTIVITIES FOR THE DURATION OF THE PROJECT. THE CONTRACTOR MUST MAINTAIN A COMPLETE AND ACCURATE LOG ALL DEWATERING FLOWS ARE TO BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH FILTERS BEFORE DISCHARGE TO OF ALL CONTROL AND SURVEY WORK AS THE PROJECT PROGRESSES. ONCE COMPLETING EACH MAJOR SITE IMPROVEMENT, PREPARE A CERTIFIED SURVEY ILLUSTRATING HORIZONTAL AND VERTICAL LOCATIONS, ANGLES, AND ELEVATIONS OF CONSTRUCTION AND SITE WORK. THE CONTRACTOR IS REQUIRED TO PROVIDE A PNEZD, COMMA DELIMITED POINT FILE IN THE SAME COORDINATE SYSTEM USED TO PREPARE THE PLANS DETAILING THE PROPOSED CHANNEL IMPROVEMENTS. THE WORK SHALL BE INCLUDED IN CONTRACTOR'S LUMP SUM BID PRICE FOR CONSTRUCTION LAYOUT STAKING

- 1. AS-BUILT FOR CASCADE RIFFLE LOCATION (SURVEYED LOCATION BY REGISTERED SURVEYOR) LISTING PERTINENT NORTHINGS AND EASTINGS, INCLUDING ALL CORNERS OF FEATURE.
- 2. AS-BUILT FOR RIFFLE WEIR LOCATIONS (SURVEYED LOCATION BY REGISTERED SURVEYOR) LISTING PERTINENT NORTHINGS AND EASTINGS, INCLUDING ALL CORNERS OF FEATURE.
- 2. AS-BUILT FOR POOL LOCATIONS (SURVEYED LOCATION BY REGISTERED SURVEYOR) LISTING PERTINENT NORTHINGS AND EASTINGS INCLUDING APPROXIMATE POOL CENTER,
- ANY DEVIATIONS FROM PLAN (PRE-APPROVAL REQUIRED)
- 4. ANY INCONSISTENCIES ENCOUNTERED WITH EXISTING CONDITIONS SHOWN ON THE PLAN.

THE CONTRACTOR SHALL LOCATE AND PROTECT ANY EXISTING PROPERTY CORNER MONUMENTS ALONG THE ROUTE OF THE PROF WORK. ANY MONUMENTS REMOVED OR DISPLACED BY THE CONTRACTOR SHALL BE REPLACED BY A REGISTERED SURVEYOR, AT CONTRACTOR'S EXPENSE.

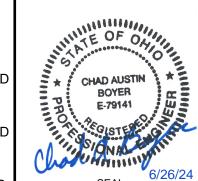
WATER USED AS A DUST PALLIATIVE SHALL BE FURNISHED AND APPLIED BY THE CONTRACTOR AS DIRECTED BY THE OWNER. COST BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS OF WORK.

SUBSURFACE INFORMATION

A SUBSURFACE INVESTIGATION REPORT IS AVAILABLE (OR ATTACHED) TO ASSIST THE CONTRACTOR IN EVALUATING EXISTING CONDITIONS. THE INFORMATION INCLUDES BORING LOGS AND LABORATORY TEST RESULTS. GENERAL SOIL STRATA DESCRIPTIONS INDICATED STRATA BOUNDARIES ARE BASED ON ENGINEERING INTERPRETATIONS OF ALL AVAILABLE SUBSURFACE INFORMATION AN MAY NOT REFLECT THE ACTUAL VARIATIONS IN SUBSURFACE CONDITIONS BETWEEN BORINGS AND SAMPLES.

THE SUBSURFACE EXPLORATION WAS PERFORMED ONLY FOR THE OWNER'S USE IN DESIGN. THE BORING LOGS ARE AVAILABLE FO CONTRACTOR'S INFORMATION BUT ARE NOT A WARRANT OF SUBSURFACE CONDITIONS. THE CONTRACTOR MUST DRAW THEIR OWN CONCLUSIONS OF THE SUBSURFACE CONDITIONS DEPICTED BY THE INFORMATION AND NO CLAIM WILL BE CONSIDERED FOR ADDIT COMPENSATION IF CONDITIONS ARE NOT IN ACCORDANCE WITH THIS DATA.

THE CONTRACTOR SHOULD VISIT THE SITE AND ACQUAINT THEMSELVES WITH ALL EXISTING CONDITIONS. PRIOR TO BIDDING, BIDDERS MAY MAKE THEIR OWN SUBSURFACE INVESTIGATIONS TO SATISFY THEMSELVES AS TO SITE AND SUBSURFACE CONDITIONS, BUT SUCH SUBSURFACE INVESTIGATIONS SHALL BE PERFORMED ONLY UNDER TIME SCHEDULES AND ARRANGEMENTS APPROVED IN ADVANCE BY THE OWNER.



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61-04F39 RDA MRB CAB N/A 6/27/24

STRUCTION LAYOUT STAKING.									
	PRO. COORD U.S. SUR\		CENTERLIN	NE OF R/W	CENTERLINE OF	CONSTRUCTION			
POINT NUMBER	NORTHING	EASTING	STATION	OFFSET	STATION	OFFSET	ELEVATION	DESCRIPTION	
					PROJECT CONTROL				
1	543155.52'	2204136.25'	N/A	N/A	N/A	N/A	1026.07'	IRON PIN FOUND	
2	543309.39'	2204069.75'	N/A	N/A	N/A	N/A	1025.88'	IRON PIN FOUND	
3	543521.06'	2204238.68'	N/A	N/A	N/A	N/A	1022.26'	IRON PIN FOUND	
4	543182.25'	2204569.64'	N/A	N/A	N/A	N/A	998.26'	IRON PIN FOUND	
5	543205.98'	2204084.42'	N/A	N/A	N/A	N/A	1029.61'	SURVEY MAG NAIL HUB SET	
6	543473.73'	2204098.82'	N/A	N/A	N/A	N/A	1019.59'	SURVEY MAG NAIL HUB SET	
7	543475.80'	2204268.93'	N/A	N/A	N/A	N/A	1012.46'	SURVEY MAG NAIL HUB SET	
8	543182.09'	2204774.39'	N/A	N/A	N/A	N/A	992.96'	SURVEY MAG NAIL HUB SET	

THROUGHOUT THE CONTRACT DOCUMENTS AND PLANS, THERE MAY BE AN ITEM SPECIFIED THAT THE CONTRACTOR MAY INTERPRET AS PROPRIETARY. IN THIS CASE, THE CONTRACTOR SHALL CONSIDER THE SPECIFICATIONS TO READ THAT THE SPECIFIC ITEM SHALL BE PROVIDED, "OR EQUAL". THIS NOTE SHALL BE APPLIED TO ALL ITEMS SPECIFIED IN THE PLANS AND SPECIFICATIONS.

ODOT REFERENCES

ODOT CONSTRUCTION REFERENCES FOUND THROUGHOUT THE PLANS AND SPECIFICATIONS ARE TO BE USED TO SPECIFY ODOT APPROVED MATERIAL AND INSTALLATION PRACTICES ONLY. ODOT REFERENCES ARE NOT TO BE USED FOR DETERMINATION OF PAYMENT METHODS OR PRICE ESCALATIONS.

TREE AND STUMP REMOVAL

TREES DESIGNATED ON THE PLAN DRAWINGS WITH AN "X" ARE TO BE REMOVED BY THE CONTRACTOR, INCLUDING STUMP REMOVAL, TO A MIN. OF 24 INCHES BELOW FINISHED GRADE. THE CONTRACTOR SHALL TRIM AND APPLY WOUND DRESSING TO PRUNED OR DAMAGED LIMBS AND BRANCHES ON THOSE TREES TO REMAIN. TREES NOT MARKED TO BE REMOVED THAT THE CONTRACTOR DEEMS NECESSARY TO INSTALL THE STORM SEWER, SHALL BE MARKED FOR APPROVAL BY THE ENGINEER. ANY CUTTING AND/OR REMOVAL OF TREES NOT INDICATED ON THE PLANS MUST BE APPROVED BY THE ENGINEER AND NEGOTIATED WITH THE PROPERTY OWNER

CONTRACTOR SHALL ADEQUATELY SUPPORT ALL UTILITY POLES WHEREVER IMPACTED BY CONSTRUCTION.

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 9 P.M. AND 7 A.M. PER SUMMIT COUNTY NOISE ORDINANCE SCCO 509.08. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

EXISTING PLANS ENTITLED MAY BE INSPECTED IN THE SUMMIT COUNTY ENGINEER'S ON-LINE OR IN THEIR OFFICE IN AKRON, OHIO.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 3 FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

POSITIONING METHOD: ODOT VRS DATA COLLECTION PER 502.2.H. OF SURVEY MANUAL MONUMENT TYPE: PROJECT CONTROL MONUMENT TYPE B: 5/8"X30" IRON PINS FOUND.

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD88

GEOID 18

HORIZONTAL POSITIONING REFERENCE FRAME: NAD83 (2011)

ELLIPSOID: GRS80

MAP PROJECTION: LAMBERT CONFORMAL CONIC

COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE (3401)

ORIGIN OF SCALE (X,Y) - EASTING (X): 0 NORTHING (Y) 0

COMBINED SCALE FACTOR: 1.0000000000

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623. UNITS ARE IN U.S. SURVEY FEET.

TEMPORARY EROSION AND SEDIMENTATION POLLUTION CONTROL

TEMPORARY EROSION AND SEDIMENTATION POLLUTION CONTROL (E&SPC) IS THE RESPONSIBILITY OF THE CONTRACTOR. EARTH DISTURBING ACTIVITY IS NOT PERMITTED PRIOR TO THE INSTALLATION OF TEMPORARY E&SPC MEASURES. ALL TEMPORARY E&SPC WORK WILL BE PER SUPPLEMENTAL SPECIFICATION 832.

ALL TEMPORARY E&SPC ITEMS SHALL BE REMOVED BY THE CONTRACTOR BEFORE FINAL ACCEPTANCE. REMOVED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH THE APPROPRIATE ODOT CMS SECTION.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR E&SPC:

ITE	M 832	EROSION CONTROL - SILT FENCE	1,565 LF
ITE	M 832	EROSION CONTROL - INLET PROTECTION - DANDY BAG	1 EA
ITE	M 832	HIGH VISIBILITY CONSTRUCTION FENCE	815 LF
ITE	M 832	STRAW WATTLE	103 LF
PHA	ASE 1B:		

ITEM 832 EROSION CONTROL - SILT FENCE

ITEM 832 EROSION CONTROL - DROP INLET SEDIMENT FILTER 1 EA

TREE CUTTING RESTRICTIONS

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT. IF ANY BATS ARE FOUND ROOSTING IN THE AREA, THE USFWS, ECOLOGICAL SERVICES DIVISION (614-416-8993) SHALL BE CONTACTED AND PROVIDED THIS INFORMATION.

1,130 LF

TREE CUTTING IS PROHIBITED BETWEEN APRIL 1 AND SEPTEMBER 30.

PROFILE AND ALIGNMENT

THE PROPOSED CHANNEL IMPROVEMENTS SHALL FOLLOW THE ALIGNMENT AND PROFILE AS SHOWN ON THE PLANS.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES NEEDED TO INFORM SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE SCE GOVERNMENT LIAISON ADMINISTRATOR, HEIDI SWINDELL. THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATIONS, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER IMMEDIATELY.

DRIVES ARE TO REMAIN OPEN AT ALL TIMES UNLESS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. DRIVEWAY ACCESS MUST BE MAINTAINED AT ALL TIMES USING PARTIAL WIDTH CONSTRUCTION IF ANOTHER ACCESS TO THE PROPERTY IS NOT AVAILABLE.

A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 201 - TREE REMOVAL

TREES SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE STREAM IMPROVEMENTS HAVE BEEN QUANTIFIED AND SHALL BE REMOVED BY THE CONTRACTOR. TREES WITHIN THE EXTENTS OF THE TEMPORARY CONSTRUCTION ACCESS SHALL ALSO BE REMOVED BY THE CONTRACTOR, BUT AS THE PROPOSED ALIGNMENT IS NOT YET KNOWN, A LUMP SUM ITEM FOR TREE REMOVAL RESULTING FROM CONSTRUCTION ACCESS HAS ALSO BEEN INCLUDED IN THE GENERAL SUMMARY. THE CONTRACTOR IS TO REMOVE ALL STUMPS WHICH SHALL BE PAID FOR UNDER ITEM 201, STUMP REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES TO BE REMOVED:

SIZES	NO. TREES
12" - 24"	6
30" - 48"	3

ITEM 201 TREES REMOVED WITHIN TEMPORARY CONSTRUCTION ACCESS 0.20 AC.

ITEM 201 TREES REMOVED WITHIN INLINE BASIN IMPROVEMENT PROJECT LIMITS

ITEM 203 - EXCAVATION AND EMBANKMENT

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER

ITEM 203	EXCAVATION	1,256 CY
ITEM 203	EMBANKMENT	142 CY
ITEM 203	UNDERCUT - EXCAVATE & HAUL UNSUITABLE MATERIAL	126 CY
ITEM 203	UNDERCUT - EMBANKMENT	126 CY
PHASE 1B:		
ITEM 203	EXCAVATION	193 CY
ITEM 203	EMBANKMENT	1,230 CY
ITEM 203	ADDITIONAL EMBANKMENT -	
	REQUIRED TO MEET PROPOSED GRADE - BERM	419 CY

CONTRACTOR SHALL REMOVE AND REPLACE ALL SUITABLE MATERIAL IF IN CONFORMANCE WITH THE "EMBANKMENT STRUCTURAL FILL"

ADDITIONAL EMBANKMENT IS REQUIRED BETWEEN THE EXISTING AND PROPOSED EMBANKMENT GRADE. ALL EMBANKMENT SHALL MEET THE REQUIREMENTS OF THE "EMBANKMENT STRUCTURAL FILL" NOTE ON SHEET 14.

PROVIDED QUANTITIES ARE AN ESTIMATE AND MAY VARY DEPENDING ON FIELD INSPECTION BY AN INDEPENDENT LABORATORY.

ITEM 203 - EXCAVATION OF UNSUITABLE MATERIAL, AS PER PLAN

CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL AND VEGETATION WITHIN THE PROPOSED EMBANKMENT LIMITS OF THE IN-LINE DETENTION BASIN PRIOR TO BEGINNING EMBANKMENT CONSTRUCTION. PAYMENT SHALL BE MADE UNDER ITEM 203 - EXCAVATION OF UNSUITABLE MATERIAL, AS PER PLAN.

PHASE 1B:

EXCAVATION OF UNSUITABLE MATERIAL, AS PER PLAN

FOR THE PURPOSES OF QUANTITY PLANNING, THE EXISTING EMBANKMENT MATERIAL IS DEEMED UNSUITABLE MATERIAL. CONTRACTOR SHALL REUSE IF DEEMED SUITABLE PER THE "EMBANKMENT STRUCTURAL FILL" NOTE ON SHEET 14.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

1,568 SY SUBGRADE COMPACTION

ITEM 204 - GEOTEXTILE FABRIC

GEOTEXTILE FABRIC SHALL BE PLACED BENEATH THE BOULDER STONES AS OUTLINED IN THE DETAILS ON SHEETS 6 AND 7.

ITEM 204 GEOTEXTILE FABRIC 90 SY

ITEM 304 - AGGREGATE BASE

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 304	6" AGGREGATE BASE - REINFORCED TURF DRIVE	262 C
ITEM 304	AGGREGATE BASE - NO. 1 STONE	12 CY
ALTERNATE - ITEM 304	AGGREGATE BASE - NO. 1 STONE	178 C
ALTERNATE - ITEM 304	AGGREGATE BASE - NO. 57 STONE	89 CY

ITEM 601 - ROCK CHANNEL PROTECTION - TYPE A, TYPE C

ROCK CHANNEL PROTECTION SHALL BE PLACED AT THE OUTFALL OF THE INLINE BASIN AND ALONG AN EXISTING REVINE TO PROTECT THE AREAS FROM EROSIVE FLOWS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

PHASE 1B:

ITEM 601 ROCK CHANNEL PROTECTION - TYPE A 348 CY ITEM 601 ROCK CHANNEL PROTECTION - TYPE C 75 CY

ITEM 601 - ROCK CHANNEL PROTECTION WITH GROUT

GROUTED ROCK CHANNEL PROTECTION SHALL BE PLACED WITHIN THE EMERGENCY SPILLWAY OF THE INLINE BASIN. GROUT SHALL BE MADE BY MIXING ONE PART PORTLAND CEMENT, THREE PARTS SAND, AND ENOUGH WATER TO ALLOW THE GROUT TO FLOW INTO THE JOINTS AND CRACKS.

THE GROUT SHALL BE PREPARED IN A MIXING MACHINE OF AN APPROVED DESIGN AND EQUIPPED WITH AN ACCURATE GRADUATED REGULATING DEVICE FOR CONTROLLING THE AMOUNT OF WATER IN EACH BATCH. THE CONTRACTOR SHALL ACCURATELY MEASURE AND PROPORTION THE QUANTITIES FOR EACH BATCH, AND ENSURE THAT THE QUANTITIES ARE EXACTLY SUFFICIENT FOR ONE OR MORE SACKS OF CEMENT.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY

ITEM 601 ROCK CHANNEL PROTECTION WITH GROUT

ITEM 623 - CONSTRUCTION LAYOUT STAKES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING. THE CONTRACTOR SHALL BE RESPONSIBLE TO

PROCURE THE SERVICES OF A SURVEYOR REGISTERED IN THE STATE OF OHIO TO PROVIDE ALL CONSTRUCTION STAKING.

THE ABOVE REQUIREMENTS SHALL NOT BE CONSTRUED TO REPLACE ANY REQUIREMENTS AS STATED IN THE CURRENT PUBLICATION OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION MANUAL SPECIFICATIONS.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY

TEM 623	CONSTRUCTION LAYOUT STAKING	1 LS

ITEM 623 CONSTRUCTION LAYOUT STAKING 1 LS

ITEM 653 - TOPSOIL FURNISHED AND PLACED

TOPSOIL SHALL BE PLACED IN ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS ARE BASED ON THESE LIMITS. TOPSOIL DEPTH SHALL BE 4".

ITEM 653 TOPSOIL 181 CY

PHASE 1 ITEM 653 TOPSOIL 286 CY

ITEM 659 - SEEDING AND MULCHING

TEM 659 SEEDING AND MULCHING

ITEM 659 REPAIR SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 659 SEEDING AND MULCHING 5,409 SY ITEM 659 REPAIR SEEDING AND MULCHING 5,409 SY PHASE 1B

THESE ITEMS SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS ARE BASED ON THESE LIMITS.

ITEM 670 - SLOPE EROSION PROTECTION MAT. TYPE G

THIS ITEM IS TO BE USED IN AREAS OF LINEAR GRADING WHICH REQUIRE A SLOPE OF 2:1 OR GREATER AND SHALL BE USED AT THE DIRECTION OF THE ENGINEER. THE FOLLOWING QUANTITY SHALL BE USED FOR THE SIDE SLOPE CONSTRUCTION IN SELECT AREAS:

2,577 SY

ITEM 670 SLOPE EROSION PROTECTION MAT, TYPE G 966 SY

ITEM 670 SLOPE EROSION PROTECTION MAT, TYPE G 159 SY

ITEM 671 - EROSION CONTROL MAT, TYPE G

THIS ITEM IS TO BE USED AT THE DIRECTION OF THE ENGINEER. THE FOLLOWING QUANTITY SHALL BE USED FOR EROSION CONTROL WITHIN THE CHANNEL IN SELECT AREAS:

ITEM 671 EROSION CONTROL MAT, TYPE G 146 SY

SPECIAL - PIPE CLEANING AND INSPECTION

APPROXIMATELY 80 LF PORTION OF THE EXISTING 42" STORM SEWER NEAR 800 WYE ROAD SHALL BE CLEANED FOR SEDIMENT AND DEBRIS REMOVAL TO ALLEVIATE LOCALIZED FLOODING IN THE AREA. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL

SPECIAL PIPE CLEANING, 27" TO 48" - LIGHT SPECIAL PIPE CLEANING, 27" TO 48" - HEAVY 75 LF SPECIAL PIPE INSPECTION AT 699 & 715 PINE POINT DRIVE

SPECIAL - WOODCHIPS

STEP-POOL SYSTEMS SHALL BE UNDERLAIN WITH A CONTINUOUS FILTER BED THAT IS CONSTRUCTED WITH A MIX OF SAND AND WOODCHIPS.THE WOODCHIPS SHOULD BE MADE FROM HARDWOOD TREES, RECENTLY CHIPPED (GREEN), AND UN-COMPOSTED. WOODCHIPS ARE TYPICALLY MIXED WITH THE SAND ON-SITE, APPROXIMATELY 20 PERCENT BY VOLUME, TO INCREASE THE ORGANIC CONTENT IN SUPPORT OF DENITRIFICATION. NOTE: DUE TO COMPACTION UPON INSTALLATION, THE WOODCHIPS ARE NOT TO BE CONSIDERED AS A "FILL" MATERIAL WHEN QUANTIFYING VOLUME OF MATERIAL NEEDED TO FILL THE CHANNEL. THE 20 PERCENT WOODCHIP IS CONSIDERED A SEPARATE, SUPPLEMENTARY VOLUME.

SPECIAL WOODCHIPS 21 CY

SPECIAL - SAND

STEP-POOL SYSTEMS SHALL BE UNDERLAIN WITH A CONTINUOUS FILTER BED THAT IS CONSTRUCTED WITH A MIX OF SAND AND WOODCHIPS THE SAND SHALL MEET THE AASHTO-M-6 OR ASTM-C-33 STANDARD, 0.02 INCHES TO 0.04 INCHES IN SIZE. SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 IS NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE SUBSTITUTED FOR SAND. THE MINIMUM DEPTH OF THE FILTER BED BELOW THE INVERT OF ALL PROJECT FEATURES SHALL BE 18 INCHES WITH A MINIMUM WIDTH OF 4 FEET. SEE DETAIL ON SHEET 7.

84 CY SPECIAL SAND

SPECIAL - SANDSTONE RIFFLE COBBLES

NUMEROUS TYPES AND SIZES OF STONE WILL BE UTILIZED TO FORM THE PROPOSED STREAM IMPROVEMENTS. WHERE APPLICABLE, THE PROPOSED STONE HAS BEEN EQUATED TO A STANDARD ODOT RCP SIZING TYPE. THE PREFERRED STONE FOR RIFFLE MIX IS SILICA STONE RANGING FROM ROUNDED TO ANGULAR IN SHAPE. SILICA STONE IS SOMETIMES QUARRIED AND SOLD UNDER THE NAME "RIVER JACK," OR "RIVER ROCK." ALL ROCK BE OF SILICA COMPOSITION AND FREE FROM LIME OR LIMESTONE, CEMENT, OR CONCRETE. GRANITE OR BROKEN FERRICRETE BOULDERS THAT MEET THE HYDRAULIC SIZING CRITERIA MAY ALSO BE USED IN LIEU OF SILICA STONE.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

SPECIAL SANDSTONE RIFFLE COBBLES - 12" 145 CY

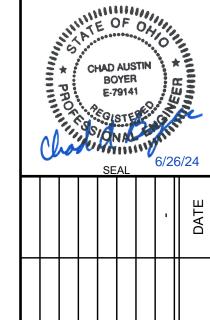
SPECIAL - CASCADE AND POOL BOULDERS - SANDSTONE

NUMEROUS TYPES AND SIZES OF STONE WILL BE UTILIZED TO FORM THE PROPOSED STREAM IMPROVEMENTS. STONE UTILIZED WITHIN STREAM IMPROVEMENTS SHALL BE FERRICRETE, SANDSTONE, GRANITE, OR SILICA. LIMESTONE OR RECYCLED CONCRETE IS NOT SUITABLE MATERIAL FOR USE WITHIN THE CHANNEL. THE MEDIAN LONG AXIS OF EACH BOULDER STONE SHALL BE 30". SEE SHEET 7 FOR DETAILED SIZING OF THE BOULDER STONES. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING APPROPRIATELY SIZED BOULDER MATERIAL THAT ALLOWS FOR ECONOMICAL CONSTRUCTION OF THE STREAM IMPROVEMENTS. EXCESSIVELY LARGE BOULDER MATERIAL ABOVE AND BEYOND THE MINIMUM DIMENSIONS SHALL NOT BE PAID FOR AS A QUANTITY OVERAGE.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

SPECIAL BOULDER STONES

GENERAL NOTES CONTINUED TO SHEET 5



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RDA MRB

> CAB N/A

> 5/16/24

GENERAL NOTES CONTINUED FROM SHEET 4

SPECIAL - NATIVE WETLAND SEED MIX

NATIVE WETLAND SEED MIX MAY BE SPREAD ON ALL RIFFLE WEIRS AS A SUPPLEMENT TO PLUG PLANTING. THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

SPECIAL NATIVE WETLAND SEED MIX 153 SY

SPECIAL - NATIVE WETLAND SPECIES PLANTING

SPECIAL NATIVE WETLAND SPECIES PLANTING

THE STREAM IMPROVEMENTS SHALL CONSIST OF THE PLANTING OF NATIVE SPECIES WHICH ENCOURAGE DIIVERSITY AND ARE APPROPRIATE FOE THE HYDROLOGIC AND GEOGRAPHIC ZONES OF THE PROJECT SITE. THE IMPROVEMENTS ARE BEST PLANTED WITH WET-TOLERANT, RHIZOMATOUS PLANTS SUCH AS SEDGES, RUSHES, AND SWITCHGRASS WHICH CAN BE PLANTED AS PLUGS.THE CONTRACTOR SHALL COORDINATE PLANT SELECTION WITH SUMMIT COUNTY DURING CONSTRUCTION.

SPECIES NATIVE TO OHIO THAT ARE SUITABLE FOR RIFFLE PLANTINGS MAY INCLUDE, BUT ARE NOT LIMITED TO: BRISTLY SEDGE SWITCH GRASS SOFT STEM BULLRUSH SAWTOOTH SUNFLOWER FRINGED SEDGE RIVER BULRUSH TALL COREOPSIS SWAMP MILKWEED

PORCUPINE SEDGE HARD STEM BULLRUSH WILD BLUE INDIGO JOE-PYE WEED

A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR THIS ITEM.

SPECIAL - GEOGRID, AS PER PLAN

THE TEMPORARY MAINTENANCE ACCESS DRIVE SHALL BE STABILIZED THROUGHOUT WITH TENSAR BX 1100 GEOGRID OR APPROVED EQUAL. THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

1 LS

SPECIAL TENSAR BX 1100 GEOGRID 1,568 SY

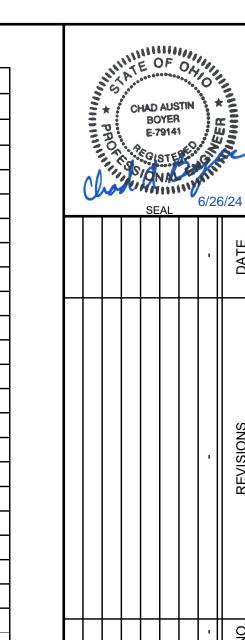
SPECIAL - BYPASS PUMPING

BYPASS PUMPING WILL BE NECESSARY TO KEEP THE PROPOSED STREAM IMPROVEMENTS DRY DURING CONSTRUCTION. A LUMP SUM QUANTITY FOR BYPASS PUMPING HAS BEEN CARRIED TO THE GENERAL SUMMARY.

SPECIAL BYPASS PUMPING

	PHASE 1B QUANTITIES			
ODOT ITEM NO.	ITEM	UNITS	QUANTITY	SHEET
201	CLEARING/GRUBBING	LS	1	13
201	TREE REMOVAL ASSOCIATED WITH BASIN IMPROVEMENTS	AC	0.53	13
203	EXCAVATION	CY	193	13
203	EXCAVATION OF UNSUITABLE MATERIAL - AS PER PLAN	CY	1,296	13
203	EMBANKMENT	CY	1,230	13
203	ADDITIONAL EMBANKMENT REQUIRED TO MEET PROPOSED GRADE - BERM	CY	419	13
601	ROCK CHANNEL PROTECTION - TYPE A	CY	348	13
601	ROCK CHANNEL PROTECTION - TYPE C	CY	75	13
601	RIP RAP WITH GROUT	CY	25	13
623	CONSTRUCTION LAYOUT STAKES AND MONUMENTS	LS	1	13
624	MOBILIZATION	LS	1	13
653	TOPSOIL	CY	286	13
659	SEEDING AND MULCHING	SY	2,577	13
659	REPAIR SEEDING AND MULCHING	SY	2,577	13
670	SLOPE EROSION PROTECTION MAT, TYPE G	SY	159	13
832	INLET PROTECTION - DROP INLET SEDIMENT FILTER	EA	1	20
832	SILT FENCE	LF	1,130	20
SPECIAL	BONDS & INSURANCE	LS	1	N/A
SPECIAL	EXISTING 27" PIPE - CIPP LINER - 15.0 MM	LF	11	13
SPECIAL	EXISTING 30" PIPE - CIPP LINER - 15.0 MM	LF	83	13
SPECIAL	12" ORIFICE PLATE	EA	1	13
SPECIAL	24" ORIFICE PLATE	EA	1	13
SPECIAL	GROUNDWATER MONITORING	LS	1	13
SPECIAL	ANTI-SEEP COLLAR	EA	1	13
SPECIAL	ALTERNATE - LINER PIPE	LF	94	13

ODOT ITEM NO.	PHASE 2 QUANTITIES ITEM	UNITS	QUANTITY	SHEE
201	CLEARING/GRUBBING	LS	1	8-9, 11-1
201	TREE REMOVAL (12" - 24")	EA	6	8
201	TREE REMOVAL (>24" - 48")	EA	3	8
201	TREE REMOVAL ASSOCIATED WITH CONSTRUCTION ACCESS	AC	0.20	8-9
203	EXCAVATION	CY	1,256	8-9
203	ADDITIONAL EXCAVATION ALLOWANCE	CY	189	8-9
203	EMBANKMENT - STREAM IMPROVEMENTS	CY	142	8-9
203	UNDERCUT - EXCAVATE & HAUL/REMOVAL UNSUITABLE MATERIAL	CY	126	N/A
203	UNDERCUT - EMBANKMENT	CY	126	N/A
204	SUBGRADE COMPACTION	SY	1,568	8-9
204	GEOTEXTILE FABRIC	SY	90	8-9
304	AGGREGATE BASE (REINFORCED TURF DRIVE)	CY	262	11
304	AGGREGATE FOR STABILIZED CONSTRUCTION ENTRANCE - NO. 1 STONE	CY	12	11
304	ALTERNATE - AGGREGATE FOR STABILIZED CONSTRUCTION ENTRANCE AND MAINTENANCE ACCESS DRIVE - NO. 1 STONE	CY	178	8-9
304	ALTERNATE - AGGREGATE FOR MAINTENANCE ACCESS DRIVE - NO. 57 STONE	CY	89	8-9
623	CONSTRUCTION LAYOUT STAKES AND MONUMENTS	LS	1	8-9
624	MOBILIZATION	LS	1	8-9
653	TOPSOIL	CY	181	8-9
659	SEEDING AND MULCHING	SY	5,409	8-9
659	REPAIR SEEDING AND MULCHING	SY	5,409	8-9
670	SLOPE EROSION PROTECTION MAT, TYPE G	SY	966	8-9
671	EROSION CONTROL MAT, TYPE G	SY	146	8-9
832	SILT FENCE	LF	1,565	19-2
832	STRAW WATTLE	LF	103	19-2
832	INLET PROTECTION - DANDY BAG	EA	1	19-2
832	HIGH VISIBILITY CONSTRUCTION FENCE	LF	815	19-2
832	ROCK CHECK DAM	EA	6	19-2
SPECIAL	SAND	CY	84	8-9
SPECIAL	SANDSTONE CASCADE AND POOL BOULDERS - 36"	CY	54	8-9
SPECIAL	SANDSTONE RIFFLE COBBLES - 12"	CY	145	8-9
SPECIAL	WOODCHIPS	CY	21	8-9
SPECIAL	TENSAR BX 1100 GEOGRID OR APPROVED EQUAL	SY	1,568	11
SPECIAL	BYPASS PUMPING	LS	1	8-9
SPECIAL	NATIVE WETLAND PLANTINGS	LS	1	8-9
SPECIAL	NATIVE WETLAND SEED	SY	153	8-9
SPECIAL	BONDS & INSURANCE	LS	1	N/
SPECIAL	PIPE CLEANING - HEAVY	LF	75	12
SPECIAL	PIPE CLEANING - LIGHT	LF	234	12
SPECIAL	PIPE INSPECTION & CLEANING - 699 & 715 PINE POINT DRIVE	LF	252	N/A
SPECIAL	ALLOWANCE - AS DIRECTED BY THE OWNER	LS	1	N/A
SPECIAL	ALLOWANCE - REMOVAL OF DOWNED TREES GREATER THAN 12" AND STREAMBANK STABILIZATION WITH HAND-PLACED LOGS	LS	1	8-10
SPECIAL	ALLOWANCE - TREE PRESERVATION PLAN	LS	1	8-1





61-04F39

STREAM IMPROVEMENT GENERAL NOTES:

GENERAL CONSTRUCTION SEQUENCE FOR STEP POOL CONVEYANCE SYSTEMS:

*IT IS IDEAL TO CONSTRUCT THE STREAM IMPROVEMENTS FROM DOWNSTREAM TO UPSTREAM

- 1. EXCAVATE STREAM BED TO A DEPTH EQUAL TO THE TOTAL THICKNESS OF THE HEADING, FOOTING, AND SURFACE BOULDERS, AND THE SELECT BACKFILL/CHANNEL LINING MATERIAL.
- 2. PLACE FILTER FABRIC.
- 3. PLACE CHANNEL LINING MATERIAL
- 4. STARTING WITH THE UPSTREAM-MOST STEP, PLACE CENTER (OR LOWEST, INVERT) FOOTING BOULDER. CONSTRUCTION GENERALLY STARTS AT THE CHANNEL INVERT AND THEN BUILDS TOWARDS EACH STREAM BANK. THERE SHALL BE NO GAPS BETWEEN FOOTINGS.
- 5. PLACE SELECT BACKFILL BEHIND THE FOOTING BOULDERS.
- 6. INSTALL HEADING BOULDERS ON TOP OF AND SLIGHTLY SET BACK FROM THE FOOTING BOULDERS (SUCH THAT PART OF THE HEADING BOULDER IS RESTING ON THE SELECT BACKFILL). HEADING BOULDERS SHOULD SPAN THE SEAMS OF THE FOOTING BOULDERS. THERE SHOULD BE NO GAPS BETWEEN BOULDERS.
- 7. PLACE SELECT BACKFILL BEHIND HEADING BOULDERS ENSURING THAT ANY VOIDS BETWEEN THE BOULDERS ARE FILLED; HAND PLACEMENT OR "CHINKING" MAY BE NECESSARY TO ENSURE VOIDS ARE FILLED AND THERE IS NO SUB-SURFACE FLOW AT THE STRUCTURE.
- 8. PLACE SURFACE BOULDERS LEAVING ONE OR TWO GAPS BETWEEN THE BOULDERS TO PROVIDE ONE OR MORE FLOW PATHS ACROSS EACH STEP. EACH SIDE OF THE SURFACE BOULDERS SHOULD EXTEND INTO A SILL PAST BANKFULL.
- 9. REPEAT STEP CONSTRUCTION UNTIL ALL STEPS ARE INSTALLED.
- 10. FOLLOWING STEP CONSTRUCTION, CHINKING, AND BACKFILL OF THE STEPS, SHAPE THE SCOUR POOLS.

SUGGESTED INSTALLATION METHODS

ALL INCLUDED INSTALLATION METHODS ARE EXCERPTS, ORIGINALLY OUTLINED IN <u>REGENERATIVE STREAM CONVEYANCE</u>: <u>CONSTRUCTION GUIDANCE</u>, FIRST EDITION, PUBLISHED BY THE MARYLAND DEPARTMENT OF NATURAL RESOURCES. CONTRACTOR TO DETERMINE THEIR OWN MEANS AND METHODS FOR INSTALLATION. THE NOTES BELOW ARE PROVIDED FOR REFERENCE.

ASCADES:

- 1. EXCAVATE SUBGRADE FOR FOOTER BOULDER PLACEMENT. FOOTER BOULDER(S) KEEP THE GRADE CONTROL STRUCTURE INTACT AND TRULY FUNCTION AS A FOOTER ONTO WHICH NEXT LAYER OF BOULDER WILL BE STACKED. IT IS RECOMMENDED TO BURY CASCADE FOOTER BOULDERS THREE FEET DEEP.
- 2. CUT AND PLACE GEOTEXTILE OVER THE ENTIRE FOOTPRINT OF THE CASCADE, INCLUDING THE SIDE SLOPES.FOLD BACK UPSTREAM PORTIONS TO SIT EXCAVATOR WITHOUT PUNCTURING GEOTEXTILE WHILE CONSTRUCTING DOWNSTREAM PORTIONS.
- 2.1. FOR LONGITUDINAL PLACEMENT, OVERLAP GEOTEXTILE SO THE UPSTREAM PIECE COVERS THE DOWNSTREAM ONETO MAINTAIN
- CONTINUOUS FLOW OVER THE TOP AND KEEP WATER FROM GOING UNDER THE FABRIC.

 2.2. FOR VERTICAL PLACEMENT, OVERLAP GEOTEXTILE SO THE TOP PIECE COVERS THE BOTTOM.
- 2.3. TO AVOID UNNECESSARY SEAMS, BE SURE TO CUT GEOTEXTILE TO A SIZE MUCH WIDER THAN THE PROPOSED STRUCTURE WIDTH (IN SOME CASES 25% OR MORE). DUE TO THE IRREGULARITY OF THE ROCK MATERIAL AND STRUCTURE SHAPE, FABRIC IS CONSUMED BY THE STRUCTURE IN THE FORM OF WRINKLES, SAGS DEPRESSIONS, ETC.
- 2.4. GEOTEXTILE MUST EXTEND ALL THE WAY OUT AND SLIGHTLY BEYOND SIDES OF FINISHED STRUCTURE.
- 2.5. TRIM ANY EXCESS GEOTEXTILE UPON COMPLETION.
- 3. SECURE FOOTER BOULDERS, GENERALLY THREE FEET DEEP,INTO SOIL OVER PINNED GEOTEXTILE.
- 3.1. PLACE BOULDERS FLAT (UNLIKE WEIRS, IN WHICH THEY ARE TILTED).
- 3.2. PRESS AND POUND INTO THE GROUND WITH THE BACK OF THE EXCAVATOR BUCKET.4. FORM A GENTLY CURVED RACK TO SPREAD WATER LATERALLY (ENDS OF CURVE POINT DOWNSTREAM).
- 5. FORM A GENTLE PARABOLIC SHAPE TO KEEP FLOW WITHIN THE THALWEG AND SHOULDERS.
- 6. CONTINUE STACKING BOULDERS TO DESIGNED ELEVATION BY STEPPING EACH LAYER UPSTREAM WITH A SLIGHT OVERLAP OF LAYERS. CAREFULLY INTERPRET DETAILS, KEEPING IN MIND THAT ENGINEERING SOFTWARE IS LIMITED IN REPRESENTING NATURAL, THREE-DIMENSIONAL FEATURES, TO ENSURE STABILITY.
- 6.1. PLACE BOULDERS FLAT, UNLIKE WEIRS IN WHICH BOULDERS ARE TILTED DOWNSTREAM, TO BREAK FLOW AND REDUCE ENERGY.
- 6.2. DO NOT CREATE A CHUTE.
- 6.3. CASCADES SHOULD BE THREE BOULDERS DEEP (INTO THE UPSTREAM SLOPE) RATHER THAN ONE STACKED ROW.
- 7. LIBERALLY CAST SAND AND GRAVEL OVER EACH FINISHED STRUCTURE BEFORE CONTINUING TO THE NEXT STRUCTURE TO FILL IN VOIDS AND TO SUPPLY MATERIAL FOR THE WASH-IN STAGE.8
- 8. WASH IN SMALLER PARTICLES INTO THE STRUCTURE AT THE END OF CONSTRUCTION.
- 8.1. START AT TOP POOL OR POOLED WATER BEHIND SANDBAG DIKE.
- 8.2. USE 2-INCH PUMP AND HOSE TO WASH STRUCTURES
- 8.3. REPEAT MULTIPLE TIMES.SUPPLY MORE SAND AND GRAVEL AT TOP WEIRS TO CONTINUE SUPPLYING MATERIAL TO FILL VOIDS IN SUBSEQUENT STORMS AND WASHES.9.CHINK (ADD LARGE ROCKS AND SMALL BOULDERS TO CREVICES) LARGER VOIDS BETWEEN BOULDERS.

FOOTER BOULDERS:

- 1. EXCAVATE SUBGRADE FOR FOOTER BOULDER PLACEMENT.
- 2. CUT AND PLACE GEOTEXTILE FOR THE FOOTER BOULDER TO KEEP BOULDERS IN PLACE.
- 3. PLACE FOOTER BOULDERS SUFFICIENTLY INTO SOIL OVER PINNED GEOTEXTILE, TILT DOWNSTREAM, PRESS AND POUND INTO GROUND WITH THE BACK OF THE EXCAVATOR BUCKET.
- 3.1. MOST OF THE FOOTER BOULDER SHOULD BE BELOW THE WATER SURFACE ELEVATION AND WHERE THE APRONS TARTS(EXPLAINED BELOW). THE UPPER 3-TO 6-INCHES SHOULD BREAK THE WATER SURFACE. THIS IS PARTICULARLY IMPORTANT IN COBBLE WEIRS IN WHICH WEIRS ARE CONSTRUCTED OF RIVER ROCK OVER FOOTER BOULDERS. THE EXTRUDING PORTION OF THE FOOTER BOULDER IS A FAIL-SAFE MEASURE TO PROVIDE SOME GRADE CONTROL UNTIL REPAIRS CAN BE MADE SHOULD AN
- EXTREME STORM EVENT WASH OUT THE COBBLE.

 3.2. IT IS OPTIMAL TO PLACE A SINGLE LAYER OF FOOTER BOULDERS AND NO MORE THAN TWO LAYERS. STACKING INTRODUCES INSTABILITY AND UNNECESSARILY ADDS HEIGHT TO THE WEIR.
- 3.3. IF STACKING IS NECESSARY TO MAKE UP ELEVATION IN STEEP SEQUENCES, SET THE FIRST LAYER SUFFICIENTLY DOWNSTREAM TO MAKE ROOM FOR A SECOND LAYER THAT PARTIALLY OVERLAPS RATHER THAN STACKS DIRECTLY ON TOP OF THE UNDERLYING BOULDER. ALSO, ADEQUATELY BURY THE FIRST LAYER. DO NOT CREATE A STACKED WALL. CONTINUE OVERLAPPING LAYERS UPSTREAM.

RIFFLES

- 1. PLACE RIVER ROCK UPSTREAM OF WEIR BOULDERS WITH SOME OVERLAP TO CREATE A BLENDED TRANSITION AND CONTINUE TO THE EDGE OF THE UPSTREAM POOL.
- 1.1. LONGER RIFFLE LENGTHS INCREASE FLOW PATH AND CREATE MORE FRICTION. WORKING WITH THE DESIGN ENGINEER,
- EFFORTS SHOULD BE MADE TO MAXIMIZE RIFFLE LENGTHS WITHIN THE STREAM'S GRADIENT TO INCREASE ROUGHNESS.

 1.2. OVER TIME, THE STREAM WILL EXTEND THE APRON DOWNSTREAM AS IT ADJUSTS SO IT IS IMPORTANT TO SUPPLY THE RIFFLE WITH EXCESS BIVED BOOK.
- 1.3. FLOWS ARE MOST CONCENTRATED IN THE CENTER AND, THEREFORE, LARGER RIVER ROCKS SHOULD BE PLACED IN THE MIDDLE THIRD OF THE RIFFLE WIDTH.
- 2. GEOTEXTILE UNDER RIVER ROCK SHOULD BE AVOIDED IF POSSIBLE. THE SMOOTH SURFACE TENDS TO CAUSE EROSIVE MOVEMENT OF MATERIALS RATHER THAN THE DESIRED NATURAL SELF-SORTING OF BEDLOAD MATERIAL AND INCORPORATION OF GRAVEL AND ROCKS INTO THE STREAM.
- 3. RACK THE WEIR WITH A SKID STEER TO LOCK MATERIALS INTO THE PARABOLIC SHAPE.
- 3.1. IF A SKID STEER IS NOT AVAILABLE, USE THE BUCKET OF AN EXCAVATOR TO FIRMLY PACK PLACED MATERIAL INTO PLACE
- WITHOUT FLATTENING THE SIDES OF THE PARABOLIC SHAPE.

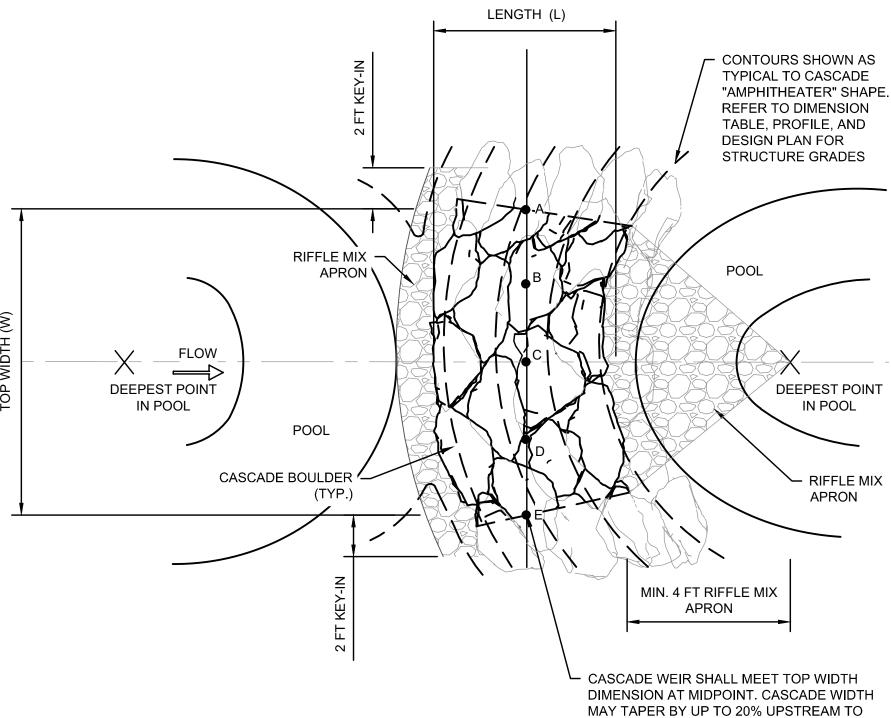
 3.2. THIS SIMPLE BUT ESSENTIAL STEP HELPS TO MINIMIZE EXCESSIVELY LARGE BUMPS AND EMBED THE STRUCTURE INTO THE SOIL TO LOCK IN THE ROCKS, THEREBY INCREASING STABILITY IN THE EARLY PERIODS POST CONSTRUCTION. IT DOES NOT SUFFICE TO SIMPLY SPRINKLE ROCK ONTO THE SURFACE WITH A BUCKET AS THE FINAL STEP IN CONSTRUCTING A RIFFLE-WEIR.1
- 4. RANDOMLY CAST MIXED SIZE GRAVEL INTO THE RIFFLE AND AROUND THE EDGES.
- 4.1. A FULL RANGE OF PARTICLE SIZE IS NECESSARY TO ADJUST TO THE RANGE OF VELOCITY AND VOLUME.THEREFORE, ONCE THE BACKBONE OF THE STRUCTURES HAS BEEN CONSTRUCTED WITH SPECIFIED SIZES, A BROADER RANGE OF GRAVEL AND RIVER ROCK SIZES SHOULD BE ADDED TO AND AROUND THE STRUCTURE.
- 4.2. CASTING THESE AGGREGATES, RATHER THAN PLACING THEM NEATLY OR PREMIXING THEM, IS ENCOURAGED. IT INTRODUCES RANDOMNESS THAT CREATES AMORE GRADUAL TRANSITION BETWEEN THE SIZED ROCK IN THE RIFFLE AND FINER
- 5. LIBERALLY CAST SAND AND GRAVEL OVER EACH FINISHED STRUCTURE BEFORE CONTINUING TO THE NEXT STRUCTURE TO FILL IN VOIDS AND TO SUPPLY MATERIAL FOR THE WASH-IN STEP.
- 6. AFTER THE WASH-IN STEP IS COMPLETE, LEAVE EXCESS MATERIAL AT THE RIFFLE-WEIR AND POOL EDGES FOR TOUCH UP SAND TO ALLOW NATURAL FEATURES TO FORM AND DIVERSIFY STREAM BED MORPHOLOGY AND HABITAT. SANDS AND GRAVEL THROUGHOUT THE SYSTEM ALSO HELP TO CREATE VARIED FLOW, WHICH IS ALSO IMPORTANT TO HABITAT DIVERSITY

CHINK AND WASH IN:

- 1. PLACE SMALL BOULDERS AND ROCK IN CRACKS AND OPENINGS BETWEEN WEIR BOULDERS. THIS IS OFTEN REFERRED TO AS CHINKING. IF POSSIBLE, CHOOSE SHAPES AND PLACE IN A MANNER THAT CONTINUES THE LINES OF THE BOULDERS.
- 2. USE A DEWATERING PUMP TO WASH STRUCTURES TO CREATE MOVEMENT OF SMALLER PARTICLES INTO AND OVER RIFFLE-WEIRS AT END OF CONSTRUCTION ONCE STREAM IS STABILIZED.
- 2.1. START AT TOP MOST WEIR.
- 2.2. PLACE SUFFICIENT WASH IN MATERIAL, E.G., MIX OF SAND, PEA GRAVEL AND ¾-INCH GRAVEL(ALSO REFERRED TO AS BANK RUN GRAVEL) THROUGHOUT STRUCTURES.
- 2.3. USE 2-INCH PUMP AND HOSE TO WASH STRUCTURES USING CLEAN WATER FROM POOLS AND/OR BEHIND SANDBAG DIKES.
- 2.4. OBSERVE FLOWS OVER WEIRS AND CASCADES AND ADJUST ADDITION OF SAND, GRAVEL AND RIVER ROCK ACCORDINGLY.
- 2.5. REPEAT MULTIPLE TIMES.2.6. LEAVE ADDITIONAL SAND AND GRAVEL UPSTREAM AND EDGE OF WEIR FOR STORMS TO WASH IN.

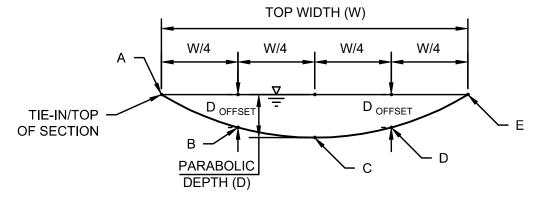
POOLS:

- 1. GRADE TO DESIGNED POOL DEPTH.
- 2. SHAPE POOL WORKING WITH SURROUNDING GRADE. MINIMIZE TREE REMOVAL, CREATE ORGANIC SHAPES AND WIDEN POOLS WHEREVER POSSIBLE.
- 3. ADAPTIVELY MANAGE RIFFLE-WEIRS AND POOLS TO ACHIEVE OPTIMAL CONDITIONS, INCLUDING THE RATE OF INFILTRATION AND DRAINAGE.
- 4. MAINTENANCE AND INSPECTIONS FOR THE STREAM IMPROVEMENTS SHALL BE PERFORMED IN DRY WEATHER CONDITIONS.



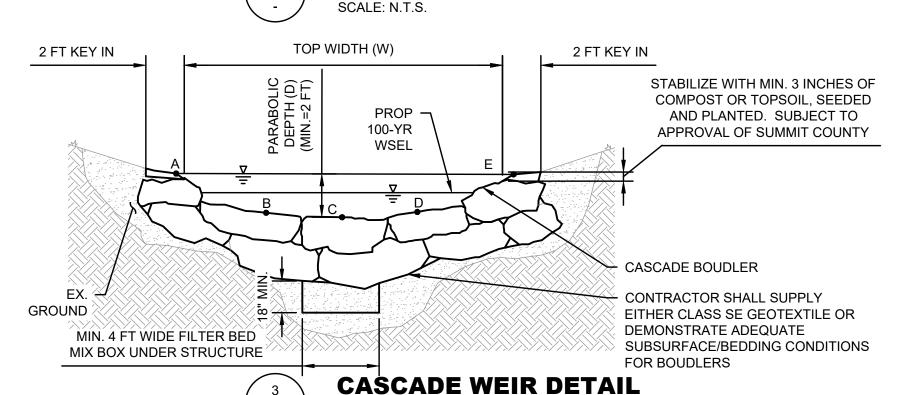


DOWNSTREAM



D _{OFFSET} = DEPTH OF PARABOLIC SECTION AT W/4 OFFSET.

PARABOLIC SECTION DIMENSIONS

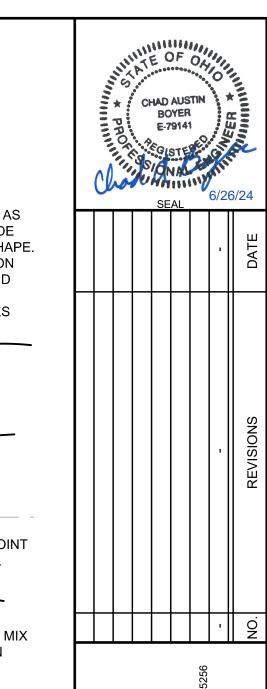


CASCADE WEIR NOTES:

BOULDERS AS DISPLAYED REFLECT VARIABILITY IN STONE DIMENSION WITHIN THE MINIMUM SIZE REQUIREMENTS.
THE CONTRACTOR IS RESPONSIBLE FOR SELECTING APPROPRIATE MATERIAL TO MEET THE LENGTH, WIDTH,
DEPTH, AND SLOPE REQUIREMENTS AS OUTLINED ON THIS SHEET. THE NUMBER OF BOULDERS AND THEIR
CONFIGURATION MAY VARY FROM THIS PLAN.

SCALE: N.T.S.

2. ALL BOULDERS SHALL BE PLACED WITH EDGES ALIGNED TIGHTLY TO MINIMIZE VOID SPACE.



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ION MOTES

SUMMIT COUNTY SWMD
SUMMIT COUNTY, OHIO
WYE ROAD FLOOD MITIGATION
& IMPROVENT PLANS
STREAM IMPROVEMENT GENERAL NOTES

Project Number:
61-04F39

Drawn by:

RDA

Checked by:

Checked by:

MRB

Approved by:

CAB

N/A

Date: 3/5/24

Dwg. No.:

Sheet: 6 of 20

\01\61\04F39 — Summit Co. — Wye Rd. Flood Mitig & Impr\C_Preliminary Design\Drawings\SI

WOODCHIPS

CLEAN SAND

FILTER BED MIX (BY VOLUME)

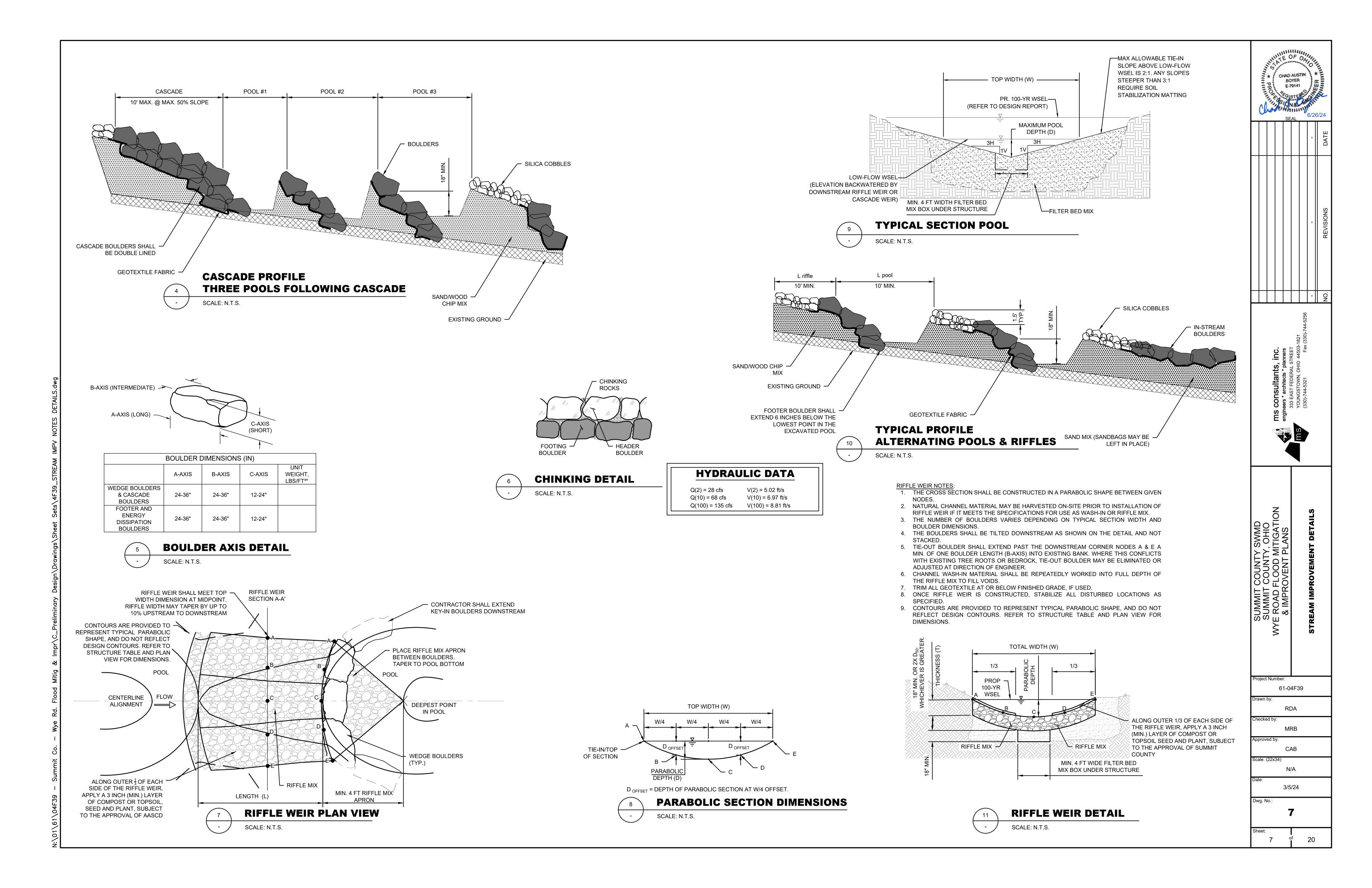
- 1. RIFFLE MIX SHALL BE STREAM SILICA COBBLE RANGING FROM
- ROUNDED TO SUB-ANGULAR SHAPE.

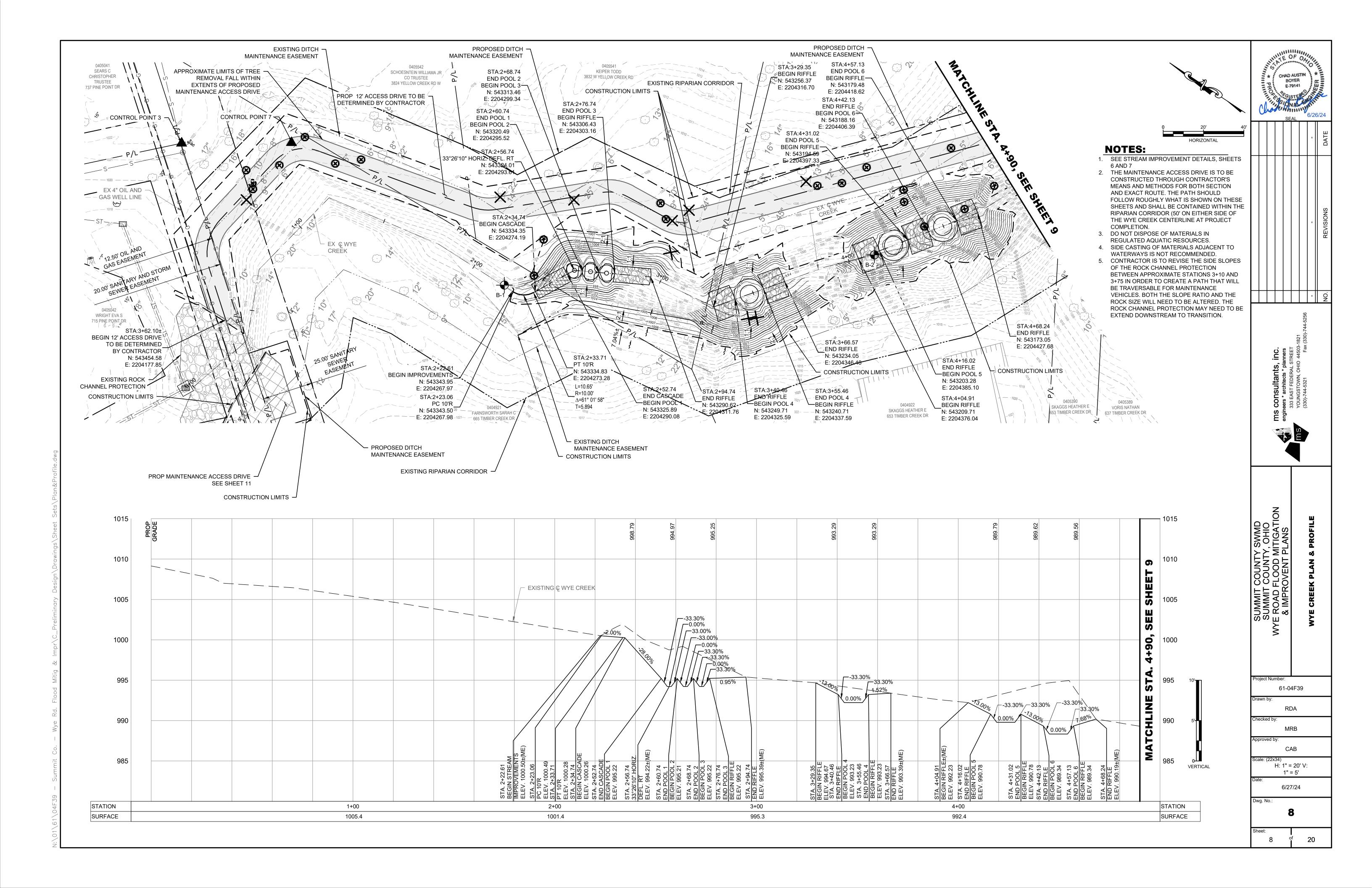
OF THE MIX WHEN CALCULATING D50.

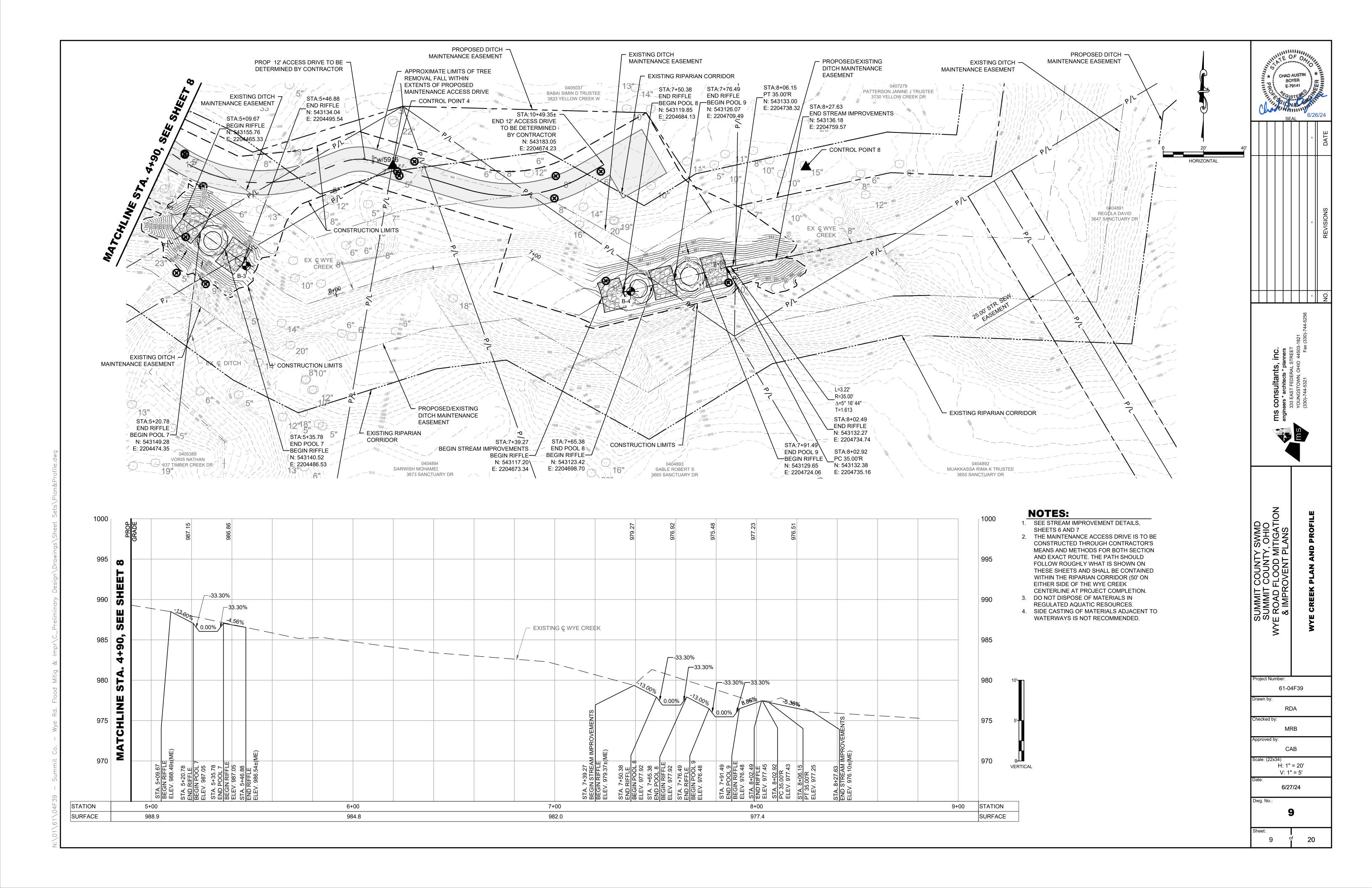
80%

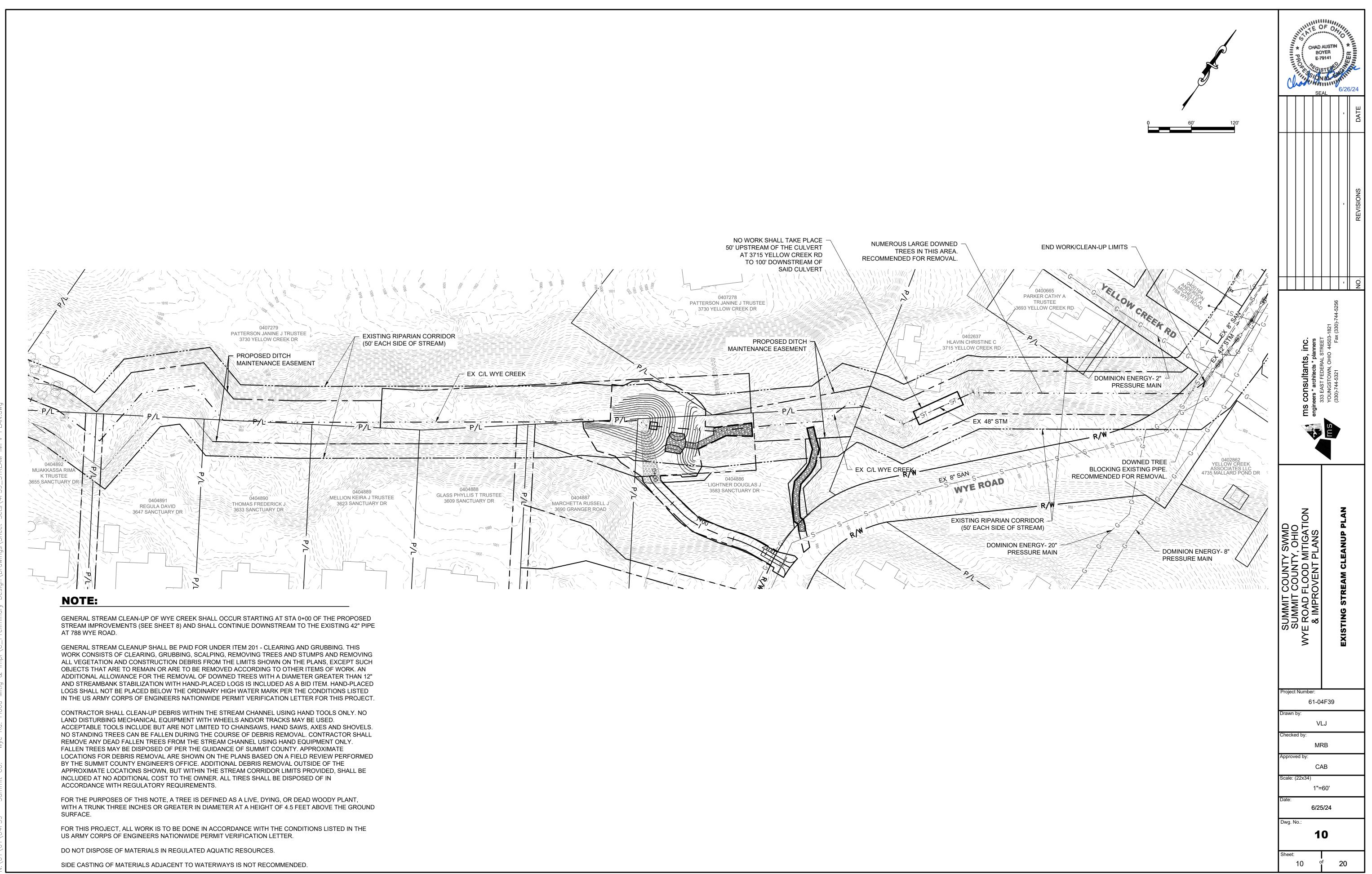
20%

2. ALL RIFFLE MIX SHALL BE WASHED WITH PEA GRAVEL AND CLEAN SAND TO CHOKE VOIDS PRIOR TO FINAL STABILIZATION. THE PEA GRAVEL AND SAND ARE AN INCIDENTAL SUPPLEMENT TO THE RIFFLE MIX FOR NATURALIZATION AND ARE NOT CONSIDERED PART

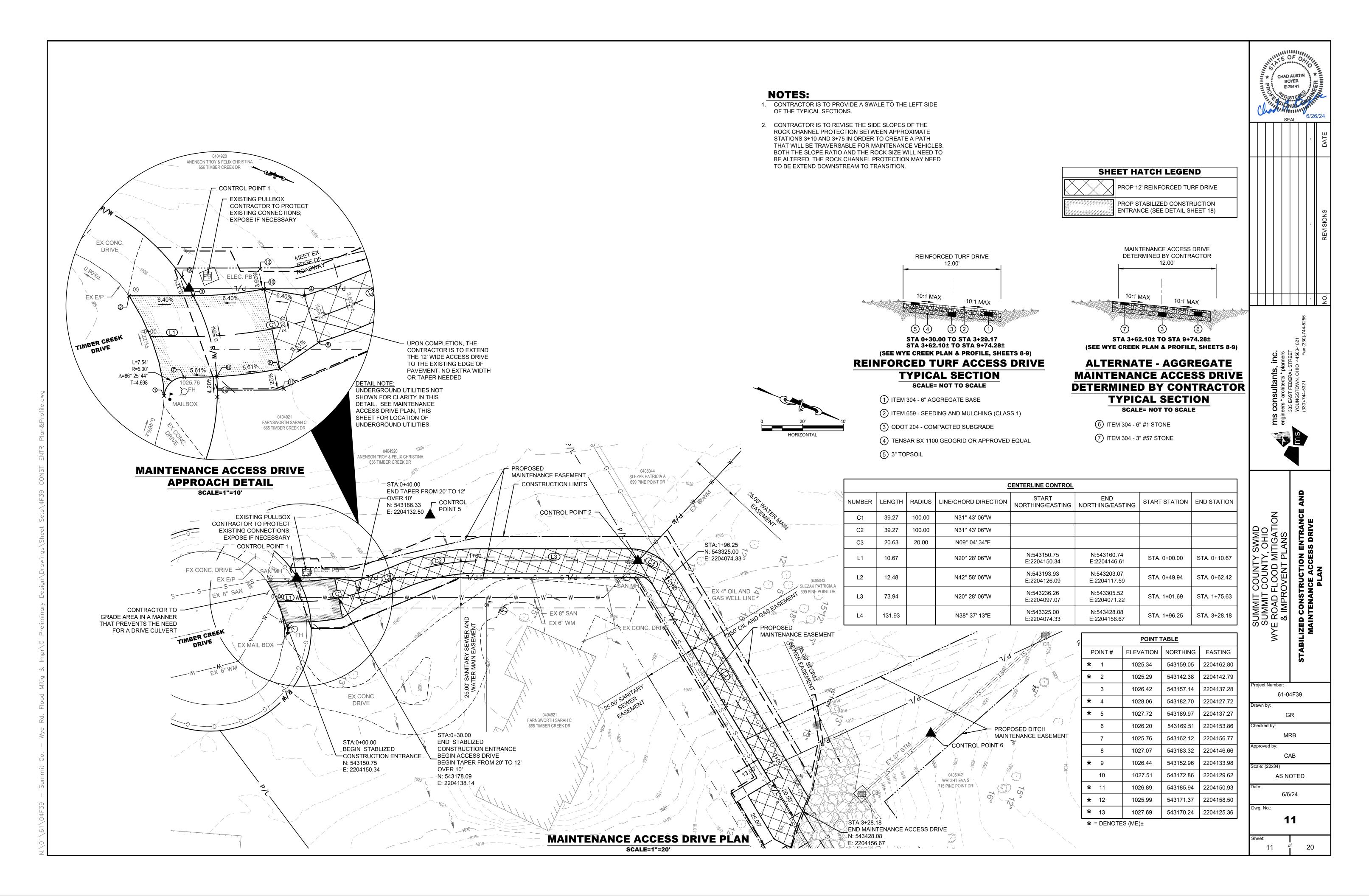




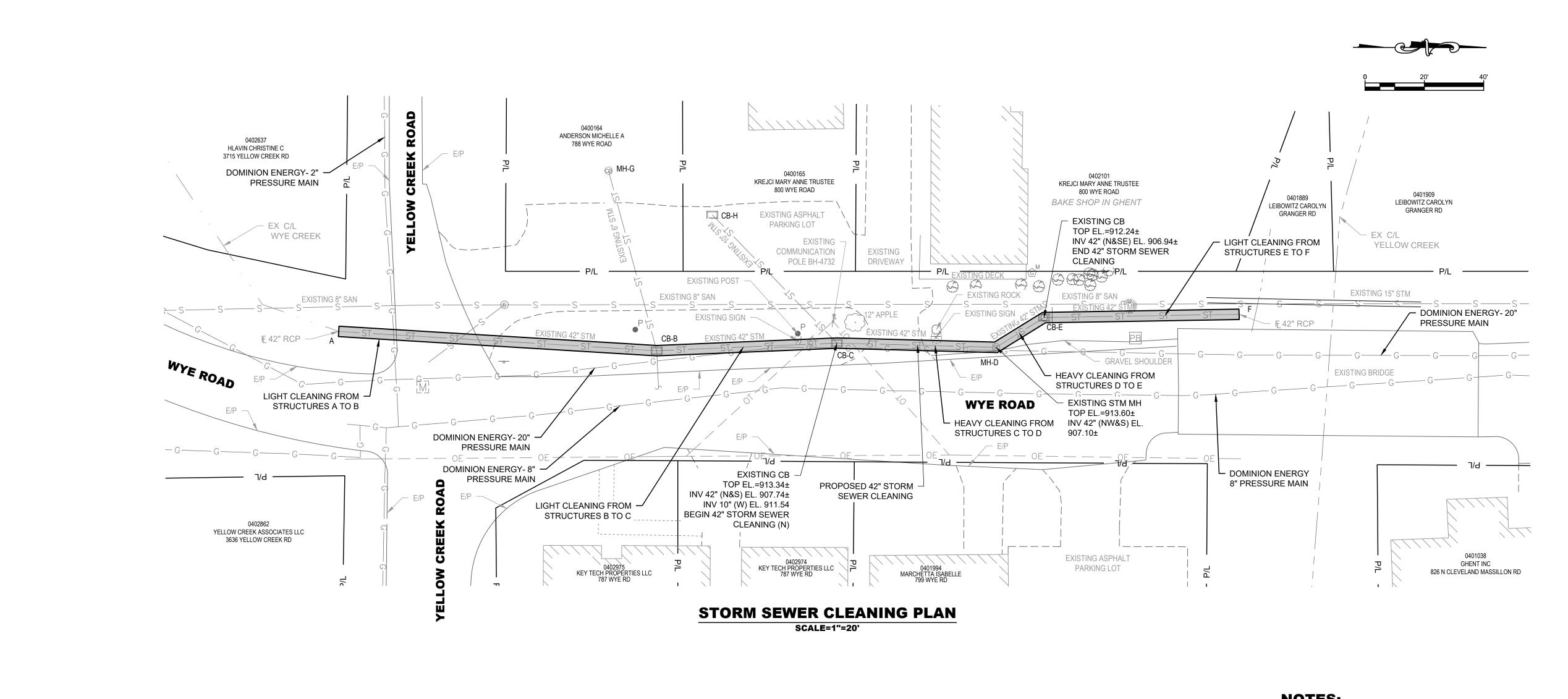




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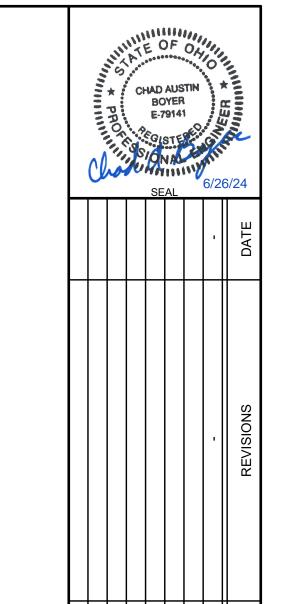
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NOTES:

- 1. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CLEAN THE SEWER AND MANHOLES AS SPECIFIED WITHIN OR AS DESIGNATED BY THE ENGINEER.
- 2. ALL WORK SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES RECOMMENDED SPECIFICATIONS FOR SEWER COLLECTION SYSTEM REHABILITATION (LATEST EDITION).
- 3. THE SEWER SHALL BE CLEANED OF BRICKS, CONCRETE, SAND, DIRT, ROOTS, GREASE, MINERAL DEPOSITS THICKER THAN 1", AND ANY OTHER SOLID OR SEMISOLID MATERIAL USING HIGH VELOCITY HYDRAULIC SEWER CLEANING EQUIPMENT OR PHYSICAL MEANS WITHOUT DAMAGE TO THE EXISTING SEWER. SELECTION OF THE EQUIPMENT USED SHALL BE BASED ON THE CONDITION OF THE SEWER AT THE TIME THE WORK COMMENCES.
- 4. DURING SEWER CLEANING OPERATION, PRECAUTIONS SHALL BE TAKEN TO PROTECT THE SEWER FROM DAMAGE THAT MIGHT BE INFLICTED BY THE IMPROPER USE OF CLEANING EQUIPMENT.
- 5. HIGH VELOCITY HYDRAULIC SEWER CLEANING EQUIPMENT SHALL BE CONSTRUCTED FOR EASE AND SAFETY OF OPERATION. THE EQUIPMENT CONSISTS OF 3/4-INCH INSIDE DIAMETER HIGH PRESSURE HOSE WITH A SELECTION OF TWO OR MORE HIGH VELOCITY NOZZLES. THE NOZZLES SHALL HAVE A MINIMUM CAPACITY OF 30 GALLONS PER MINUTE (GPM) AT A WORKING PRESSURE OF 1,000 TO 1,500 POUNDS PER SQUARE INCH (PSI). THE NOZZLES SHALL BE CAPABLE OF PRODUCING A SCOURING ACTION FROM 15 DEGREES TO 45 DEGREES IN ALL SIZE SEWERS. THE EQUIPMENT SHALL CARRY ITS OWN WATER TANK, AUXILIARY ENGINES, PUMPS, AND HYDRAULICALLY & DRIVEN HOSE REEL. ALL CONTROLS SHALL BE LOCATED SO THAT THE EQUIPMENT CAN BE OPERATED ABOVE GROUND.

- 6. ROOT REMOVAL MAY INCLUDE THE USE OF MECHANICAL DEVICES, SUCH AS RODDING MACHINES, EXPANDING ROOT CUTTERS AND PORCUPINES, AND HYDRAULIC CLEANING EQUIPMENT.
- 7. ALL MATERIAL RESULTING FROM THE CLEANING OPERATION SHALL BE REMOVED FROM THE SEWER SECTION BEING CLEANED. ALL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE AT THE END OF EACH WORKDAY. THE CONTRACTOR SHALL NOT ACCUMULATE MATERIAL ON THE SITE OF WORK.
- 8. THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT, AND MATERIALS NECESSARY TO CLEAN THE SEWER AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. ANY SEWER WASTE MATERIAL DISPOSAL COSTS ARE TO BE INCLUDED IN THIS ITEM AS WELL.
- 9. THIS ITEM SHALL BE PAID AT THE UNIT PRICE BID PER LINEAR FOOT OF SEWER CLEANING AS MEASURED ALONG THE CENTERLINE OF THE SEWER THAT IS BEING CLEANED.
- 10. STRUCTURE NAMES ON THIS SHEET CORRESPOND WITH CCTV FOOTAGE AND REPORTS COMPLETED BY ENVIROLINK ON JUNE 3, 2019.



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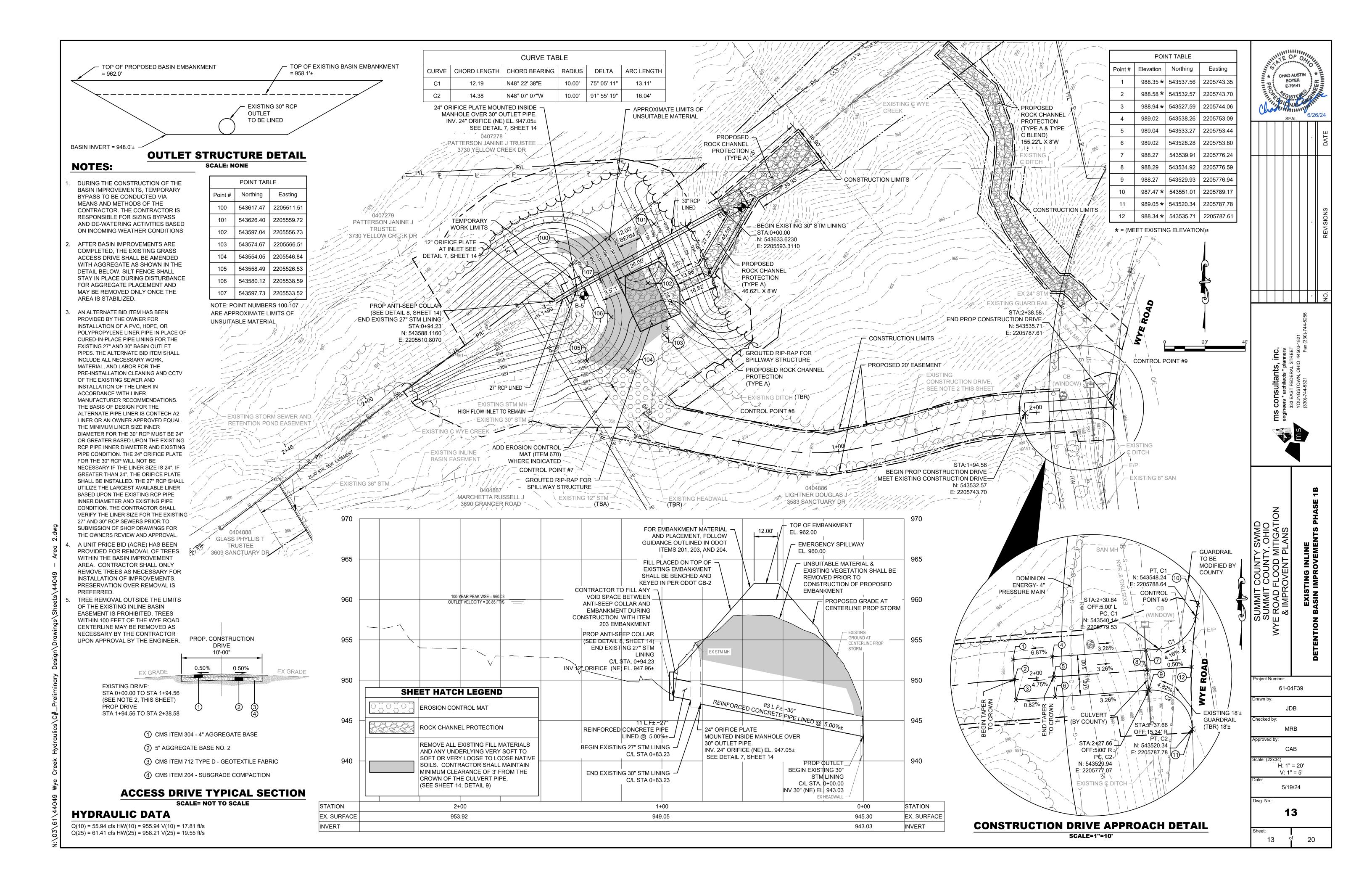
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SUMMIT COUNTY, OHIO
WYE ROAD FLOOD MITIGATION
& IMPROVENT PLANS

t Number:
61-04F39
by:
RDA
ed by:
MRB
ved by:
CAB
(22x34)
1"=20'
5/20/24
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12



OUTLET CONTROL ORIFICE PLATE

SCALE: N.T.S.

ORIFICE SIZING EQUATION:

 $Q = CA(2gH)\frac{1}{2}$

Q = PEAK DISCHARGE RATE, cfs

C = COEFFICIENT OF DISCHARGE. DIMENSIONLESS, (USE NOMINAL VALUE OF 0.60)

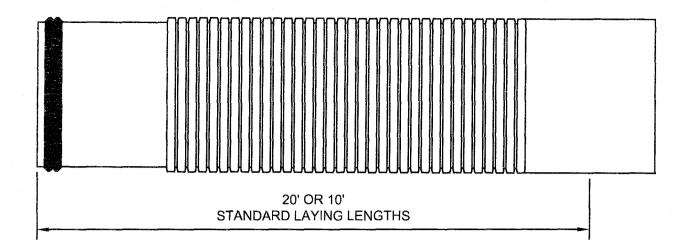
A = CROSS SECTIONAL AREA OF ORIFICE SQUARE FEET.

g = ACCELERATION DUE TO GRAVITY, 32.16' FT./SEC./SEC.

H = HEAD ON THE ORIFICE, FEET.

NOTES:

- ORIFICE PLATE TO BE SET ON OUTLET PIPE WALL AT EACH BASIN AS INDICATED ON PLANS.
- 2. ORIFICE PLATE SHALL BE SEALED ON ALL SIDES. GAPS FROM 1/8" TO ½" IN WIDTH BETWEEN THE ORIFICE PLATE AND INSIDE WALL OF THE STRUCTURE SHALL BE SEALED WITH SILICONE RUBBER-BASED CAULK OR POLYURETHANE. GAPS GREATER THAN 1/4" SHALL BE SEALED WITH NON-SHRINK GROUT.



SPECIFICATION:

THIS SPECIFICATION INCLUDES MATERIALS AND TEST METHODS FOR 12 INCH TO 36 INCH DIAMETER POLYVINYL CHLORIDE (PVC) RELINE PIPE. THE REQUIREMENTS OF THIS SPECIFICATION ARE INTENDED TO PROVIDE PIPE SUITABLE FOR RELINING OR SLIPLINING EXISTING SANITARY SEWERS, STORM SEWERS OR DRAINAGE PIPE.

PVC CORRUGATED PIPE WITH A SMOOTH INTERIOR SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION F949 (LATEST REVISION). PIPE AND FITTINGS SHALL BE HOMOGENEOUS THROUGHOUT AND FREE FROM VISIBLE CRACKS, HOLES, FOREIGN INCLUSIONS OR OTHER INJURIOUS DEFECTS. THE PIPE SHALL BE MADE OF PVC COMPOUND HAVING A CELL CLASSIFICATION OF 12454 AS DEFINED IN ASTM SPECIFICATION D1784.

THE PIPE SHALL BE CONNECTED WITH A PVC COUPLING UTILIZING ELASTOMERIC SEALING GASKETS. WHEN JOINED. THE COUPLING SHOULD NOT REDUCE THE INTERIOR DIAMETER WHILE MAINTAINING A CONSTANT OUTSIDE DIAMETER. THE ASSEMBLED JOINT SHALL MEET THE PERFORMANCE REQUIREMENT OF ASTM D3212 AND SHALL REMIN WATERTIGHT AT 5° DEGREES) ANGULARITY WHEN TESTED IN ACCORDANCE WITH SECTION 7.3. ELASTOMERIC SEALS (GASKETS) SHALL MEET THE REQUIREMENTS OF ASTM F477.

ALTERNATE BID ITEM: LINER PIPE

SCALE: N.T.S.

THE ALTERNATE BID ITEM BASIS OF DESIGN FOR THE LINER PIPE SHOWN ABOVE IS CONTECH A2 LINER. THE OWNER MAY ACCEPT HDPE OR POLYPROPYLENE APPROVED EQUALS AT THEIR DISCRETION

EMBANKMENT GEOTECHNICAL NOTES:

GROUNDWATER LEVEL MEASUREMENTS:

CONTRACTOR SHALL INSTALL AND MONITOR GROUNDWATER LEVEL WITH TWO PIEZOMETERS OR OBSERVATION WELLS DURING CONSTRUCTION. THIS ITEM SHALL BE PAID PER THE LUMP SUM BID PRICE FOR THIS ITEM.

EMBANKMENT STRUCTURAL FILL:

STRUCTURAL FILL SHALL BE PLACED AS FOLLOWS:

- STRUCTURAL FILL MATERIALS SHOULD BE PLACED IN LAYER OF NOT MORE THAN 8 INCHES IN LOOSE THICKNESS WITH SOILS THAT HAVE ROCK FRAGMENTS THAT ARE NO LARGER THAN 3 INCHES IN THEIR
- STRUCTURAL FILL MATERIALS SHOULD HAVE A MAXIMUM LIQUID LIMIT OF 40 AND A MAXIMUM PLASTICITY INDEX OF 20, TESTED PER ASTM D-4318. CONSIDERATION SHOULD BE GIVEN TO USING GRANULAR LOW PLASTICITY SOILS FOR STRUCTURAL FILL.
- MOISTURE CONTENTS SHOULD BE WITHIN +/- TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT PER ASTM D-1557. ADJUSTMENTS TO THE NATURAL MOISTURE CONTENTS OF THE SOILS MAY BE REQUIRED IN ORDER TO OBTAIN SPECIFIED COMPACTION LEVELS. ADDITIONALLY, SOILS TO BE USED AS FILL SHOULD HAVE A MAXIMUM DRY DENSITY (MDD) OF AT LEAST 100 PCF AS DETERMINED BY MODIFIED PROCTOR.
- EACH LAYER OF THE FILL MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557).
- THE CONTRACTOR SHALL MONITOR THE FILL PLACEMENT AND COMPACTION OPERATIONS. TWO DENSITY TESTS SHOULD BE PERFORMED PER LIFT TO ENSURE PROPER COMPACTION IS ACHIEVED.
- ON-SITE MATERIAL CONSIDERED FOR REUSE AS STRUCTURAL BACKFILL SHALL BE COLLECTED AS BULK SAMPLES AT THE START OF CONSTRUCTION, AND DURING CONSTRUCTION AS NEEDED, FOR LABORATORY TESTING BY THE CONTRACTOR. A BULK SAMPLE SHALL BE TAKEN AS ONE REPRESENTATIVE SAMPLE FOR EACH MATERIAL TYPE. THE BULK SAMPLE SHALL BE COLLECTED AS ONE 5-GALLON BUCKET PER SAMPLE, OR IF THE PARTICLE SIZE IS 3/4" NOMINAL SIZE OR GREATER, TWO 5-GALLON BUCKETS PER SAMPLE. MATERIAL MUST MEET REQUIREMENTS OF THIS NOTE FOR REUSE.
- TESTING FOR THE REUSE OF EMBANKMENT STRUCTURAL FILL SHALL BE PAID FOR UNDER THE UNIT PRICE OF ITEM 203 - EMBANKMENT - BERM.

SITE PREPARATION AND EARTHWORK CONSTRUCTION- REMOVAL OF UNSUITABLE MATERIAL:

CONTRACTOR SHALL REMOVE ANY TOPSOIL, VEGETATION, ROOTS, WOOD, ORGANIZE, SOFT, EXTREMELY MOIST OR FROZEN SOILS, AND DEBRIS SLAG AND/OR ANY OTHER UNSUITABLE OR DELETERIOUS MATERIALS, IN THE CONSTRUCTION LIMITS. A GENERAL TOPSOIL STRIPPING DEPTH OF APPROXIMATELY 5 TO 12 INCHES IS ANTICIPATED WITHIN THE GENERAL CONSTRUCTION AREA OF THE BASIN IMPROVEMENTS. THE STRIPPING DEPTH SHALL BE DETERMINED ON-SITE BY THE OWNER OR OWNER'S REPRESENTATIVE. BASED ON BORINGS B-5 AND B-6. AN APPROXIMATELY 7 TO 11-FOOT EXCAVATION WILL BE REQUIRED TO REMOVE ALL EXISTING FILL MATERIALS AND ANY UNDERLYING VERY SOFT TO SOFT OR VERY LOOSE TO LOOSE NATIVE SOILS INTERVALS AND ANY HIGHLY DISTURBED NATIVE SOILS ENCOUNTERED WITHIN THE ENTIRE FOOTPRINT OF THE PROPOSED EARTHEN EMBANKMENT. IN GENERAL, THE CONTRACTOR SHALL REMOVE MATERIAL TO WITHIN THREE FEET OF THE CROWN OF THE CULVERT AND THEN REPLACE TO PROPOSED GRADE.

COHESIVE FILL MATERIALS AND/OR NATIVE COHESIVE SOILS CLASSIFIED AS LEAN CLAY OR SANDY LEAN CLAY (CL). AS PER THE USCS/ASTM SHALL BE REUSED AS STRUCTURAL FILL, PROVIDED THAT THEY ARE FREE OF ORGANIC MATTER AND/OR ANY OTHER UNSUITABLE OR DELETERIOUS MATERIALS AND IF THEY MEET THE REQUIREMENTS OF THE "EMBANKMENT STRUCTURAL FILL" NOTE. FOLLOWING SITE CLEARING, STRIPPING, AND UNDERCUTTING, AND PRIOR TO PLACING STRUCTURAL FILL, THE EXPOSED SUBGRADE SHALL BE CRITICALLY PROOF-ROLL TESTED UNTIL THE GRADE OFFERS AN UNYIELDING SURFACE. AREAS OF EXCESS YIELDING OR PUMPING, AS OBSERVED BY THE

FILL. AFTER THE EXISTING SUBGRADE MATERIALS ARE EXCAVATED TO GRADE, PROPER CONTROL OF SUBGRADE COMPACTION AND THE PLACEMENT AND COMPACTION OF NEW FILL MATERIALS SHALL BE OBSERVED AND TESTED IT IS RECOMMENDED THAT THE SITE PREPARATION, PROOF-ROLL TESTING, AND EARTHWORK ACTIVITIES BE PERFORMED DURING A PERIOD OF DRY WEATHER. IF DURING EXCAVATION, FILL PILES, BURN PITS, TRASH PITS, OR OTHER ISOLATED DISPOSAL AREAS ARE ENCOUNTERED, MATERIALS SHALL BE EXCAVATED, REMOVED FROM THE SITE, AND BACKFILLED WITH COMPACTED STRUCTURAL FILL.

FILL SLOPE CONSTRUCTION:

1. FILL FOUNDATION KEYS

CONSTRUCT AN 8-FOOT-WIDE FILL FOUNDATION KEY AT THE BASE OF THE NEW FILL SLOPES THAT EXCEED 5 VERTICAL FEET IN TOTAL VERTICAL HEIGHT. THE FILL FOUNDATION KEY SHOULD BE EXCAVATED INTO SUITABLE SOILS AS DETERMINED BY THE OWNER OR OWNER'S REPRESENTATIVE TO PROVIDE A STABLE FILL BENCH THAT IS NON-YIELDING UNDER THE WEIGHT OF A 10-TON ROLLER. THE BEARING SOILS OF THE FILL FOUNDATION KEY SHOULD BE STABLE AND IN COMPLIANCE WITH ODOT ITEM 204. THE FILL FOUNDATION KEYS SHOULD BE CONSTRUCTED TO A MINIMUM OF 3-FEET IN DEPTH BUT NOT EXCEED 5-FEET. DEEPER FILL FOUNDATION KEYS MAY BE REQUIRED TO TRANSITION TO SHALLOWER KEYS. THIS TRANSITION SHALL BE PERFORMED GRADUALLY. BACKFILL THE FILL FOUNDATION KEYS IN ACCORDANCE WITH THE "EMBANKMENT STRUCTURAL FILL" AND "SITE

2. FILL BENCHES

CONTINUOUS HORIZONTAL FILL BENCHING INTO THE EXISTING SLOPE MATERIALS SHALL BE PERFORMED. BENCH HEIGHTS SHALL NOT EXCEED 4 FEET IN HEIGHT AND BENCHES SHOULD BE OF SUFFICIENT WIDTH TO ACCOMMODATE BULLDOZER, TRACKHOE, AND COMPACTION EQUIPMENT. EXPOSED BENCH MATERIALS SHALL BE STABLE AND NON-YIELDING UNDER A MINIMUM 10-TON SMOOTH DRUM ROLLER AND ANY YIELDING MATERIAL SHALL BE OVER-EXCAVATED AND REPLACED WITH APPROVED ON-SITE OR IMPORTED SOILS. THE INITIAL LIFT OF THE NEW FILL SHALL BE BLENDED WITH EXPOSED BENCH MATERIALS USING SHEEPSFOOT EQUIPMENT AND EACH LIFT SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE "EMBANKMENT STRUCTURAL FILL" AND "SITE PREPARATION AND EARTHWORK CONSTRUCTION- REMOVAL OF UNSUITABLE MATERIAL" NOTES.

CONSTRUCTION CONSIDERATIONS:

- A. GROUNDWATER LEVELS FLUCTUATE SEASONALLY AND GROUNDWATER SEEPAGE MAY BE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION. GROUNDWATER IS SHALL BE CONTROLLED AND MAINTAINED AT AN ELEVATION OF AT LEAST 2 FEET BELOW EXCAVATION BOTTOMS. CONTRACTOR SHALL KEEP THE EXCAVATIONS DRY IF WATER IS ENCOUNTERED. DEWATERING/REWATERING METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

A. THE CONTRACTOR SHALL DESIGN AND CONSTRUCT STABLE, TEMPORARY EXCAVATIONS AND SHALL SHORE, SLOPE, OR BENCH THE SIDES OF THE EXCAVATIONS AS REQUIRED TO MAINTAIN STABILITY OF BOTH THE

A. THE CONTRACTOR SHALL MAINTAIN POSITIVE SITE DRAINAGE. IF WET/PUMPING CONDITIONS OCCUR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OVER EXCAVATING THE WET SOILS AND REPLACING THEM WITH COMPACTED STRUCTURAL FILL.

4. UTILITY TRENCHING

PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. TRENCHES SHALL NOT BE BACKFILLED WITH STANDING WATER LOCATED IN THE TRENCH.

OWNER OR OWNER'S REPRESENTATIVE. SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED STRUCTURAL

PREPARATION AND EARTHWORK CONSTRUCTION- REMOVAL OF UNSUITABLE MATERIAL" NOTES.

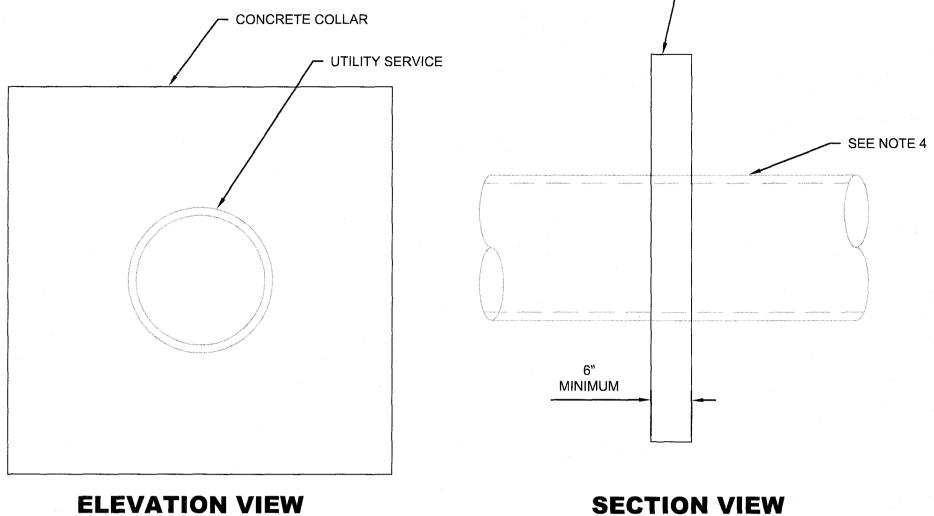
1. GROUNDWATER CONTROL AND DRAINAGE

2. EXCAVATION

EXCAVATION SIDES AND BOTTOM.

3. WEATHER CONSIDERATIONS

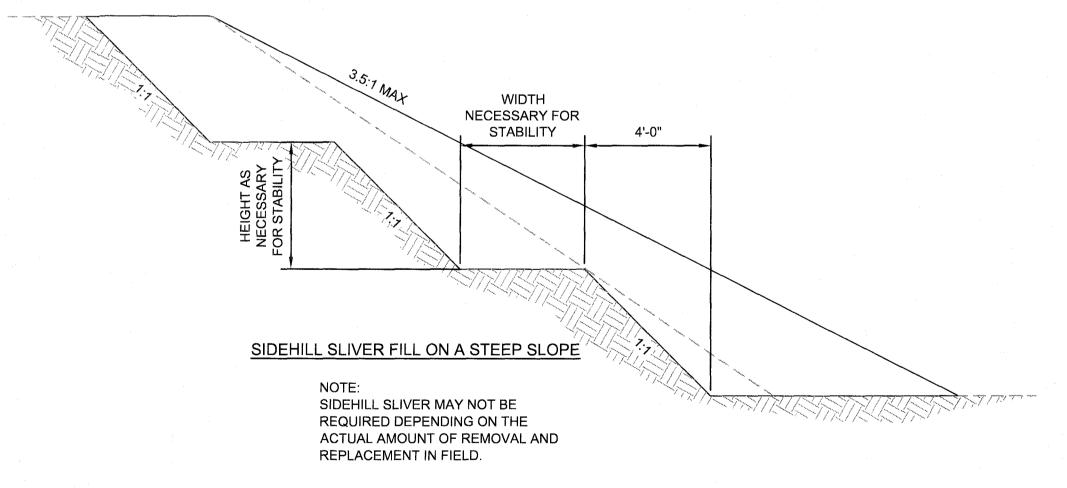
A. BACKFILL SHALL BE PLACED IN FOUR TO SIX INCH LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95

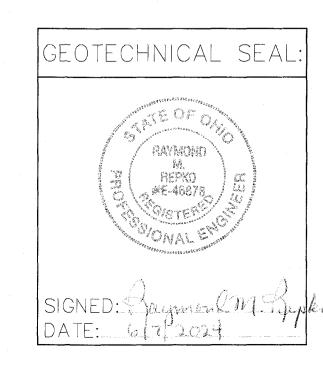


ANTI-SEEP COLLAR

SCALE: N.T.S.

- 1. ANTI-SEEP COLLAR SHOULD BE USED IN CONJUNCTION WITH UTILITY SLEEVE.
- 2. DIMENSION W ABOVE SHALL BE 3' FOR PIPES 12" AND SMALLER. REFER TO ODOT STD. DWG WQ-1.2 FOR SIZE REQUIREMENTS FOR LARGER PIPES.
- 3. COLLAR SHALL BE CONSTRUCTED OF 4000 PSI COMPRESSIVE STRENGTH CONCRETE OR OTHER MATERIAL APPROVED BY THE
- 4. PIPE MATERIAL AND SIZING WILL VARY BY FUNCTION.





CHAD AUSTI

ALIGN COLLAR WITH EDGE OF BASIN

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roject Number 61-04F39 JDB MRB CAB

N/A 5/15/24

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EMBANKMENT GEOTECHNICAL DETAIL

SCALE: N.T.S.

PART 1 - GENERAL

SUMMARY

A. FURNISH AND INSTALL THE CURED-IN-PLACE RESIN IMPREGNATED FLEXIBLE TUBE PIPE LINER IN ACCORDANCE WITH THE PLANS AND AS SPECIFIED HEREIN. WHEN INSTALLED, CURED, AND COMPLETE, THE LINER SHALL EXTEND FROM BEGINNING TO END IN A CONTINUOUS TIGHT-FITTING, WATERTIGHT, PIPE-WITHIN-A-PIPE MANNER WITH A UNIFORMLY SMOOTH INTERIOR PROVIDING HYDRAULIC FLOW EQUAL TO OR GREATER THAN THE EXISTING SEWER IN ORIGINAL CONDITION.

1.02 **SUBMITTALS**

SUBMITTAL A SHALL BE SUBMITTED WITH THE BID.

SUBMITTALS B-H SHALL BE MADE AT THE PRE-CONSTRUCTION MEETING.

- SUBMITTALS I-J SHALL BE MADE A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO LINING.
- SUBMITTALS K-L SHALL BE MADE WITHIN ONE WEEK AFTER LINING.
- A. CONTRACTOR'S QUALIFICATIONS. SUBMIT COPY OF MANUFACTURER'S LICENSEE CERTIFICATE. SUBMIT LIST OF TEN (10) SIMILAR REGIONAL JOBS WITHIN THE PAST THREE (3) YEARS. PROVIDE PROJECT INFORMATION SUCH AS LENGTH OF PROJECT, PIPE DIAMETER, DATE COMPLETE PROJECT COST, OWNER CONTACT (NAME AND PHONE NUMBER), AND INSTALLATION/CURING METHOD. IN ADDITION, THREE (3) OF THE TEN (10) REGIONAL JOBS MUST INDICATE THE SUCCESSFUL USE OF STEAM CURING IF THIS METHOD IS TO BE UTILIZED BY THE CONTRACTOR.
- B. PRODUCT DATA. FURNISH MANUFACTURER'S GENERAL PRODUCT DATA.
- C. MATERIAL CERTIFICATIONS. WRITTEN CERTIFICATION IS REQUIRED FROM THE MANUFACTURER THAT ALL LINER AND RESIN USED IN THE WORK WERE MANUFACTURED AND TESTED IN ACCORDANCE WITH THE ASTM STANDARDS SPECIFIED HEREIN, AND IS BEING USED OR INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- D. STORAGE AND DELIVERY PROCEDURES. THE CONTRACTOR SHALL PROVIDE THE RESIN AND LINER MANUFACTURER'S RECOMMENDED STORAGE AND DELIVERY PROCEDURES. THIS SHALL INCLUDE STORAGE AND DELIVERY TEMPERATURES, MAXIMUM TIME FROM WET-OUT TO INSTALLATION, AND OTHER PERTINENT INFORMATION.
- E. MATERIAL SAFETY DATA SHEETS. THE CONTRACTOR SHALL SUBMIT MATERIAL SAFETY DATA SHEETS (MSDS) FOR EACH COMPONENT OF THE
- F. TEST RESULTS. PRIOR TO THE USE OF ANY MATERIALS, THE CONTRACTOR SHALL FURNISH, AT ITS EXPENSE, THE RESULTS OF TESTING OF THE PROPOSED MATERIALS BY AN INDEPENDENT LABORATORY IN CONFORMANCE WITH THESE SPECIFICATIONS. ALL SUBMITTED TEST DATA SHALL HAVE BEEN PERFORMED ON FIELD INSTALLED SAMPLES WITHIN THE LAST TWELVE (12) MONTHS. ANY MATERIAL NOT MEETING THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL BE COMPLETELY REMOVED FROM THE PROJECT. MATERIALS ACCEPTABLE TO THE ENGINEER SHALL BE SUBSTITUTED FOR REJECTED ITEMS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL SUBMIT THE FOLLOWING:
- TESTING BY AN INDEPENDENT LABORATORY TO VERIFY THAT THE PRODUCTS TO BE USED MEET ALL MINIMUM STRENGTH STANDARDS AS SET
- TESTING BY AN INDEPENDENT LABORATORY TO VERIFY THAT THE PRODUCTS USED MEET THE CREEP FACTOR SPECIFIED WITHIN. THE SUBMITTAL SHALL INCLUDE THE LONG-TERM FLEXURAL AND TENSILE MODULUS OF ELASTICITY MEASURED IN ACCORDANCE WITH ASTM D2990.
- G. INSTALLATION PROCEDURES. THE CONTRACTOR SHALL SUBMIT THE CIPP LINER MANUFACTURER'S DETAILED INSTALLATION PROCEDURES FOR THE INSTALLATION METHOD(S) TO BE UTILIZED ON THIS PROJECT.
- H. CURING CYCLE AND COOLING RATE. THE CONTRACTOR SHALL SUBMIT THE RESIN MANUFACTURER'S RECOMMENDED CURING CYCLE AS WELL AS THE RECOMMENDED COOLING RATE. THE CONTRACTOR SHALL SUBMIT INVERSION PRESSURE (DESIRED AND MAXIMUM), CURING PRESSURE (DESIRED AND MAXIMUM) AND TIMES (PART OF THE CURING CYCLE) FOR AIR INVERSION/STEAM CURING.
- PRE-REHABILITATION VIDEO RECORDINGS AND LOGS. THE CONTRACTOR SHALL SUBMIT 2 COPIES OF THE PRE-REHABILITATION VIDEO RECORDINGS AND LOGS TO THE ENGINEER THAT DOCUMENT EXISTING CONDITIONS AFTER THE CONTRACTOR HAS CLEANED THE SEWER LINE.
- J. CIPP LINER THICKNESS CALCULATIONS. THE CONTRACTOR SHALL PERFORM CIPP LINER THICKNESS CALCULATIONS FOR EACH SECTION AND FURNISH THEM TO THE ENGINEER WITH SUPPORTING ASSUMPTIONS, INCLUDING THE ACTUAL PIPE CONDITION OBSERVED BASED UPON THE PRE-REHABILITATION VIDEO. ALL CALCULATIONS SHALL BE PREPARED UNDER AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO. CALCULATIONS SHALL BE DONE AFTER CLEANING, TELEVISING, AND OTHER FIELD INSPECTIONS HAVE BEEN ACCOMPLISHED. DESIGN PARAMETERS GIVEN IN SECTION 2.01.B SHALL BE USED IN CALCULATIONS.
- K. CURE LOGS. THE CONTRACTOR SHALL SUBMIT A COPY OF THE CURE LOGS FOR EACH INSTALLATION. THE CURE LOGS SHALL CONTAIN RECORDS OF THE CURING CYCLE AND THE COOLING CYCLE. EACH CURE LOG SHALL CLEARLY INDICATE THE PROJECT NAME, CAPITAL IMPROVEMENT PROJECT (CIP) NUMBER, AND THE SECTION THAT WAS LINED.
- POST-REHABILITATION VIDEO RECORDINGS AND LOGS. THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE FINAL TELEVISION INSPECTION THAT SHOW THE REHABILITATED SEWER ALONG WITH REINSTATED SERVICE CONNECTIONS.

1.03 **QUALITY ASSURANCE**

A. STANDARDS. ALL WORK AND MATERIALS USED SHALL BE IN COMPLIANCE WITH THE FOLLOWING STANDARDS THAT ARE MADE PART OF THIS SPECIFICATION:

- AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) (LATEST EDITION)
- A. ASTM D-543, PRACTICES FOR EVALUATING THE RESISTANCE OF PLASTICS TO CHEMICAL REAGENTS.
- B. ASTM D-638, TEST METHOD FOR TENSILE PROPERTIES OF PLASTICS. ASTM D-790, TEST METHODS FOR FLEXURAL PROPERTIES OF UNREINFORCED AND REINFORCED PLASTICS AND ELECTRICAL INSULATING
- MATERIALS.
- D. ASTM D-5813, "STANDARD SPECIFICATION FOR CURED-IN-PLACE THERMOSETTING RESIN PIPE" E. ASTM F-1216, STANDARD PRACTICE FOR REHABILITATION OF EXISTING PIPELINES AND CONDUITS BY THE INVERSION AND CURING OF A RESIN IMPREGNATED TUBE.
- ASTM F-1743, STANDARD PRACTICE FOR REHABILITATION OF EXISTING PIPELINES AND CONDUITS BY PULLED-IN-PLACE INSTALLATION OF CURED-IN-PLACE THERMOSETTING RESIN PIPE (CIPP) (IF GIVEN APPROVAL ON A CASE-BY-CASE BASIS). NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES (NASSCO).
- A. CONTRACTOR'S QUALIFICATIONS. INSTALLATION OF THE SEWER PIPE LINING SYSTEM SHALL BE PERFORMED BY AN EXPERIENCED CONTRACTOR FULLY LICENSED AND APPROVED BY THE LINING PROCESS MANUFACTURER. THE CONTRACTOR SHALL HAVE A MINIMUM OF THREE (3) YEARS OF EXPERIENCE IN SUCH WORK AND SHALL HAVE SATISFACTORILY COMPLETED TEN (10) SIMILAR REGIONAL PROJECTS FOR AT LEAST THREE (3) DIFFERENT UTILITIES OR AGENCIES. IF THE CONTRACTOR ANTICIPATES UTILIZING STEAM CURING, THREE (3) OF THESE TEN (10) REGIONAL PROJECTS MUST BE A STEAM CURED APPLICATION.

DELIVERY, STORAGE AND HANDLING

- DELIVERY CIPP MATERIAL SHALL BE DELIVERED TO THE JOB SITE IN A COVERED REFRIGERATED TRUCK TO MINIMIZE EXPOSURE TO SUNLIGHT AND TO MAINTAIN THE TEMPERATURE OF THE PRODUCT WITHIN MANUFACTURER'S RECOMMENDATIONS TO AVOID PREMATURE CURING. DELIVERY OF MATERIAL SHALL BE COORDINATED WITH OTHER TRADES TO AVOID DELAYS.
- PIPE PREPARATIONS AND FIELD INSPECTIONS SHALL BE COMPLETED PRIOR TO DELIVERY OF LINER TO SITE.
- STORAGE OF MATERIALS
- MATERIAL SHALL BE STORED IN THE DELIVERY TRUCK IN ORDER TO MINIMIZE EXPOSURE TO SUNLIGHT AND TO MAINTAIN THE TEMPERATURE OF THE PRODUCT TO WITHIN MANUFACTURER'S RECOMMENDATION TO AVOID PREMATURE CURING.
- NO MATERIAL SHALL BE STORED IN THE OPEN OR IN CONTACT WITH THE GROUND.
- TEMPERATURE LOGS OF LINER FROM TIME OF WET-OUT TO INSTALLATION SHALL BE GIVEN TO THE COUNTY ON SITE AT THE TIME OF INSTALLATION. THESE LOGS SHALL CONTAIN THE CALCULATED VOLUME OF RESIN REQUIRED AND THE ACTUAL VOLUME OF RESIN PROVIDED. THE COUNTY SHALL VERIFY THAT THE VOLUME OF RESIN PROVIDED IS 5 TO 10 PERCENT GREATER THAN THE CALCULATED VOLUME OF RESIN REQUIRED PER ASTM F-1216, 7.2.
- C. HANDLING HANDLE ALL PRODUCTS WITH CARE. ONLY SOUND, UNDAMAGED PRODUCTS SHALL BE ACCEPTED

PROJECT/SITE CONDITIONS

ENVIRONMENTAL REQUIREMENTS

QUICKLY AND/OR HEAD UP.

- CONTRACTOR MAY BE REQUIRED TO MONITOR STYRENE ODORS AS NECESSARY IN BUSINESSES AND RESIDENCES TO ENSURE THAT
- CONCENTRATION LEVELS ARE UNDER RECOMMENDED LIMITS. CONTRACTOR SHALL USE CAUTION WHEN WORKING IN PROJECT SEWERS. DURING RAIN EVENTS, PROJECT SEWERS MAY REACH CAPACITY
- B. SAFETY. ALL WORK TO BE COMPLETED IN CONFORMANCE WITH ALL APPLICABLE SAFETY STANDARDS, IN PARTICULAR OSHA STANDARD 29CFR 1910.146, PERMIT REQUIRED CONFINED SPACE ENTRY

WARRANTY

A. THE CONTRACTOR SHALL GUARANTEE ALL WORK.

PART 2 - PRODUCTS

MATERIALS

- PRODUCTS. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
- **INSITUFORM®** INLINER USA®
- CIPP CORP NATIONAL LINER

SPINIELLO LINER

UNITED LINER

B. DESIGN PARAMETERS AND MECHANICAL PROPERTIES. THE FOLLOWING VALUES ARE TO BE USED TO VERIFY THAT THE LINER THICKNESS EQUALS OR EXCEEDS THAT SHOWN IN THE PLANS AND, WHERE INDICATED BY AN ASTM STANDARD, SHALL SERVE AS THE MINIMUM ACCEPTABLE STRENGTH REQUIREMENTS FOR THE FINAL CURED LINER.

FLEXURAL STRENGTH (ASTM D-790) SHORT-TERM FLEXURAL MODULUS (ASTM D-790) 400,000 PSI CREEP FACTOR 50% FACTOR OF SAFETY OVALITY SOIL MODULUS

EACH TUBE SHALL BE DESIGNED TO WITHSTAND INTERNAL AND/OR EXTERNAL PRESSURES AS DICTATED BY SITE AND PIPE CONDITIONS AS WELL AS THE INSTALLATION PROCESS USED BY THE CONTRACTOR.

THE CIPP LINER THICKNESS SHALL BE CALCULATED TO WITHSTAND THE SOIL LOADING AT THE DEEPEST POINT (THE MAXIMUM DIFFERENCE BETWEEN THE SURFACE ELEVATION AND THE PIPE ELEVATION). ASSUME THE WATER TABLE TO BE AT THE SAME ELEVATION AS THE AVERAGE

- D. FABRIC TUBE. THE FLEXIBLE FABRIC TUBE SHALL CONSIST OF ONE OR MORE LAYERS OF FLEXIBLE NEEDLED FELT OR AN EQUIVALENT WOVEN AND/OR NON-WOVEN MATERIAL CAPABLE OF CARRYING RESIN, WITHSTANDING INSTALLATION PRESSURES AND CURING TEMPERATURES, AND COMPATIBLE WITH THE RESIN SYSTEM USED. THE TUBE SHALL BE SIZED TO ACCOMMODATE THE FORCES OF INSTALLATION, HOST PIPE CONFIGURATION, AND ANY OTHER PERTINENT FACTORS TO ASSURE A TIGHT FITTING FINAL PRODUCT WITH A SMOOTH FINISH.
- E. RESIN SYSTEM. THE RESIN SYSTEM SHALL BE A POLYESTER, EPOXY, OR VINYL ESTER RESIN AND CATALYST SYSTEM COMPATIBLE WITH THE INSERTION PROCESS. THE RESIN SYSTEM SHALL NOT CONTAIN FILLERS OR ADDITIVES, EXCEPT THOSE REQUIRED FOR VISCOSITY CONTROL, FIRE RETARDANT, MODULUS ENHANCEMENT, CHEMICAL RESISTANCE, OR LIFE EXTENSION. THE FOLLOWING ADDITIVES MAY NOT INTERFERE WITH THE VISUAL INSPECTION OF THE CURED-IN-PLACE LINER PIPE OR ITS REQUIRED PROPERTIES: THIXOTROPIC AGENTS ADDED FOR VISCOSITY CONTROL, THE OPAQUENESS OF THE PLASTIC COATING, AND RESINS THAT MAY CONTAIN PIGMENTS, DYES, OR COLORS. RESIN SELECTED SHALL BE REFLECTED IN THE CIPP LINER THICKNESS CALCULATIONS.

THE TUBE SHALL BE VACUUM IMPREGNATED WITH RESIN (WET-OUT) UNDER CONTROLLED CONDITIONS. THE VOLUME OF RESIN USED SHALL BE SUFFICIENT TO FILL ALL VOIDS IN THE TUBE MATERIAL AT NOMINAL THICKNESS AND DIAMETER AND AN ALLOWANCE FOR MIGRATION OF RESIN INTO THE CRACKS AND JOINTS IN THE HOST PIPE. A ROLLER SYSTEM SHALL BE USED TO UNIFORMLY DISTRIBUTE THE RESIN THROUGHOUT THE

PET OR RECYCLED RESINS WILL NOT BE PERMITTED.

F. INVERTING/CURING MEDIUM. THE INVERTING/CURING MEDIUM SHALL BE HEATED POTABLE WATER OR STEAM. IN NO INSTANCE WILL SEWAGE BE USED TO INVERT OR CURE LINERS OR CALIBRATION TUBES. IF A PRIVATE WATER SOURCE IS PROPOSED FOR USE, A WRITTEN AGREEMENT SHALL BE OBTAINED FROM THE OWNER OF THE PRIVATE WATER SOURCE AND A COPY OF SAID AGREEMENT GIVEN TO THE ENGINEER.

2.02 **EQUIPMENT**

A. ALL EQUIPMENT REQUIRED FOR THE INSTALLATION AND CURING OF THE RESIN IMPREGNATED FLEXIBLE FABRIC TUBE, INCLUDING CABLES, SLEEVES, ROLLERS, COMPRESSORS, GENERATORS, PUMPS, VALVES, GAUGES, WATER HEATERS, AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PART 3 - EXECUTION

3.01 **EXAMINATION**

- A. GENERAL. EXAMINE AREAS AND CONDITIONS WITHIN THE SEWER SYSTEM IN WHICH MATERIALS AND PRODUCTS ARE TO BE INSTALLED.
- B. MATERIAL. ALL SEWER PIPE LINER MATERIALS SHALL BE CAREFULLY INSPECTED FOR DEFECTS PRIOR TO INSTALLATION. THE LINER SHALL BE HOMOGENEOUS THROUGHOUT, UNIFORM IN COLOR, FREE OF TEARS, HOLES, FOREIGN MATERIALS, BLISTERS, OR OTHER DELETERIOUS FAULTS. ANY MATERIAL FOUND DURING THE PROGRESS OF THE WORK TO HAVE FLAWS OR DEFECTS SHALL BE REJECTED. ALL DEFECTIVE MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR FROM THE PROJECT SITE.
- C. RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS FURNISHED AND SHALL REPLACE AT ITS OWN EXPENSE ALL SUCH MATERIAL FOUND DEFECTIVE IN MANUFACTURE OR DAMAGED IN HANDLING AFTER DELIVERY BY THE MANUFACTURER. THIS SHALL INCLUDE THE FURNISHING OF ALL MATERIAL AND LABOR REQUIRED FOR THE REPLACEMENT OF INSTALLED MATERIAL DISCOVERED DEFECTIVE PRIOR TO THE FINAL ACCEPTANCE OF THE WORK.

3.02 **PREPARATION**

- A. CLEANING. ALL SEWERS TO BE LINED SHALL BE CLEANED AS REQUIRED PRIOR TO LINING WITH CIPP. THE TERM "CLEANED" SHALL MEAN THE REMOVAL OF ALL SAND, DIRT, ROOTS, GREASE, AND ALL OTHER SOLIDS OR SEMISOLID MATERIALS FROM THE INTERIOR FACE OF THE SEWER
- B. SEWER VIDEO RECORDING AND INSPECTION. THE CONTRACTOR SHALL TELEVISE THE SEWER TO PROVIDE A DETAILED RECORD OF EXISTING CONDITIONS AND LATERAL CONNECTIONS. TWO (2) COPIES OF THE PRE-REHABILITATION INSPECTION SHALL BE SUBMITTED TO THE COUNTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING A COPY OF THE PRE-REHABILITATION INSPECTIONS IN THE FIELD AS WELL. IMMEDIATELY PRIOR TO CIPP LINER INSERTION, THE CAMERA SHALL TRAVERSE THE SEWER TO INSPECT FOR DEBRIS WHICH MAY HAVE ENTERED THE SEWER LINE AFTER THE EXISTING CONDITION VIDEO RECORDING. A COUNTY REPRESENTATIVE MUST SIGN OFF ON THIS RECONNAISSANCE TELEVISION INSPECTION FOR THE CIPP LINING WORK TO PROCEED.
- C. LATERALS. LATERAL SEWER PIPES PROTRUDING INTO THE MAIN SEWER SHALL BE TRIMMED FLUSH WITH THE INSIDE OF THE MAIN SEWER WALL PRIOR TO LINING. TRIMMING MUST BE DONE IN A NEAT. WORKMANLIKE MANNER. CAUSING NO DAMAGE TO THE LATERAL PIPE BEYOND THE INSIDE FACE OF THE MAIN SEWER. POINT REPAIRS SHALL BE MADE AS NEEDED AROUND LATERALS TO ENSURE A SMOOTH, WATERTIGHT OPENING FOLLOWING LINING OF THE MAIN AND REESTABLISHMENT OF THE LATERAL. THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CIPP UNLESS A PAY ITEM IS PROVIDED.
- E. LINE OBSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAR THE SEWER OF OBSTRUCTIONS, SOLIDS, PROTRUDING SERVICES, OR COLLAPSED PIPE THAT WILL PREVENT THE PROPER INSTALLATION OF THE LINER.

IF THE PRE-REHABILITATION VIDEO RECORDING AND INSPECTION REVEALS AN OBSTRUCTION THAT CANNOT BE REMOVED BY TRENCHLESS MEANS FROM WITHIN THE SEWER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON APPROVAL OF THE ENGINEER. THE CONTRACTOR SHALL MAKE A POINT REPAIR EXCAVATION TO REMOVE THE OBSTRUCTION AND REPAIR THE SEWER.

IF THE PRE-REHABILITATION VIDEO RECORDING AND INSPECTION REVEALS A SAG IN THE SEWER THAT HAS A VERTICAL DISPLACEMENT GREATER THAN ONE-HALF THE PIPE DIAMETER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL MAKE A POINT REPAIR EXCAVATION TO ELIMINATE THE SAG.

IN ADDITION, ANY EQUIPMENT THAT IS LOST, BROKEN, WEDGED, OR STUCK IN A LINE SECTION SHALL BE REMOVED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

G. PROTECTIVE MEASURES. TO PREVENT BURNT GRASS, THE CONTRACTOR SHALL PROVIDE PROTECTIVE MEASURES (E.G. FELT, BLOCKS OF WOOD) TO CREATE A BARRIER BETWEEN THE BOILER HOSES AND THE GRASS FOR EACH INSTALLATION.

FOR STEAM CURING, THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT NON-WATER RESIDUALS/BYPRODUCTS OF STEAM CURING DO NOT ENTER NEARBY STREAMS, STORM SEWERS, ETC.

H. RIGHT OF ENTRY. WHEN PRIVATE PROPERTY MUST BE CROSSED THE CONTRACTOR SHALL OBTAIN WRITTEN RIGHT OF ENTRY (ROE) SIGNED BY THE PROPERTY OWNER. THE ROE SHALL DESCRIBE THE EXTENT OF WORK, ITEMS TO BE RESTORED, WARRANTY AND SCHEDULE. A SIGNED COPY OF THE ROE SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING WORK. THE COST FOR OBTAINING THE RIGHT OF ENTRY AND ASSOCIATED RESTORATION WORK SHALL BE INCLUDED IN THE UNIT BID PRICES FOR CURED-IN-PLACE PIPE.

3.03 INSTALLATION

- A. GENERAL. INSTALLATION SHALL BE BY INVERSION (ASTM F-1216). PULLED-IN-PLACE INSTALLATION (ASTM F-1743) MAY BE ALLOWED ON A CASE-BY-CASE BASIS, IF APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL DELIVER THE LINER TO THE SITE AND PROVIDE ALL EQUIPMENT REQUIRED TO INSERT THE LINER INTO THE SEWER AND CURE IT IN PLACE. THE CONTRACTOR SHALL DESIGNATE THE LOCATION WHERE THE TUBE WILL BE VACUUM IMPREGNATED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL ALLOW THE OWNER TO INSPECT THE MATERIALS AND THE "WET-OUT" PROCEDURE UPON REQUEST. ALL PROCEDURES TO PREPARE THE LINER FOR INSTALLATION WILL BE IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATION. ANY MATERIAL NOT PROPERLY PREPARED SHALL BE REJECTED AND REPLACED WITH ACCEPTABLE MATERIALS AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOT PROCEED WITH WORK UNTIL SATISFACTORY CONDITIONS ARE PRESENT IN THE SEWER.
- B. INSTALLATION. A SCAFFOLD, ELEVATED PLATFORM, OR OTHER MEANS OF PROVIDING REQUIRED PRESSURE SHALL BE PROVIDED AT THE ACCESS POINT. THE RESIN-IMPREGNATED TUBE SHALL BE PULLED AND/OR INVERTED INTO THE HOST PIPE BY METHODS APPROVED BY THE MANUFACTURER AND PROVEN THROUGH PREVIOUS SUCCESSFUL INSTALLATIONS. THE INSERTION METHOD USED SHALL NOT CAUSE ABRASION OR SCUFFING OF THE TUBE. HYDROSTATIC OR AIR PRESSURE SHALL BE USED TO INFLATE THE TUBE, MOLDING IT AGAINST THE WALLS OF THE HOST PIPE. TUBE INSTALLATION PRESSURES SHALL BE LIMITED SO AS NOT TO STRETCH THE TUBE LONGITUDINALLY BY MORE THAN FIVE (5) PERCENT OF THE ORIGINAL LENGTH.

C. CURING. USING CIRCULATED HEATED WATER:

AFTER THE INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL SUPPLY A SUITABLE HEAT SOURCE, WATER RECIRCULATION EQUIPMENT, AND A CURING MEDIUM AS APPROVED BY THE ENGINEER. THE EQUIPMENT SHALL BE CAPABLE OF UNIFORMLY RAISING THE WATER TEMPERATURE TO A LEVEL REQUIRED TO EFFECTIVELY CURE THE RESIN.

USING STEAM:

AFTER THE INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL SUPPLY SUITABLE HEAT STEAM-GENERATING EQUIPMENT AS APPROVED BY THE ENGINEER. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING STEAM THROUGHOUT THE SECTION TO UNIFORMLY RAISING THE TEMPERATURE WITHIN THE PIPE TO A LEVEL REQUIRED TO EFFECTIVELY CURE THE RESIN.

THE EQUIPMENT SHALL BE MUFFLED TO REDUCE EXCESS NOISE DURING THE CURING PROCESS.

THE HEAT SOURCE SHALL BE FITTED WITH SUITABLE MONITORS TO GAUGE THE TEMPERATURE OF THE INCOMING AND OUTGOING WATER SUPPLY. ANOTHER SUCH GAUGE SHALL BE PLACED BETWEEN THE TUBE AND THE HOST PIPE IN THE DOWNSTREAM MANHOLE AT OR NEAR THE BOTTOM TO DETERMINE THE TEMPERATURES DURING CURE. WATER TEMPERATURE IN THE PIPE DURING THE CURE PERIOD SHALL BE AS RECOMMENDED BY THE RESIN MANUFACTURER.

INITIAL CURE SHALL BE DEEMED COMPLETE WHEN THE EXPOSED PORTIONS OF THE TUBE APPEAR TO BE HARD AND SOUND AND THE TEMPERATURE SENSOR INDICATES THE RECOMMENDED TEMPERATURE OF THE MANUFACTURER. THE CURE PERIOD SHALL BE OF A DURATION RECOMMENDED BY THE RESIN MANUFACTURER AND MAY REQUIRE CONTINUOUS RECIRCULATION OF THE WATER TO MAINTAIN

D. COOL DOWN.

- 1. AFTER HEATED WATER CURE. THE CONTRACTOR SHALL COOL THE HARDENED PIPE TO A TEMPERATURE BELOW 100 DEGREES FAHRENHEIT BEFORE RELIEVING THE HYDROSTATIC HEAD. COOL-DOWN SHALL BE ACCOMPLISHED BY INTRODUCING COOL WATER INTO THE INVERSION STANDPIPE TO REPLACE WATER BEING DRAINED FROM A SMALL HOLE MADE IN THE DOWNSTREAM END. RATE OF COOLING SHALL NOT EXCEED RESIN MANUFACTURER'S RECOMMENDATIONS.
- AFTER STEAM CURE. THE CONTRACTOR SHALL COOL THE HARDENED PIPE TO A TEMPERATURE BELOW 113 DEGREES FAHRENHEIT BEFORE RELIEVING THE INTERNAL PRESSURE WITHIN THE SECTION. COOL-DOWN MAY BE ACCOMPLISHED BY INTRODUCING COOL WATER INTO THE SECTION TO REPLACE THE MIXTURE OF AIR AND STEAM BEING DRAINED FROM A SMALL HOLE MADE IN THE DOWNSTREAM END. RATE OF COOLING SHALL NOT EXCEED RESIN MANUFACTURER'S RECOMMENDATIONS.
- E. FINISH. THE NEW PIPE SHALL BE CUT OFF AT A SUITABLE LOCATION. EXCAVATION WILL NOT BE ALLOWED AT CLEANOUTS UNLESS APPROVED BY A COUNTY REPRESENTATIVE. THE FINISHED PRODUCT SHALL BE CONTINUOUS OVER THE LENGTH OF THE PIPE RECONSTRUCTED AND BE FREE FROM DRY SPOTS, DELAMINATION, LIFTS, AND DEBRIS UNDER THE LINER. IF ANY UNSATISFACTORY CONDITION IS PRESENT IN THE LINED PIPE, THE ENGINEER RESERVES THE RIGHT TO REQUIRE A SUITABLE REPAIR.
- INVERT THROUGH STRUCTURES. THE INVERT SHALL BE CONTINUOUS AND SMOOTH THROUGH ALL STRUCTURES. IF A LINER IS INSTALLED THROUGH A STRUCTURE, THE BOTTOM PORTION OF THE LINER SHALL REMAIN AND THE BENCH OF THE STRUCTURE SHALL BE GROUTED WITH A RESIN MIXTURE COMPATIBLE WITH THE CIPP AND SHAPED AS NECESSARY TO SUPPORT THE LINER. IF THE LINER TERMINATES ON EITHER SIDE OF A STRUCTURE, THE INVERT SHALL BE BUILT UP TO REMOVE ANY FLOW RESTRICTIONS AND TO FORM A CONTINUOUS INVERT THROUGH THE STRUCTURE. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CIPP.
- G. SEALING PIPE IN STRUCTURES. A TIGHT SEAL SHALL BE FORMED BETWEEN THE CIPP AND THE STRUCTURE WALL AT THE PIPE PENETRATION. PRIOR TO LINER INSTALLATION, A 1/2-INCH THICK ACTIVATED OAKUM BAND SOAKED IN CHEMICAL SEALANT, OR EQUIVALENT HYDROPHILIC WATERSTOP, SHALL BE INSTALLED INSIDE THE HOST PIPE NEAR THE STRUCTURE. SEAL ANY ANNULAR SPACE GREATER THAN 1/2-INCH WITH STRUCTURE WALL REPAIR MATERIAL. FINISH OFF THE SEAL AND SEAL ANY ANNULAR SPACES LESS THAN 1/2-INCH WITH URETHANE, GROUT OR FIBER REINFORCED CEMENTITIOUS MATERIAL PLACED AROUND THE PIPE OPENING FROM INSIDE THE STRUCTURE IN A BAND AT LEAST 4-INCHES
- H. FINAL TELEVISION INSPECTION. THE CONTRACTOR SHALL TELEVISE THE REHABILITATED SEWER TO PROVIDE A DETAILED RECORD OF FINISHED CONDITIONS AND LATERAL CONNECTIONS. LATERAL CONNECTIONS SHALL BE OBSERVED WHILE THE CAMERA IS STOPPED AND VIEWING THE CONNECTION SQUARELY. WITHIN 14 DAYS AFTER LINING OF SEWER, THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE REHABILITATED SEWER INSPECTION, ALONG WITH THE ACCOMPANYING LOGS, WHICH SHALL BE PRINTED CLEARLY OR TYPED.

REPAIR/RESTORATION

- A. WHERE PORTIONS OF THE SITE, EITHER INSIDE OR OUTSIDE THE CONTRACT LIMITS, NOT DESIGNATED FOR CHANGE OR NEW WORK BECOME DAMAGED DURING THE COURSE OF CONSTRUCTION BY THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE COUNTY SUCH DAMAGE TO ORIGINAL OR BETTER CONDITION IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, RESEEDING, REPLACING SHRUBBERY IN KIND, REPLACING DAMAGED FENCE, ETC.
- B. STRUCTURE RECONSTRUCTION TO ACCOMMODATE CIPP LINER INSTALLATION SHALL BE INCLUDED IN THE LINING COSTS.

FIELD QUALITY CONTROL

A. GENERAL. THE REHABILITATED PIPE SHALL BE CONTINUOUS (WITHOUT JOINTS) OVER THE ENTIRE LENGTH OF AN INSERTION RUN. THE LINER SHALL BE AS FREE AS COMMERCIALLY PRACTICABLE FROM VISUAL DEFECTS SUCH AS FOREIGN INCLUSIONS, DRY SPOTS, PINHOLES, AND DELAMINATION. THE LINER SURFACE SHALL BE FREE OF LEAKS, CRACKS, AND CRAZING WITH A SMOOTH FINISH. SOME MINOR WAVINESS THAT. IN THE OWNER'S OPINION, WILL NOT APPRECIABLY DECREASE THE FLOW CROSS SECTION OR AFFECT THE FLOW CHARACTERISTICS SHALL BE

ANY DEFECTS IN THE PRODUCT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER MUTUALLY AGREED UPON BY THE OWNER AND CONTRACTOR. THE CONTRACTOR SHALL REINSPECT THESE REPAIRS BEFORE THE ONE (1) YEAR GUARANTEE PERIOD EXPIRES. DURING THE ONE (1) YEAR GUARANTEE PERIOD, ANY DEFECTS THAT ARE DISCOVERED THAT WILL AFFECT THE INTEGRITY OR STRENGTH OF THE PRODUCT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IN A MANNER MUTUALLY AGREED UPON BY THE OWNER AND THE CONTRACTOR. THESE REPAIRS SHALL BE GRANTED A THREE (3) YEAR EXTENDED GUARANTEE PERIOD BY THE CONTRACTOR FROM THE DATE OF REPAIR. THE CONTRACTOR SHALL REINSPECT THESE REPAIRS PRIOR TO THE EXPIRATION OF THE THREE (3) YEAR EXTENDED GUARANTEE

- B. TESTING. THE FOLLOWING TESTS SHALL BE PERFORMED FOR EACH LENGTH OF CIPP LENGTH INSTALLED PER ASTM F-1216 AND/OR F-1743 (WHEN APPROVED)
- 1. SHORT-TERM FLEXURAL (BENDING) PROPERTIES THE INITIAL TANGENT FLEXURAL MODULUS OF ELASTICITY AND FLEXURAL YIELD STRENGT SHALL BE MEASURED IN ACCORDANCE WITH ASTM D790.
- THICKNESS THE THICKNESS OF THE INSTALLED LINER SHALL BE MEASURED IN ACCORDANCE WITH ASTM D5947. CONDITIONING - THE CONDITIONING OF THE INSTALLED LINER SHALL BE MEASURED IN ACCORDANCE WITH ASTM D618.
- THE CONTRACTOR IS TO PROVIDE TEST SAMPLES TO AN INDEPENDENT LABORATORY IN ACCORDANCE WITH ASTM F-1216, ITEM 8.1.1. SAMPLE SHOULD BE CUT FROM A SECTION OF CURED CIPP AT AN INTERMEDIATE POINT OR AT THE TERMINATION POINT THAT HAS BEEN INVERTED THROUGH A LIKE DIAMETER PIPE WHICH HAS BEEN HELD IN PLACE BY A SUITABLE HEAT SINK, SUCH AS SANDBAGS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR RETAINING AN INDEPENDENT, THIRD-PARTY LABORATORY TO PERFORM THESE TESTS. PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER EACH TEST COMPLETED. ALL LABORATORIES UTILIZED FOR TESTING OF CIPP SAMPLES SHALL BE LOCATED WITHIN 100 MILES OF SUMMIT COUNTY TO FACILITATE EASE OF INSPECTION FOR ALL PARTIES INVOLVED. ALL SAMPLES SHALL BE LABELED BEFORE SHIPMENT FOR TESTING. THE OWNER ALSO RETAINS THE RIGHT TO TEST COUPONS RETRIEVED FROM THE SEWER AND TURNED OVER TO THE COUNTY. IF THE CONTRACTOR PERFORMS INDEPENDENT TESTS FOR THEIR PURPOSES, ADDITIONAL SAMPLES SHALL BE PROVIDED BY THE CONTRACTOR FOR THAT USE.

- C. FINAL INSTALLED LINER THICKNESS. THE FINAL INSTALLED LINER THICKNESS SHALL NOT BE LESS THAN THE THICKNESS SPECIFIED IN THE CONTRACT DOCUMENTS OR APPROVED SHOP DRAWINGS. THE FINAL INSTALLED LINER THICKNESS SHALL NOT BE MORE THAN 10% GREATER THAN THE SPECIFIED OR APPROVED THICKNESS. THE FINAL INSTALLED LINER THICKNESS MEASUREMENT SHALL BE DETERMINED FROM PIPE SAMPLES, COUPONS RETRIEVED FROM THE SEWER, OR AS DEEMED NECESSARY BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONSIDER SITE CONDITIONS AND THEIR INSTALLATION PROCESS TO DETERMINE THE LINER THICKNESS TO INSTALL.
- D. NON-COMPLIANCE. IN THE EVENT THE SAMPLES DO NOT MEET THE REQUIRED THICKNESS OR FLEXURAL STRENGTH OF 4,500 PSI AND FLEXURAL MODULUS OF ELASTICITY OF 400,000 PSI AS OUTLINED IN SECTION 2.01 B; ACTUAL INSTALLED SAMPLES MUST BE TAKEN AND TESTED. THE INSTALLED SAMPLES SHALL BE TAKEN AS DIRECTED BY THE COUNTY AND IN ACCORDANCE WITH ALL APPLICABLE ASTM REQUIREMENTS, AND THE AREA REPAIRED TO THE SATISFACTION OF THE COUNTY. ALL WORK ASSOCIATED WITH OBTAINING SAMPLE AND REPAIR SHALL BE AT THE CONTRACTOR'S EXPENSE.

IN THE EVENT THAT ANY LINER INSTALLATION DOES NOT MEET SPECIFIED STRENGTHS AND/OR THICKNESSES, THE CONFORMITY OF THE WORK WITH THE PLANS AND SPECIFICATIONS SHALL BE IN ACCORDANCE WITH SECTION 105.03 OF THE CMS.

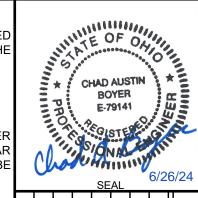
3.06 SCHEDULES

LINER. THIS ITEM OF WORK SHALL INCLUDE ALL NECESSARY TELEVISION OBSERVATION, PROTRUDING LATERAL REMOVAL AND REPAIR, SEWER CLEANING, PIPE PREPARATIONS, LINER RESINS, WATER, EQUIPMENT, LABOR, TESTING, CLEAN UP, MANHOLE RECONSTRUCTION REQUIRED BY CONSTRUCTION MEANS AND METHODS OF CIPP INSTALLATION, AND ALL OTHER EXPENSES WHETHER SPECIFICALLY MENTIONED OR NOT TO INSTALL THE CURED-IN-PLACE PIPE.

THE CIPP THICKNESS IS THE FINAL CURED THICKNESS, NOT THE THICKNESS OF THE BAG PRIOR TO INSTALLATION

PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER LINEAL FOOT AS MEASURED FROM ALONG THE HORIZONTAL CENTERLINE OF TH REHABILITATED SEWER, COMPLETE, TESTED, AND READY FOR SERVICE.

B. INCREASE/DECREASE PAY ITEM. CONTRACTOR SHALL INCLUDE A PRICE FOR INCREASE OR DECREASE OF PIPE WALL THICKNESS. THE BASIS FOR PAYMENT SHALL BE IN 1.5 MM INCREMENTS PER LINEAR FOOT. THE MINIMUM ACCEPTABLE THICKNESS SHALL BE 6 MM.



61-04F39

JDB

MRB

CAB

N/A

5/15/24

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ON SITE CONTACT WILL BE DESIGNATED AFTER CONTRACT HAS BEEN AWARDED.

THE PROJECT WILL CONSIST OF CHANNEL IMPROVEMENTS TO WYE CREEK. NUMEROUS SERIES OF STEP-POOL CONVEYANCE STRUCTURES WILL BE INSTALLED WITHIN THE CHANNEL TO SLOW CHANNEL VELOCITIES AND MITIGATE SCOUR AND SEDIMENTATION.

SOIL DISTURBING ACTIVITIES WILL INCLUDE: CLEARING AND GRUBBING, INSTALLING EROSION AND SEDIMENT CONTROLS, THE CONSTRUCTION OF THE PROPOSED STREAM IMPROVEMENTS, AND ALL NECESSARY EXCAVATION AND EMBANKMENT.

<u>SITE AREA:</u> A TOTAL OF 1.65 ACRES WILL BE DISTURBED BY CONSTRUCTION ACTIVITIES.

SEQUENCE OF MAJOR ACTIVITIES:

THE ORDER OF CONSTRUCTION ACTIVITIES WILL BE AS FOLLOWS: INSTALLATION OF EROSION & SEDIMENTATION CONTROL MEASURES.

EARTHWORK & CONSTRUCTION OF THE PROPOSED CHANNEL IMPROVEMENTS. FINAL GRADING, RESTORATION, AND LANDSCAPING.

NAME OF RECEIVING WATERS: WYE CREEK

CONTRACTOR SHALL NOTIFY THE CITY FORTY-EIGHT (48) HOURS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY.

ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH ALL LOCAL EROSION AND SEDIMENT CONTROL REGULATIONS.

DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO THE COUNTY'S SEWER SYSTEM OR A RECEIVING STREAM IS A VIOLATION OF OHIO EPA AND SUMMIT COUNTY REGULATIONS. THE CONTRACTOR WILL BE HELD LIABLE FOR THE VIOLATION AND SUBSEQUENT FINES.

ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST MEET THE STANDARDS AND SPECIFICATIONS OF THE OHIO RAINWATER AND LAND DEVELOPMENT MANUAL. OTHER EROSION CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS DURING CONSTRUCTION.

REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURES TAKEN.

SEDIMENT PONDS/TRAPS AND PERIMETER CONTROLS SHALL BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED.

ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.

THE CONTRACTOR SHALL USE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT MOVEMENT INTO AREAS

NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF

THIS PLAN MUST BE POSTED ON-SITE. A COPY OF THE SWPPP PLAN AND THE APPROVED EPA STORMWATER PERMIT (WITH THE SITE-SPECIFIC NOI NUMBER) SHALL BE KEPT ON-SITE AT ALL TIMES.

UPPER BANK ABOVE NORMAL WATER ELEVATION SHOULD BE STABILIZED QUICKLY WITH STRAW BLANKETS, JUTE MATTING, OR SIMILAR GEO-TEXTILE.

CONTROLS

EROSION AND SEDIMENT CONTROLS

STABILIZATION PRACTICES

ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATION AT THE DISCRETION OF THE SUMMIT COUNTY ENGINEER AND/OR THE OHIO EPA.

CONSTRUCTION SEEDING AND MULCHING:

TOP SOIL STOCK PILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 21 DAYS WILL BE STABILIZED WITH TEMPORARY SEED AND MULCH NO LATER THAN 7 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA.

IF PERMANENT SEED IS NOT APPLIED AT THIS TIME, TEMPORARY SEEDING SHALL BE DONE AT THE FOLLOWING RATES:

MARCH 1 TO AUGUST 15 SEED: OATS FERTILIZER: (12:12:12)

2 LBS./1,000 SQ.FT. 10 LBS./1,000 SQ.FT MULCH: (STRAW OR HAY) 2 TONS/ACRE

AUGUST 15 TO NOVEMBER $^{\prime}$

SEED: ANNUAL RYEGRASS 2 LBS./1000 SQ.FT. FERTILIZER: (12:12:12) 10 LBS./1,000 SQ.FT. MULCH: (STRAW OR HAY) 2 TONS/ACRE

NOVEMBER 1 TO MARCH

MULCH (ONLY): (STRAW OR HAY) 2 TONS/ACRE

AREAS OF THE SITE WHICH ARE TO BE PAVED WILL BE TEMPORARILY STABILIZED BY APPLYING STONE SUB-BASE UNTIL PAVEMENT CAN BE APPLIED.

DO NOT APPLY CONSTRUCTION SEEDING TO FROZEN GROUND.

PERMANENT STABILIZATION:

DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASES SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 7 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY.

"PERMANENT SEEDING" SHALL BE DONE BETWEEN MARCH 15 AND SEPTEMBER 15. IF SEEDING IS DONE BETWEEN SEPTEMBER 15 AND MARCH 15, IT SHALL BE CLASSIFIED AS "TEMPORARY SEEDING." PERMANENT SEED SHALL BE 40% KENTUCKY BLUEGRASS, 40% CREEPING RED FESCUE, 20% ANNUAL RYEGRASS. PERMANENT SEEDING SHALL CONSIST OF FERTILIZING, WATERING AND SEEDING RATES INDICATED UNDER ITEM 659. SEEDING SHALL BE APPLIED WITHIN TWO (2) DAYS AFTER FINAL GRADING OR FOLLOWING SEED BED PREPARATION.

RATES OF APPLICATION OF ITEM 659:

4 LBS./1,000 SQ.FT. FERTILIZER: (12:12:12) 20 LBS./1,000 SQ.FT. MULCH: STRAW (HAY) 2 TONS/ACRE (3 TONS/ACRE)

WHERE VEGETATIVE STABILIZATION TECHNIQUES MAY CAUSE STRUCTURAL INSTABILITY OR ARE OTHERWISE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUES MUST BE EMPLOYED. PERMANENT AND TEMPORARY STABILIZATION ARE DEFINED IN PART

OTHER CONTROLS:

WASTE DISPOSAL

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER RENTED FROM A LICENSED SOLID WASTE MANAGEMENT COMPANY. THE DUMPSTER WILL MEET ALL LOCAL, COUNTY AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF TWICE PER WEEK OR MORE OFTEN IF NECESSARY, AND THE TRASH WILL BE HAULED OFF-SITE TO AN APPROVED DISPOSAL SITE. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES WILL BE POSTED IN THE OFFICE TRAILER. THE INDIVIDUAL WHO MANAGES THE DAY-TO-DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

HAZARDOUS WASTE:

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES. THE INDIVIDUAL WHO MANAGES DAY-TO-DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.

ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF THREE TIMES PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR, AS REQUIRED BY LOCAL REGULATION.

OFFSITE VEHICLE TRACKING:

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. ALL PAVED STREETS ADJACENT TO THE SITE WILL BE SWEPT DAILY TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

CONTRACTOR MUST HAVE A WELL MAINTAINED STABILIZED CONSTRUCTION ENTRANCE (SCE), OR A CONSTRUCTION TRAFFIC WHEEL WASH. LOCATION TO BE DETERMINED BY CONTRACTOR.

STREET CLEANING (ON AN AS-NEEDED BASIS) IS REQUIRED THROUGH THE DURATION OF THIS CONSTRUCTION PROJECT. THIS INCLUDES SWEEPING, POWER CLEANING AND (IF NECESSARY) MANUAL REMOVAL OF DIRT OR MUD FIN THE STREET GUTTERS.

MAINTENANCE/INSPECTION PROCEDURES

EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

THESE ARE THE INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS.

LESS THAN 50% OF THE SITE WILL BE DENUDED AT ONE TIME

ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE EACH WEEK AND FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.

SILT FENCE WILL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO SEE THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE FENCE.

TEMPORARY AND PERMANENT SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.

A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION.

THE SITE SUPERINTENDENT WILL SELECT INDIVIDUALS WHO WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.

NON-STORMWATER DISCHARGES:

IT IS EXPECTED THAT THE FOLLOWING NON-STORMWATER DISCHARGES WILL OCCUR FROM THE SITE DURING THE CONSTRUCTION

PAVEMENT WASH WATERS (WHERE NO SPILLS OR LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE OCCURRED). UNCONTAMINATED GROUNDWATER (FROM DEWATERING EXCAVATION).

MATERIAL MANAGEMENT PRACTICES:

THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF.

GOOD HOUSEKEEPING:

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.

2. AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.

3. ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.

4. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.

5. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.

WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.

7. MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.

8. THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

HAZARDOUS PRODUCTS:

1. THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.

2. PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE

3. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION.

4. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURERS' OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

PRODUCT SPECIFIC PRACTICES:

THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ONSITE:

PETROLEUM PRODUCTS:

OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

SPILL CONTROL PRACTICES:

CONTRACTOR TO NOTIFY DIVISION OF WATER IMMEDIATELY OF ALL SPILLS.

IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.

ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.

THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE.

THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.

THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. HE WILL DESIGNATE SITE PERSONNEL WHO WILL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

1. THE CONTRACTOR SHALL CONDUCT OPERATIONS AND MAINTAIN THE PROJECT SITE SO AS TO MINIMIZE THE CREATION AND DISPERSION OF DUST. DUST CONTROL SHALL BE USED THROUGHOUT THE WORK AT THE SITE.

2. THE CONTRACTOR MUST PROVIDE CLEAN WATER, FREE FROM SALT, OIL, AND OTHER DELETERIOUS MATERIAL TO BE USED FOR ON-SITE DUST CONTROL.

THE CONTRACTOR SHALL SUPPLY WATER SPRAYING EQUIPMENT CAPABLE OF ACCESSING ALL WORK AREAS.

4. THE CONTRACTOR SHALL IMPLEMENT STRICT DUST CONTROL MEASURES DURING ACTIVE CONSTRUCTION PERIODS ON-SITE. THESE CONTROL MEASURES SHALL GENERALLY CONSIST OF WATER APPLICATIONS THAT SHALL BE APPLIED A MINIMUM OF ONCE PER DAY DURING DRY WEATHER OR MORE OFTEN AS REQUIRED TO PREVENT DUST EMISSIONS.

5. FOR WATER APPLICATION TO UNDISTURBED SOIL SURFACES:

STANDARDS AND SPECIFICATIONS FOR DUST CONTROL:

A. APPLY WATER WITH EQUIPMENT CONSISTING OF TANK, SPRAY BAR, PUMP WITH DISCHARGE PRESSURE GAUGE. B. ARRANGE SPRAY BAR HEIGHT, NOZZLE SPACING, AND SPRAY PATTERN TO PROVIDE COMPLETE COVERAGE OF GROUND WITH

C. DISPERSE WATER THROUGH NOZZLE ON SPRAY BAR AT 20 PSI, MINIMUM. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING.

6. FOR WATER APPLICATIONS TO SOIL SURFACES DURING DEMOLITION AND/OR EXCAVATION, THE CONTRACTOR SHALL:

A. APPLY WATER WITH EQUIPMENT CONSISTING OF A TANK, PUMP WITH DISCHARGE GAUGE, HOSES AND MIST NOZZLES.

B. LOCATE TANK AND SPRAYING EQUIPMENT SO THE ENTIRE EXCAVATION AREA CAN BE MISTED WITHOUT INTERFERING WITH DEMOLITION AND/OR CREATING NUISANCE CONDITION SUCH AS PONDING.

C. APPLY WATER SPRAY IN A MANNER TO PREVENT MOVEMENT OF SPRAY BEYOND THE SITE BOUNDARIES.

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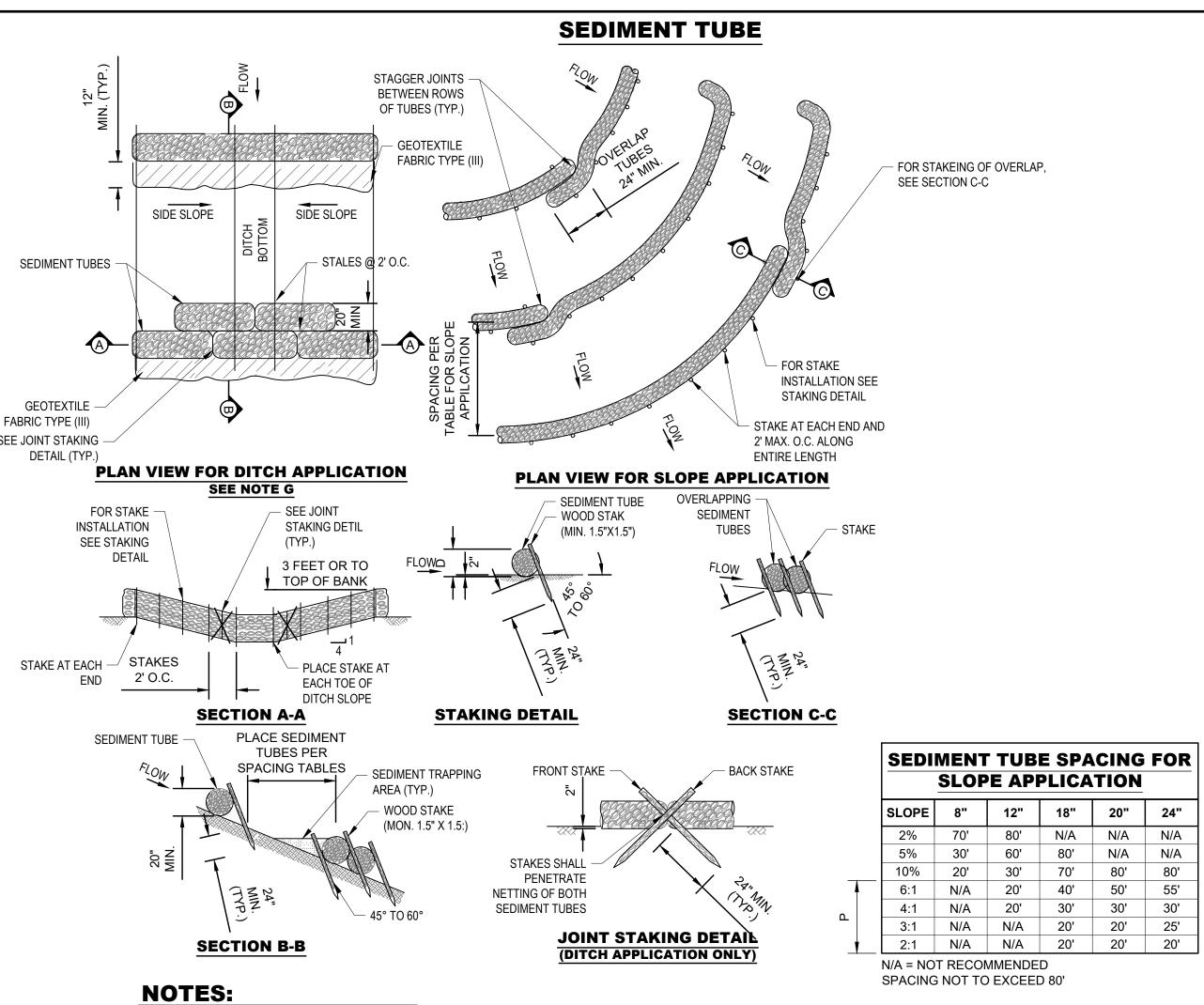
ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE



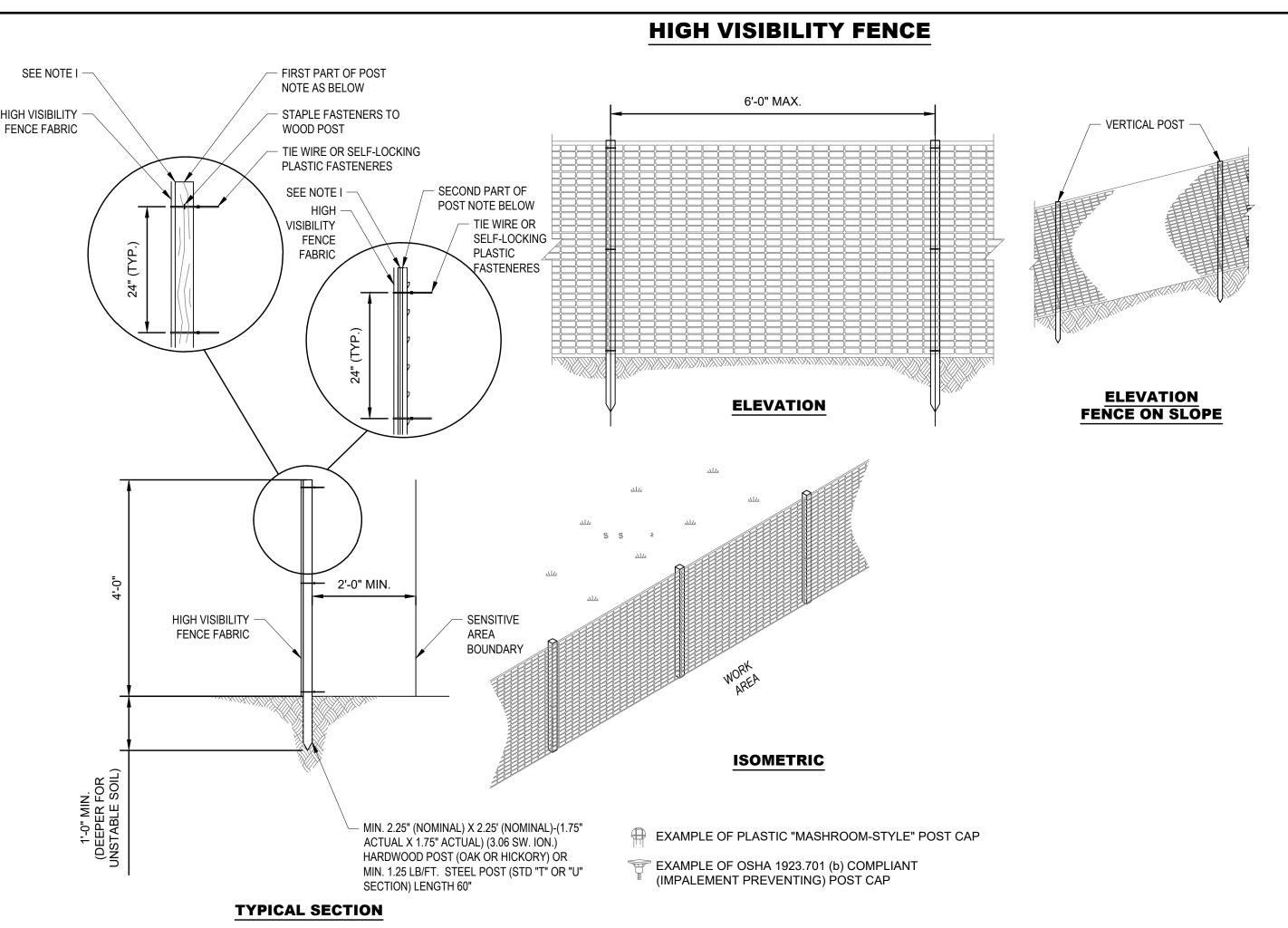
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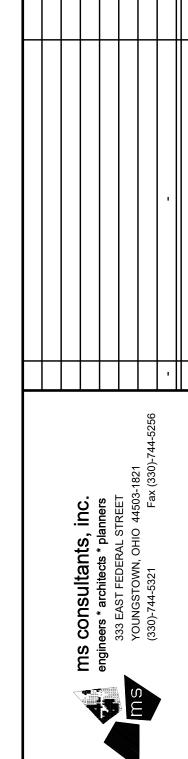


- A. SEDIMENT TUBES CAN BE PLACED AT THE TOP, ON THE FACE, OR AT THE TOE OF SLOPES TO INTERCEPT RUNOFF, REDUCE FLOW VELOCITY, RELEASE THE RUNOFF AS SHEET FLOW AND PROVIOE REMOVAL OF SEDIMENT FROM THE RUNOFF.
- B. SEDIMENT TUBES SHALL BE INSTALLED ALONG OR ON THE GROUND CONTOUR. AT THE TOE OF SLOPES, OR IN A DITCH TO HELP REDUCE THE EFFECTS OF SOIL EROSION AND RETAIN SEDIMENT. SEDIMENT TUBES SHOULD NOT BE USED IN DITCHES OR STREAMS.
- C, FOR DITCH APPLICATIONS, THE MAXIMUM DRAINAGE AREA SHALL BE 15 ACRES. AT SITES WHICH DRAIN TO SEDIMENT-IMPAIRED STREAMS, THE MAXIMUM DRAINAGE AREA SHALL BE 10 ACRES. FOR SLOPE APPLICATIONS. THE MAXIMUM DRAINAGE AREAS SHALL BE 4 ACRE PER 100 LF OF TUBE.
- D. SEDIMENT TUBES SHALL NOT BE USED ON PAVEMENT, ROCKY SOILS, OR AT ANY OTHER LOCATIONS WHERE THE STAKES CANNOT BE DRIVEN TO THE REQUIRED DEPTH
- E. SEDIMENT TUBES SHALL BE MANUFACTURED FROM WOOD EXCELSIOR. RICE OR WHEAT STRAW, COCONUT FIBERS. OR HARDWOOD MULCH THAT IS ENCLOSED BY A TUBULAR FLEXIBLE NETTING MATERIAL. ALL MATERIALS INCLUDING THE NETTING SHALL BE BIODEGRADABLE.
- F. PINE NEEDLE AND LEAF MULCH FILLED SEDIMENT TUBES AND STRAW BALES ARE NOT ACCEPTABLE MATERIALS.
- G. THE DIAMETER OF A SEDIMENT TUBE SHALL BE A MINIMUM OF 8 INCHES AND A MAXIMUM OF 24 INCHES. DIAMETER TOLERANCE IS 2 INCHES. FOR DITCH APPLICATIONS, SEDIMENT TUBES SHALL BE A MINIMUM OF 2D INCHES.
- H. SEDIMENT TUBES SHALL BE INSTALLED WITH WOODEN STAKES (M I N . I . 5" x I . 5" ACTUAL) . THE STAKE SHALL BE EMBEDDED A MINIMUM OF 2 FEET .
- I. SEDIMENT TUBES SHALL BE TRENCHED IN A MINIMUM OF 2 INCHES .
- J. IF MORE THAN ONE SEDIMENT TUBE IS PLACED IN A ROW IN SLOPE APPLICATION, THE TUBES SHALL BE OVERLAPPED A MINIMUM OF 24 INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. WHEN USED IN DITCHES, TWO ROWS OF TUBE SHALL BE PL ACED ON THE CHANNEL BOTTOM WITH STAGGERED JOINTS AS SHOWN.
- K. FOR DITCH APPLICATIONS, SEDIMENT TUBES SHALL BE A MINIMUM OF 20 INCH DIAMETER AND SHALL BE PL ACED PERPENDICULAR T D THE FLOW OF WATER . SEDIMENT TUBES SHALL CONTINUE UP THE SIDES SLOPES A MINIMUM OF 3 FEET PLUS THE DIAMETER OF THE TUBE , OR TO THE TOP OF THE DITCH . WHICHEVER IS LESS .
- L. SEDIMENT TUBES USED IN SLOPE APPLICATIONS MAY REMAIN IN PLACE TO BIODEGRADE. FOR DITCH APPLICATIONS SEDIMENT TUBES SHALL BE COMPLETELY REMOVED AFTER FULLY ESTABLISHED VEGETATION HAS COMPLETELY DEVELOPED.
- M. PAYMENT SHALL INCLUDE ALL MATERIALS (INCLUDING GEOTEXTILE FABRIC IF USED) AND LABOR NECESSARY FOR CONSTRUCTION. MAINTENANCE, AND REMOVAL OF SEDIMENT TUBE. ONLY SEDIMENT TUBES LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED.
- N. SEDIMENT SHALL BE REMOVE D FROM BEHIND THE SEDIMENT TUBE WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 2D9-D5, SEDIMENT REMOVAL PER CUBIC YARD.
- O. GEOTEXTILE FABRIC REQUIRED FOR SLOPE APPLICATION STEEPER THAN 6:1.



NOTES:

- A. HIGH VISIBILITY FENCE IS INTENDED TO BE PLACED TO PREVENT DISTURBANCE OF SENSITIVE AREAS, THEIR BUFFERS, AND OTHER AREAS REQUIRED TO BE LEFT UNDISTURBED DURING CONSTRUCTION. IT MAY ALSO BE USED TO MARK APPROVED CLEARING LIMITS AND TO CONTROL VEHICLE ACCESS TO AND ON THE PROJECT SITE.
- B. HIGH VISIBILITY FENCE FABRIC SHALL BE MACHINED PRODUCED ORANGE COLORED MESH MANUFACTURED FROM POLYPROPYLENE OR POLYETHYLENE. IT SHALL BE FULLY STABILIZED ULTRAVIOLET RESISTANT.
- C. HIGH VISIBILITY FENCE FABRIC MAY BE MADE FROM RECYCLED MATERIALS. MATERIALS SHALL NOT CONTAIN BIODEGRADABLE FILLER MATERIALS THAT CAN DEGRADE THE PHYSICAL OR CHEMICAL CHARACTERISTICS OF THE FINISHED FABRIC.
- D. HIGH VISIBILITY FENCE FABRIC SHALL HAVE A MINIMUM 4 FOOT WIDTH AND SHALL BE FURNISHED IN ONE CONTINUOUS WIDTH AND SHALL NOT BE SPLICED TO CONFORM TO THE SPECIFIED WIDTH DIMENSION.
- E. STEEL POST SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POST SHALL BE HOT-DIPPED GALVANIZED OR PAINT. STEEL POST MAY BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. IF POSTS ANCHOR PLATES USED THEY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.
- F. HIGH VISIBILITY FENCE FABRIC SHALL BE FASTENED TO THE POST USING TIE WIRE OR SELF-LOCKING PLASTIC FASTENERS WITH A MAXIMUM FASTENERS SPACING OF 2 FEET. WHEN WOOD POSTS ARE USED THE FASTENERS SHALL BE STAPLED TO THE POST.
- G. HIGH VISIBILITY FENCE THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE CONSTRUCTORS EXPENSE ON THE SAME DAY THE DAMAGE OCCURS
- H. PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION MAINTENANCE, AND REMOVAL OF HIGH VISIBILITY FENCE.
- I. OSHA 1926.701(B) COMPLIANT (IMPALEMENT PREVENTING) POST CAPS SHALL BE REQUIRED FOR ANY METAL POST ABOVE WHICH PEOPLE MAY BE WORKING AND THE RISK OF FALLING DOWN ONTO THE POST IS PRESENT; REGARDLESS OF HOW HIGH THE POST STICKS UP OUT OF THE GROUND. PLASTIC "MUSHROOM-STYLE" POST CAPS SHALL BE REQUIRED FOR ANY METAL POST WITH AN INSTALLED HEIGHT LESS THAN 36" ABOVE THE GROUND AND WHEN THERE ARE NO WORKERS CONDUCTING WORK ABOVE THE POSTS. NO CAPS SHALL BE REQUIRED FOR METAL POSTS WITH AN INSTALLED HEIGHT OF 36" OR GREATER AND WHEN THERE ARE NO WORKERS CONDUCTING WORK ABOVE THE POSTS. ALL CAPS SHALL BE ORANGE OR YELLOW TO ENHANCE VISIBILITY. WHEN REQUIRED, PAYMENT OF POST CAPS SHALL BE INCLUDED IN THE TOTAL COST OF HIGH VISIBILITY FENCE.



SUMMIT COUNTY SWMD
SUMMIT COUNTY, OHIO
WYE ROAD FLOOD MITIGATION
& IMPROVENT PLANS
STORMWATER POLLUTION PREVENTION

Project Number:
61-04F39

Drawn by:
RDA

Checked by:
MRB

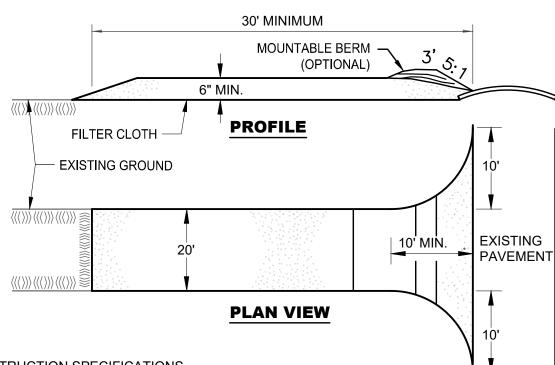
Approved by:
CAB

Scale: (22x34)
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Date:
5/15/24

Dwg. No.:
17

STABILIZED CONSTRUCTION ENTRANCE

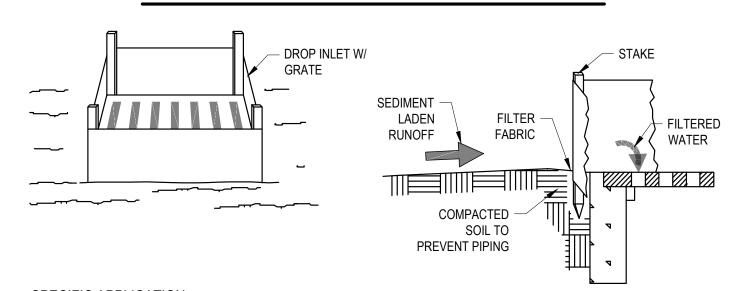


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

- 2. LENGTH AS REQUIRED.
- 3. THICKNESS NOT LESS THAN SIX (6) INCHES.
- 4. WIDTH TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- 5. FILTER CLOTH WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- 6. SURFACE WATER ALL SURFACE WATER FLOWING OR DIVERTED TO CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- 7. MAINTENANCE THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
- 8. WASHING WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9. PERIODIC INSPECTION AND NECESSARY MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

DROP INLET SEDIMENT FILTER



SPECIFIC APPLICATION:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING .5 CFS) ARE TYPICAL. THIS METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET AND HIGHWAY MEDIANS.

TO BE USED ON STRUCTURES: CB100, CB101, CB102, CB103, CB105, CB106, CB107, CB108, CB109, CB110, CB111, CB112, CB113

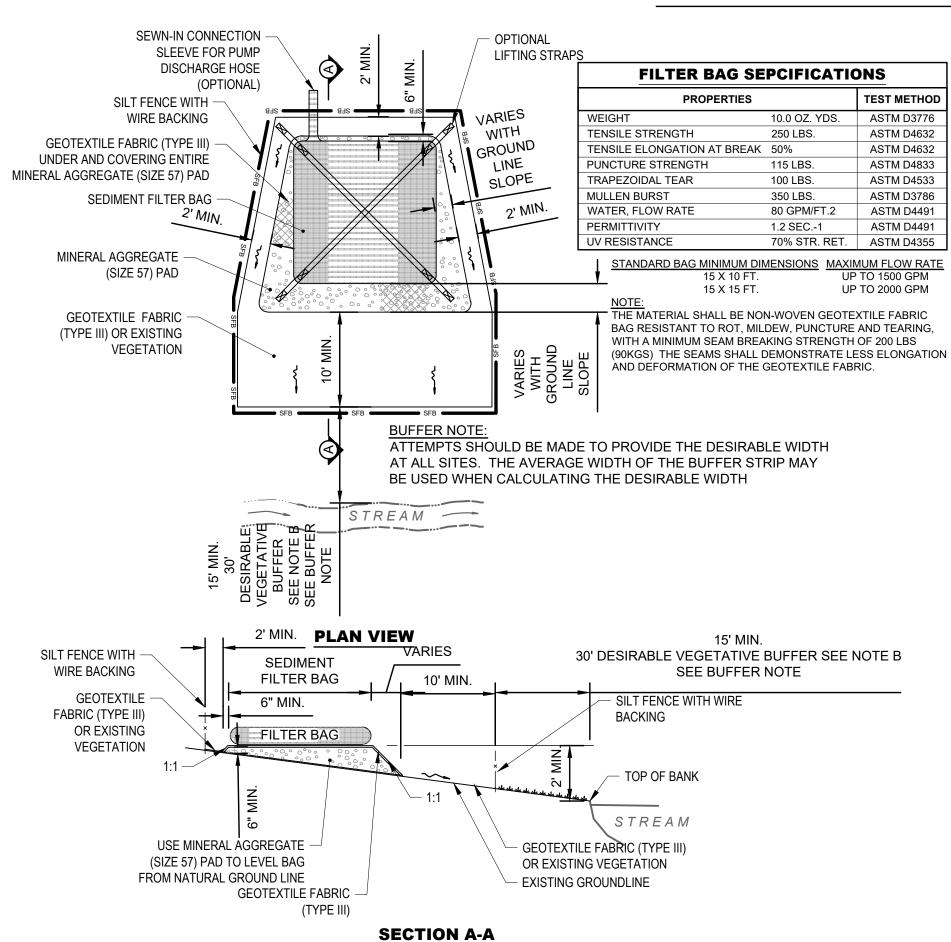
ROCK CHECK DAM CONSTRUCTION STANDARDS

- 1. OBTAIN APPROPRIATE PERMITS OR APPROVALS FROM LOCAL OR STATE REGULATORY AGENCIES.
- THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
- ROCK DAMS SHALL BE CONSTRUCTED OF 2 TO 15-INCH ROCK. KEEP THE CENTER ROCK (SPILLWAY) SECTION AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES.
- 4. EXTEND THE ABUTMENTS 18" INTO THE CHANNEL BANK.
- 5. SOON DISINTEGRATE AND MAY ALLOW THE BALE TO FALL APART.
- 6. CONSTRUCT AN ENERGY DISSAPATOR TO REDUCE DOWNSTREAM EROSION.

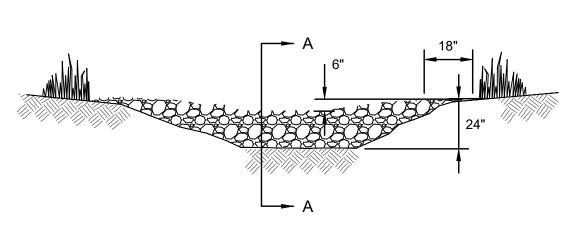
INSPECTION AND MAINTENANCE

- THE CHECK DAMS SHALL BE INSPECTED FOR DAMAGE PERIODICALLY DURING THE WINTER AND AFTER EACH SIGNIFICANT STORM (1" IN 24 HOURS). PROMPT REPAIRS SHALL BE MADE TO ENSURE THAT THE DAM IS FUNCTIONING PROPERLY. ANY EROSION CAUSED BY FLOWS AROUND THE EDGES OF THE DAM OR UNDER THE STRUCTURE SHALL BE CORRECTED IMMEDIATELY.
- REMOVE SEDIMENT FROM BEHIND THE DAMS WHEN THEY BECOME 60 PERCENT FULL, OR AS NEEDED. THE REMOVED SEDIMENT SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF SITE AND CAN BE PERMANENTLY STABILIZED.
- REMOVE CHECKDAMS AND STAKES WHEN STABILIZATION IS COMPLETE.

SEDIMENT FILTER BAG

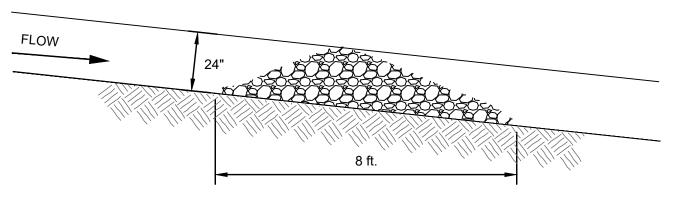


ROCK CHECK DAM DETAIL

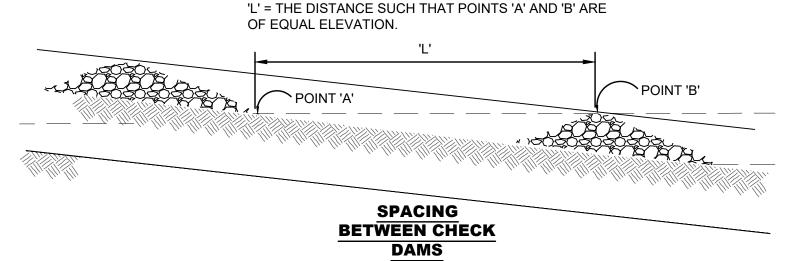


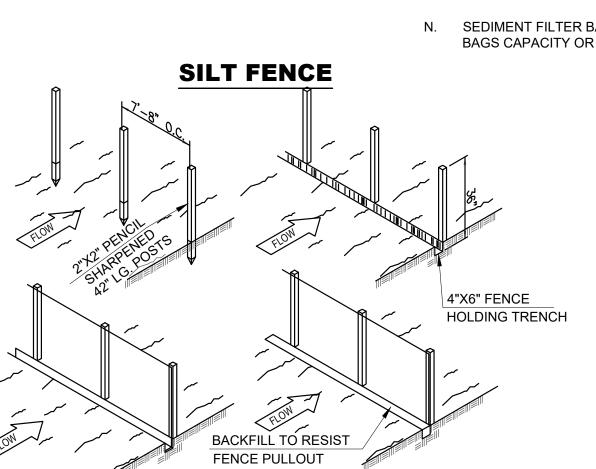
KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.

VIEW LOOKING UPSTREAM



SECTION A - A





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FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MINIMUM	ASTM 1682
MULLEN BURST STRENGTH	190 PSI MINIMUM	ASTM 3786
SLURRY FLOW RATE	.3 GAL./MIN./F^2 MAXIMUM	
EQUIVALENT OPENING SIZE	40-80	U.S STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MINIMUM	ASTM-G-26

MAINTENANCE:

SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED.

SPECIAL PROVISION 209B IS TO BE USED FOR SEDIMENT FILTER BAGS. ALL REFERENCES I N SPEC I AL PROVISION 209B TO PUMP I N G FROM SEDIMENT TRAPS AL SO APPL I ES TO PUMPING FROM

- SEDIMENT FILTER BAG INSTALLATION, INCLUDING DOWN SLOPE GEOTEXTILE AND SILT FENCE WITH WI RE BACKING SHOULD NOT BE PLACED WITH IN A JURISDICTIONAL WETLAND OR WITH IN 15 FEET < 30 FEET DESIRABLE) OF A STABILIZED OUTLET, STREAM, OR OTHER NATURAL WATER RESOURCE. WHEN DISCHARGING TO SEDIMENT - IMPAIRED STREAMS, THE BUFF ER SHALL BE A MINIMUM OF 30 FEET WITH A DESIRABLE WIDTH OF 60 FEET. BUFFER REQUIREMENT DOES NOT APPLY TO ANY LOCATION ON SITE WITH A VALID AR AP OR EQUIVALENT PERMIT BY FEDERAL AGENCIES.
- CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE SEDIMENT FILTER BAG WHEN PUMPING.
- THE LENGTH AND WIDTH OF THE SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS. THE MINIMUM FOOTPRINT" OF THE BAG SHALL BE 150 SQUARE FEET.
- SEDIMENT FILTER BAGS MAY BE EQUIPPED WITH A SEWN I N SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM FOUR - INCH DIAMETER PUMP DISCHARGE HOSE. A HOSE CONNECT I ON THROUGH A SLIT IN THE BAG IS ALSO ACCEPTABLE. THE DISCHARGE HOSE SHOULD BE EX TENDED IN TO THIS SLEEVE A MINIMUM OF SIX INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE.
- THE PUMP DISCHARGE HOSE CONNECTION SLEEVE , OR SLIT, SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS
- ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- H. SURROUND SEDIMENT FILTER BAG ASSEMBLY WITH SILT FENCE WITH WIRE BACKING. SEE STANDARD DRAWING EC-STR - 3C AND EC - STR - 3E FOR INSTALLATION DETAILS.
- EXISTING VEGETATIVE BUFFER TO REMAIN BETWEEN SILT FENCE WITH WIRE BACKING AND STABILIZED OUTLET, STREAM OR OTHER NATURAL WATER RESOURCE. BUFFER ZONE EXEMPTIONS ARE DEFINED BASED ON EXISTING LAND USES.
- SEDIMENT TUBES OR FILTER SOCKS MAY BE USED AS AN ALTERNATIVE TO SILT FENCE WITH WIRE BACKING. SEE STANDARD DRAWINGS EC -STR - 37 AND EC - STR -8 FOR INSTALLATION DETAILS. FILTER SOCKS MAY NOT REQUIRE STAKING WHEN APPROVED BY THE ENGINEER.
- SEDIMENT FILTER BAGS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS

SEDIMENT FILTER BAG (15'X15') PER EACH 209-09.04 SEDIMENT FILTER BAG (15'X10') PER EACH 303-10.01 MINERAL AGGREGATE (SIZE 57) PER TON

GEOTEXTILE (TYPE III) (EROSION CONTROL) PER SQUARE YARD

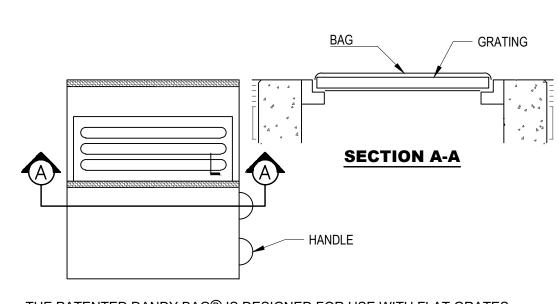
SILT FENCE WITH BACKING, SEDIMENT TUBES, AND FILTER SOCKS SHALL BE PAID FOR ACCORDING TO ITS RESPECTIVE STANDARD DRAWING.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE

AND REMOVAL OF SEDIMENT FILTER BAGS.

- WHEN SEDIMENT FILTER BAGS AR E REPLACED ONLY THE REPLACEMENT BAG SHALL BE PAID FOR. MAINTENANCE ON ALL OTHER PARTS OF THE SEDIMENT FILTER BAG ASSEMBLY SHALL BE INCLUDED IN THE INITIAL PAYMENT.
- M. ONLY SEDIMENT FILTER BAGS LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED.
- SEDIMENT FILTER BAGS SHALL BE REPLACED WHEN SEDIMENT HAS ACCUMULATED TO ONE- HAL F OF THE BAGS CAPACITY OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS

DANDY BAG DETAIL



THE PATENTED DANDY BAG® IS DESIGNED FOR USE WITH FLAT GRATES (INCLUDING ROUND) AND MOUNTABLE CURBS TO DETAIN SEDIMENT-LADEN STORM WATER. THE SUSPENDED SOLIDS ARE ALLOWED TO SETTLE OUT OF THE SLOWED FLOW PRIOR TO ENTERING THE DANDY BAG ®.

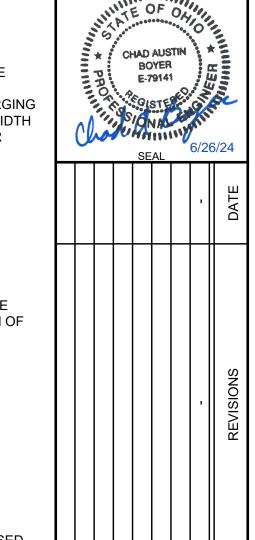
INSTALLATION:

- 1. STAND THE GRATE ON END
- 2. PLACE THE DANDY BAG® OVER THE GRATE 3. ROLL THE GRATE OVER SO THAT THE OPEN END IS UP
- 4. PULL UP THE SLACK 5. TUCK THE FLAP IN
- 6. PRESS THE VELCRO STRIPS TOGETHER
- 7. BE SURE THAT THE END OF THE GRATE IS COMPLETELY COVERED BY THE FLAP OR THE DANDY BAG® WILL NOT WORK PROPERLY. HOLDING THE HANDLES, CAREFULLY PLACE THE DANDY BAG® WITH THE GRATE INSERTED INTO THE CATCH BASIN FRAME.

MAINTENANCE:

REDUCE LIKELIHOOD OF PONDING AND MAINTAIN OPERATIONS, REMOVE SILT, SEDIMENT, AND DEBRIS FROM THE SURFACE AND THE VICINITY OF THE UNIT WITH A SQUARE POINT SHOVEL OR STIFF BRISTLE BROOM AWAY FROM ENVIRONMENTALLY SENSITIVE AREAS AND WATERWAYS IN MANNER SATISFACTORY TO THE ENGINEER/INSPECTOR. REMOVE FINE MATERIAL FROM INSIDE DANDY BAG AS NEEDED. DISPOSE OF DANDY BAG® NO LONGER IN USE AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.

TO INSPECT INLET, REMOVE DANDY BAG® WITH GRATE INSIDE, INSPECT CATCH BASIN AND REPLACE DANDY BAG® BACK INTO GRATE FRAME.



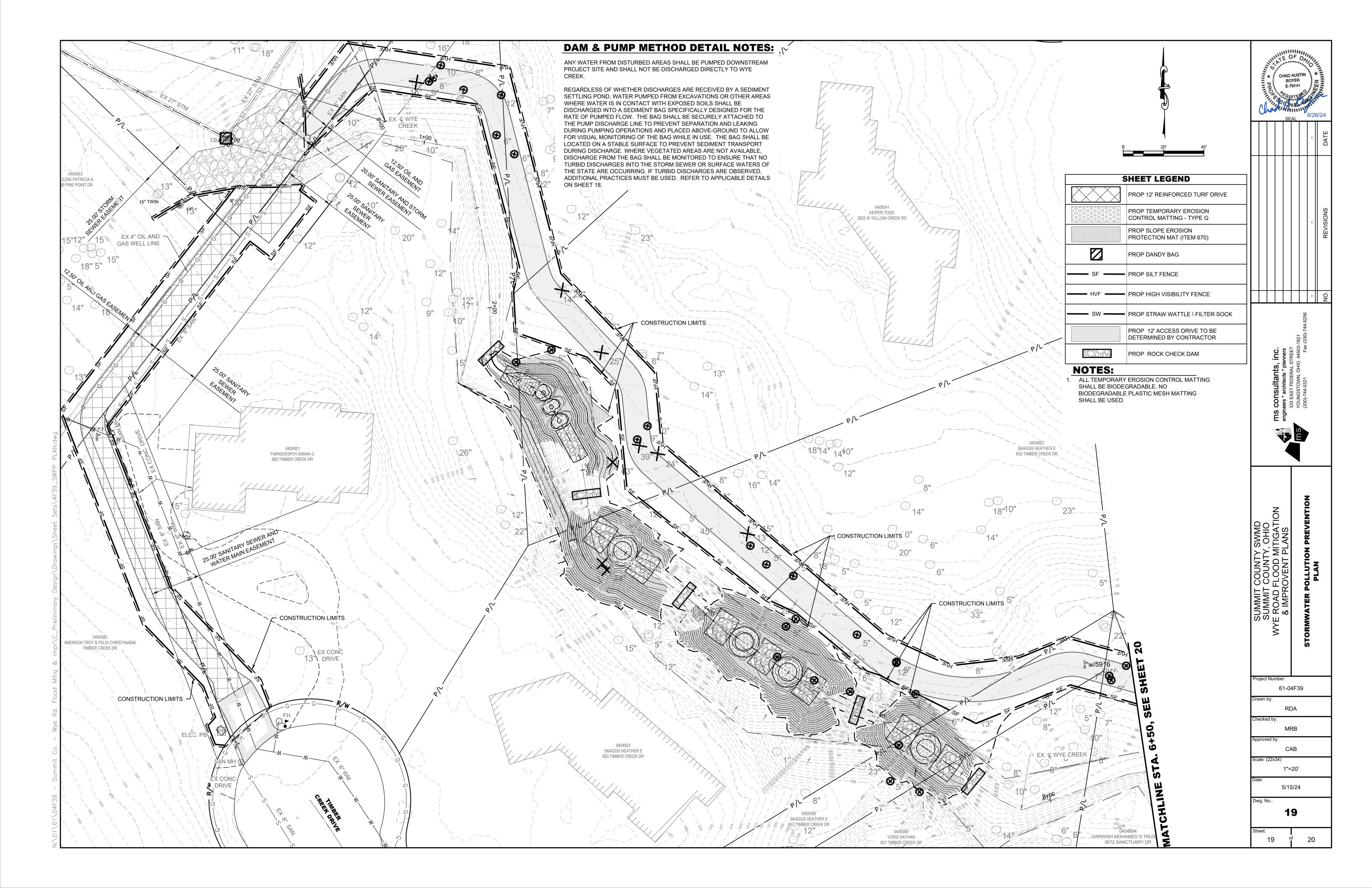


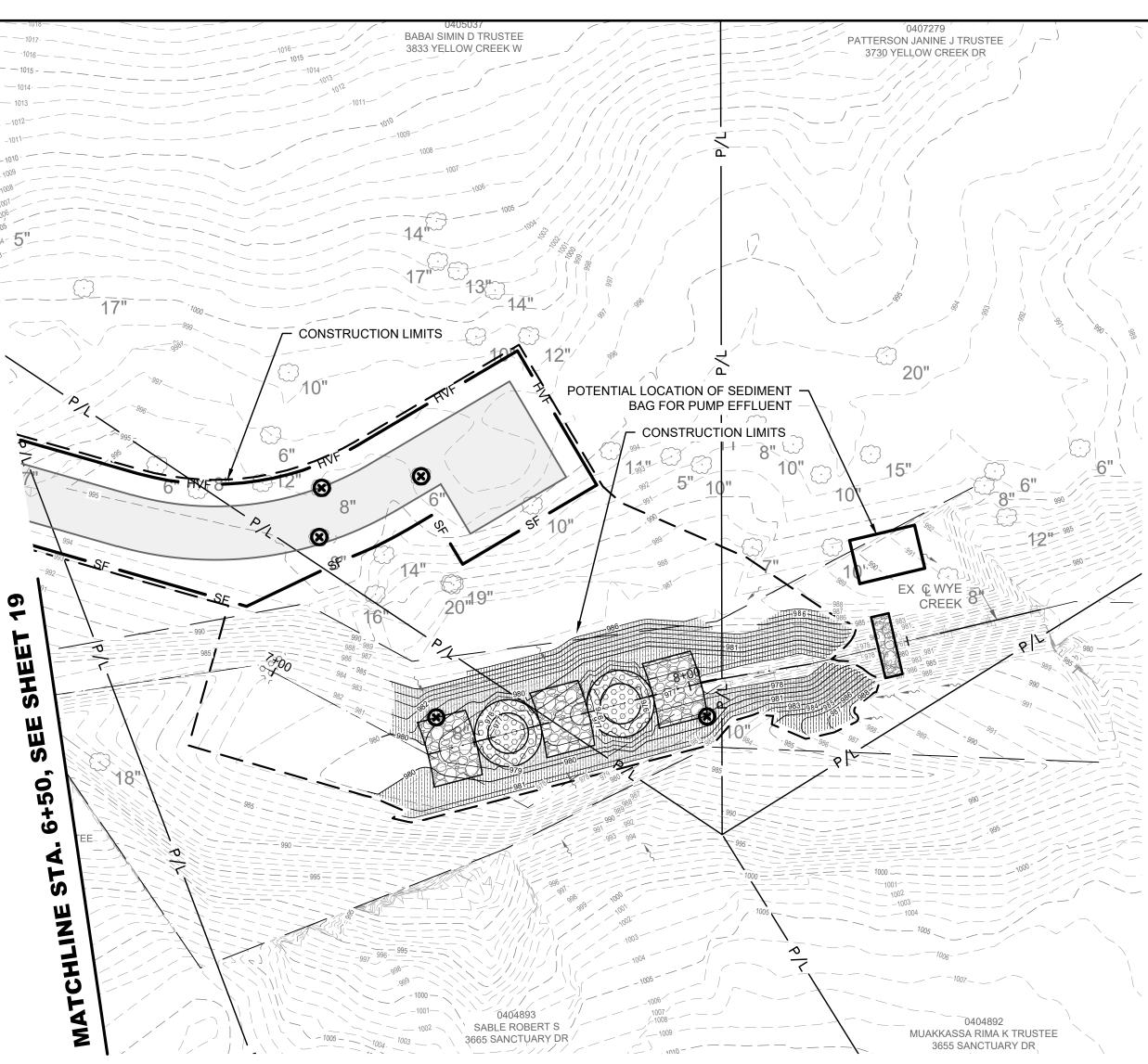
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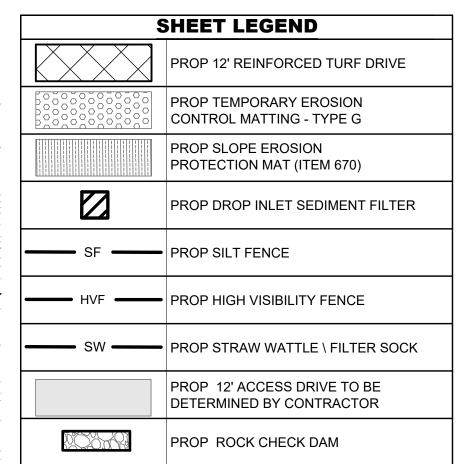




DAM & PUMP METHOD DETAIL NOTES:

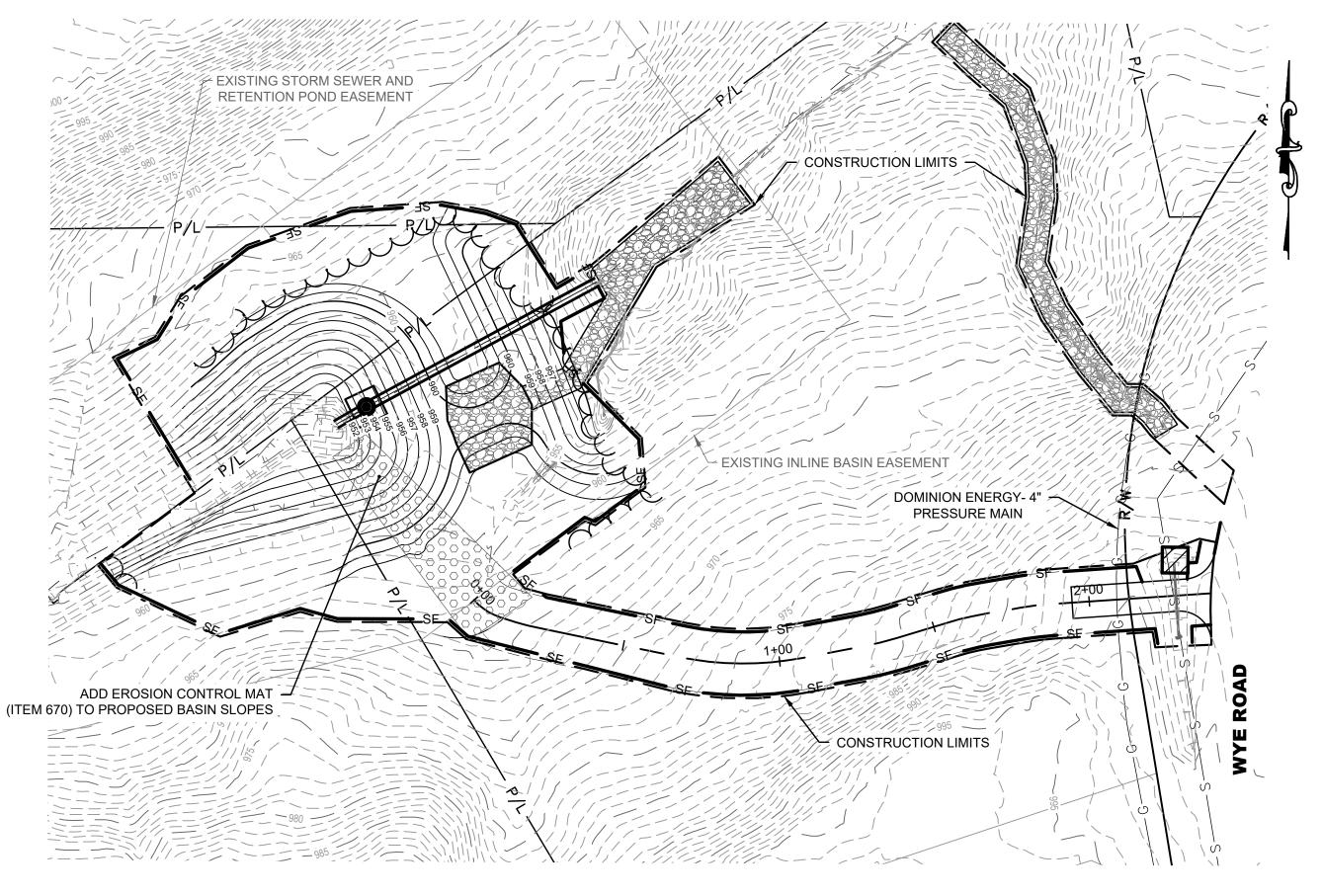
ANY WATER FROM DISTURBED AREAS SHALL BE PUMPED DOWNSTREAM PROJECT SITE AND SHALL NOT BE DISCHARGED DIRECTLY TO WYE CREEK.

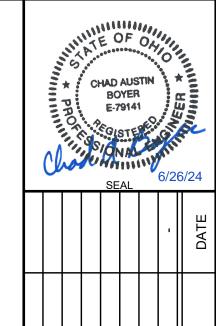
REGARDLESS OF WHETHER DISCHARGES ARE RECEIVED BY A SEDIMENT SETTLING POND, WATER PUMPED FROM EXCAVATIONS OR OTHER AREAS WHERE WATER IS IN CONTACT WITH EXPOSED SOILS SHALL BE DISCHARGED INTO A SEDIMENT BAG SPECIFICALLY DESIGNED FOR THE RATE OF PUMPED FLOW. THE BAG SHALL BE SECURELY ATTACHED TO THE PUMP DISCHARGE LINE TO PREVENT SEPARATION AND LEAKING DURING PUMPING OPERATIONS AND PLACED ABOVE-GROUND TO ALLOW FOR VISUAL MONITORING OF THE BAG WHILE IN USE. THE BAG SHALL BE LOCATED ON A STABLE SURFACE TO PREVENT SEDIMENT TRANSPORT DURING DISCHARGE. WHERE VEGETATED AREAS ARE NOT AVAILABLE, DISCHARGE FROM THE BAG SHALL BE MONITORED TO ENSURE THAT NO TURBID DISCHARGES INTO THE STORM SEWER OR SURFACE WATERS OF THE STATE ARE OCCURRING. IF TURBID DISCHARGES ARE OBSERVED, ADDITIONAL PRACTICES MUST BE USED. REFER TO APPLICABLE DETAILS ON SHEET 18.



NOTES:

1. ALL TEMPORARY EROSION CONTROL MATTING SHALL BE BIODEGRADABLE. NO BIODEGRADABLE PLASTIC MESH MATTING SHALL BE USED.





					REVISIONS	
				ı	NO.	

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SUMMIT COUNTY, OHIO

NYE ROAD FLOOD MITIGATION

& IMPROVENT PLANS

RAWATER POLLUTION PREVENTION

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