

*TOWN OF FAIRHAVEN, MASSACHUSETTS
MACOMBER & PIMENTAL PARK
BMX PARK PROJECT
JULY 10, 2025*

OWNER/APPLICANT:

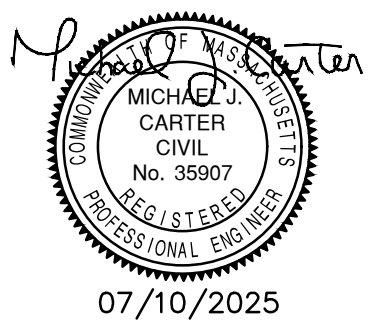
TOWN OF FAIRHAVEN – PUBLIC WORKS DEPARTMENT
5 ARSENE STREET
FAIRHAVEN, MA 02719
PHONE: (508) 979-4030

PROJECT ADDRESS:

MACOMBER & PIMENTAL PARK
7 BERNESE STREET
FAIRHAVEN, MA 02719



LOCUS PLAN
SCALE : 1" = 1,000'±



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BID SET

GCG ASSOCIATES INC. CONSULTING ENGINEERS WILMINGTON, MASSACHUSETTS

PLAN 1 OF 7 JULY 10, 2025

ABBREVIATIONS

ACP	ASBESTOS CEMENT PIPE
BBC	BITUMINOUS BERM CURB
BLDG	BUILDING
BND	BOUND
BIT	BITUMINOUS
BM	BENCH MARK
BOL	BOLLARD
BRK	BRICK
CB	CATCH BASIN
CS	COMBINED SEWER
C	CONDUIT
CL	CENTERLINE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CSMH	COMBINED SEWER MANHOLE
CST	COBBLESTONE
CULV	CULVERT
CO	COUNTY
CONC	CONCRETE
C.L.D.I.	CONC. LINED DUCTILE IRON
CLF	CHAIN LINK FENCE
DI	DUCTILE IRON PIPE
DR	DRIVE
DMH	DRAIN MANHOLE
DYCL	DOUBLE YELLOW CENTER LINE
EMH	ELECTRIC MANHOLE
EX	EXISTING
FAB	FIRE ALARM BOX
EOP	EDGE OF PAVEMENT
EOR	EDGE OF GRAVEL ROAD
FDMH	FIRE DEPT. MANHOLE
GAR	GARAGE
G	GAS LINE
GBC	GRANITE BLOCK CURB
GI	GUTTER INLET
GD	GROUND
GV	GAS VALVE
HW	HEADWALL
HSE	HOUSE
HOR	HORIZONTAL
HYD	HYDRANT
HP	HIGH PRESSURE
L	LEAD
LP	LIGHT POLE
MB	MAIL BOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NG	NATURAL GAS
PE	POLYETHYLENE PIPE
PROP	PROPOSED
RP	APPROXIMATE PROPERTY LINE
RCP	REINFORCED CONCRETE PIPE
RET WALL	RETAINING WALL
ROW	APPROXIMATE RIGHT OF WAY
RR	RAILROAD
SB	STONE BOUND
S	SIGN
SMH	SEWER MANHOLE
STA	STATION
S	SEWER LINE
SS	SEWER SERVICE
STL	STEEL
SW	SIDEWALK
TMH	TELEPHONE MANHOLE
T	TREE
TS	TRAFFIC SIGN
TYP	TYPICAL
UP	UTILITY POLE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
W	WATER MAIN
WALK	WALKWAY
WG	WATER GATE
WD	WOOD
WIP	WROUGHT IRON PIPE
WMH	WATER MANHOLE
W	WATER SERVICE
WSO	WATER SERVICE SHUTOFF
WV	WATER VALVE

LINEWORK

EXISTING	PROPOSED	
		CONTOUR MAJOR
		CONTOUR MINOR
		CURB
		DRAIN LINE
		DRIVEWAY
		EDGE OF PAVEMENT
		FENCE
		GAS LINE
		SEWER LINE
		SIDEWALK
		WATER LINE

GENERAL NOTES

- PLANS AND TOPOGRAPHIC INFORMATION ARE PREPARED FROM AN AERIAL DRONE SURVEY BY GCG ASSOCIATES, INC ON SEPTEMBER 7, 2022 AND A GROUND INSTRUMENT SURVEY PERFORMED BY GCG ASSOCIATES, INC ON JANUARY 13, 2017.
- THE LOCATIONS SHOWN REFER TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM. (NAD 83 –NAVD 88).
- PROPERTY LINES AND SIDELINES WERE ESTABLISHED, APPROXIMATELY, FROM MASS GIS DATA LAYERS.
- THE LOCATIONS OF SUBSURFACE UTILITIES AND STRUCTURES WERE OBTAINED FROM AVAILABLE TOWN AND UTILITY RECORDS. THE SIZE, TYPE AND LOCATION OF UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL PROPERLY LOCATE THE UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN UTILITY INFORMATION BY CONTACTING DIGSAFE (811).
- WATER MAINS ARE ASSUMED TO BE 5 FEET BELOW THE EXISTING GROUND SURFACE. GAS LINES ARE ASSUMED TO BE 3 FEET BELOW THE EXISTING GROUND SURFACE. TELEPHONE AND ELECTRIC CONDUIT ARE ASSUMED TO BE 2 FEET BELOW THE EXISTING GROUND SURFACE.
- THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A CONSTRUCTION SCHEDULE DELINEATING THE SEQUENCE OF WORK, TRAFFIC MANAGEMENT PLAN AND ESTIMATED TIME OF COMPLETION OF EACH SEGMENT OF WORK, PRIOR TO THE COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL MAINTAIN CONTINUOUS TRAFFIC FLOW DURING CONSTRUCTION SATISFACTORY TO THE ENGINEER AND THE TOWN OF FAIRHAVEN. NO EQUIPMENT SHALL BE ALLOWED TO BE PARKED ON THE ROAD WHEN NOT IN USE. MATERIALS SHALL NOT BE STOCKPILED ON THE ROAD.**
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE RESTORATION AND CLEAN UP UPON COMPLETION OF THE PROJECT. PAYMENT UNDER ASSOCIATED ITEM.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES AND PROCEDURES, AND FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH ALL WORK INCLUDED UNDER THIS CONTRACT. THE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL SAFETY BARRIERS, WARNING FLASHERS AND THE LIKE, AS REQUIRED BY THE CONDUCT OF THE WORK FOR THE PROTECTION OF WORKERS AND NON-WORKERS ALIKE. THE CONTRACTORS ATTENTION IS DIRECTED TO OSHA REQUIREMENTS.
- ALL CONSTRUCTION SIGNING SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- PRIOR TO THE PROPOSED CONSTRUCTION ON THE BMX PARK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE TOWN, A TRAFFIC MANAGEMENT PLAN IN COMPLIANCE WITH MASSDOT AND MUTCD. SAID PLAN WILL SHOW HOW TRAFFIC FLOW WILL BE HANDLED DURING CONSTRUCTION.**
- TRENCH DEWATERING COSTS THROUGHOUT THE DURATION OF THE PROPOSED PROJECT SHALL BE INCLUDED IN THE APPLICABLE BID ITEMS. GROUNDWATER ELEVATION IS ASSUMED TO BE 4' BELOW THE EXISTING ROADWAY FOR BIDDING PURPOSES.
- ALL CONSTRUCTION MATERIAL, DEBRIS, ASPHALT, SOIL, ETC. THAT IS REMOVED FROM THE SITE SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
- ALL DISTURBED AREAS SHALL BE RESTORED WITH 6" LOAM & SEEDED OR LIKE MATERIAL FOR THE AREA DISTURBED.
- CONTRACTOR SHALL CONTROL DUST AS APPROPRIATE.

SYMBOLS

- THE FOLLOWING SYMBOLS ARE USED TO IDENTIFY UTILITY APPURTENANCES.
- THE SIZE AND TYPE IS NOTED ON THE PLANS ADJACENT TO THE SYMBOL.

	BENCHMARK
	BOUND
	BUILDING
	CATCH BASIN
	TREE
	BUSH OR SHRUB
	DRAIN MANHOLE
	FLARED END
	GAS VALVE
	HYDRANT
	LIGHTPOLE
	ROCK
	SEWER MANHOLE
	UTILITY POLE
	WATER VALVE

STOCKPILED EXCAVATED MATERIALS

- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING A LOCATION FOR STAGING AND STORING STOCKPILED MATERIALS.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF LOCATION AND ANY PRIVATE AGREEMENTS AND ALL FEES THAT MAY BE ASSOCIATED WITH THE USE OF AN AREA FOR STORING STOCKPILED MATERIALS.
- THE TOWN OF FAIRHAVEN IS NOT RESPONSIBLE FOR PROVIDING A LOCATION FOR STAGING OR STORAGE OF STOCKPILED MATERIAL.
- MATERIALS SHALL NOT BE STOCKPILED ON THE ROAD OR IN PUBLIC PARKING AREAS.
- NO EQUIPMENT SHALL BE ALLOWED TO BE PARKED ON THE ROAD WHEN NOT IN USE.
- STOCKPILED SUITABLE EXCAVATED MATERIAL SHALL BE USED ONSITE FOR SUITABLE TRENCH BACKFILL AND OTHER AREAS REQUIRING SUITABLE BACKFILL. NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE PLACEMENT OF THIS MATERIAL.
- ALL SURPLUS EXCAVATED MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DISPOSE OF OFFSITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

MISCELLANEOUS NOTES

- THE CONTRACTOR WILL INSTALL ALL TEMPORARY SEDIMENTATION BARRIERS AS REQUIRED DURING CONSTRUCTION.
- ANY COORDINATION OF RELOCATION OF WATER, SEWER, ELECTRIC, TELEPHONE, AND CABLE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ANY COORDINATION OF RELOCATION OF STREET SIGNS, MAILBOXES ETC. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- EXISTING GRATES, FRAMES AND COVERS REMOVED FROM THE WORK SHALL BE DELIVERED TO THE FAIRHAVEN DPW BY THE CONTRACTOR.
- POLICE DETAILS FOR TRAFFIC CONTROL WILL BE PAID FOR DIRECTLY BY THE TOWN THROUGH THE CONTRACT. THE CONTRACTOR SHALL COORDINATE ALL DETAIL ASSIGNMENTS AND ALL COSTS INCLUDING COORDINATION SHALL BE INCLUDED UNDER ALL ITEMS IN THE CONTRACT.
- THE CONTRACTOR SHALL LOAM & SEED ALL DISTURBED AREAS.
- THE CONTRACTOR SHALL PROVIDE GENERAL CLEAN-UP TO THE ENTIRE PROJECT SITE. INCLUDE PAYMENT UNDER APPROPRIATE ITEM.
- ALL CASTINGS, GATE BOXES, ETC. DAMAGED DURING CONSTRUCTION SHALL BE SUPPLIED AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. THE CONTRACTOR SHALL INCLUDE THE COST IN ALL BID ITEMS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL OR REMOVE AND REPLACE SIGNS AS REQUIRED TO PERFORM THE PROPOSED WORK. PAYMENT TO BE INCLUDED UNDER MISCELLANEOUS WORK ITEM.
- THE CONTRACTOR SHALL BE PAID FOR WORK REQUIRED TO SUPPORT OR REMOVE AND REPLACE EXISTING STRUCTURES AND UTILITY LINES ADJACENT TO OR WITHIN THE LIMITS OF TRENCH EXCAVATION UNDER THE MISCELLANEOUS WORK ITEM.
- THE CONTRACTOR SHALL SAWCUT ALL PRIVATE DRIVEWAYS AND SIDEWALKS TO ALLOW FOR PROPER SLOPES AND TRANSITIONS TO THE PROPOSED FINISHED SURFACE AS NECESSARY. THE CONTRACTOR SHALL MATCH THE EXISTING MATERIAL AND TYPE. ALL WORK SHALL BE INCLUDED UNDER THE APPROPRIATE ITEM.

CATCH BASIN CLEANING NOTES

- ALL ACCUMULATED SEDIMENT, DEBRIS, ORGANIC MATTER, ETC. SHOULD BE REMOVED FROM CATCH BASINS AND DRAINAGE SYSTEMS AS NOTED ON THE PLANS.
- ALL SEDIMENT AND DEBRIS REMOVED FROM THE CATCH BASIN OR PIPE LINE SHALL BE PROPERLY HANDLED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.
- ANY REQUIRED MAINTENANCE OR REPAIRS NOTED DURING THE CLEANING AND INSPECTION SHOULD BE ADDRESSED IMMEDIATELY. DRAINAGE INLET FRAMES AND GRATES SHALL BE REPLACED IN KIND AS NOTED ON THE PLANS.
- ALL CATCH BASINS SHALL BE CLEANED UPON COMPLETION OF WORK.

FINE GRADING AND COMPACTING

- THE CONTRACTOR SHALL FINE GRADE AND COMPACT ALL AREAS IN PREPARATION FOR BITUMINOUS ASPHALT PAVEMENT, INCLUDING, BUT NOT LIMITED TO THE BMX PARK AREA.
- PAYMENT FOR GRADING AND COMPACTING THE BITUMINOUS ASPHALT BMX PARK AND PROPOSED CONCRETE SIDEWALK SHALL BE INCLUDED IN THE ASSOCIATED BID ITEM.

BMX CONSTRUCTION NOTES

- BMX PATH SHALL BE IN ACCORDANCE WITH THE TYPICAL CROSS SECTION DETAILS.
- A MINIMUM PATH WIDTH OF 5' MUST BE MAINTAINED UNLESS WHERE OTHERWISE SPECIFIED.
- HOT MIX ASPHALT SIDEWALKS SHALL HAVE A MINIMUM 4" DEPTH CONSISTING OF A 2–1/2" INTERMEDIATE (DENSE BINDER) COURSE AND A 1–1/2" SURFACE TOP (FINISH) COURSE.
- THE CONTRACTOR SHALL COMPACT AND FINE GRADE GRAVEL SUBBASE AS SPECIFIED. ALL SUBBASE MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% OF THE STANDARD PROCTOR DENSITY.
- ALL PROPOSED CUTS AND FILLS REQUIRED TO GRADE THE PAVEMENT MATERIAL TO THE REQUIRED DEPTH SHALL BE INCLUDED FOR PAYMENT IN THE CONTRACT PRICE.
- THE CONTRACTOR SHALL FINE GRADE THE GRAVEL SUBBASE NO MORE THAN 24 HOURS PRIOR TO THE PLACEMENT OF THE BASE COURSE PAVEMENT.

BID SET

LEGEND AND NOTES

MACOMBER & PIMENTAL PARK
BMX PARK

GCG ASSOCIATES, INC.

WILMINGTON

MASSACHUSETTS

SCALE: 1" = 20'

DATE: JULY 10, 2025

JOB NO. \FILE NAME:

BID SET

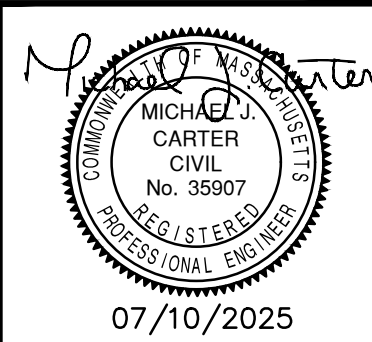
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DRAWN BY: L.P.B.

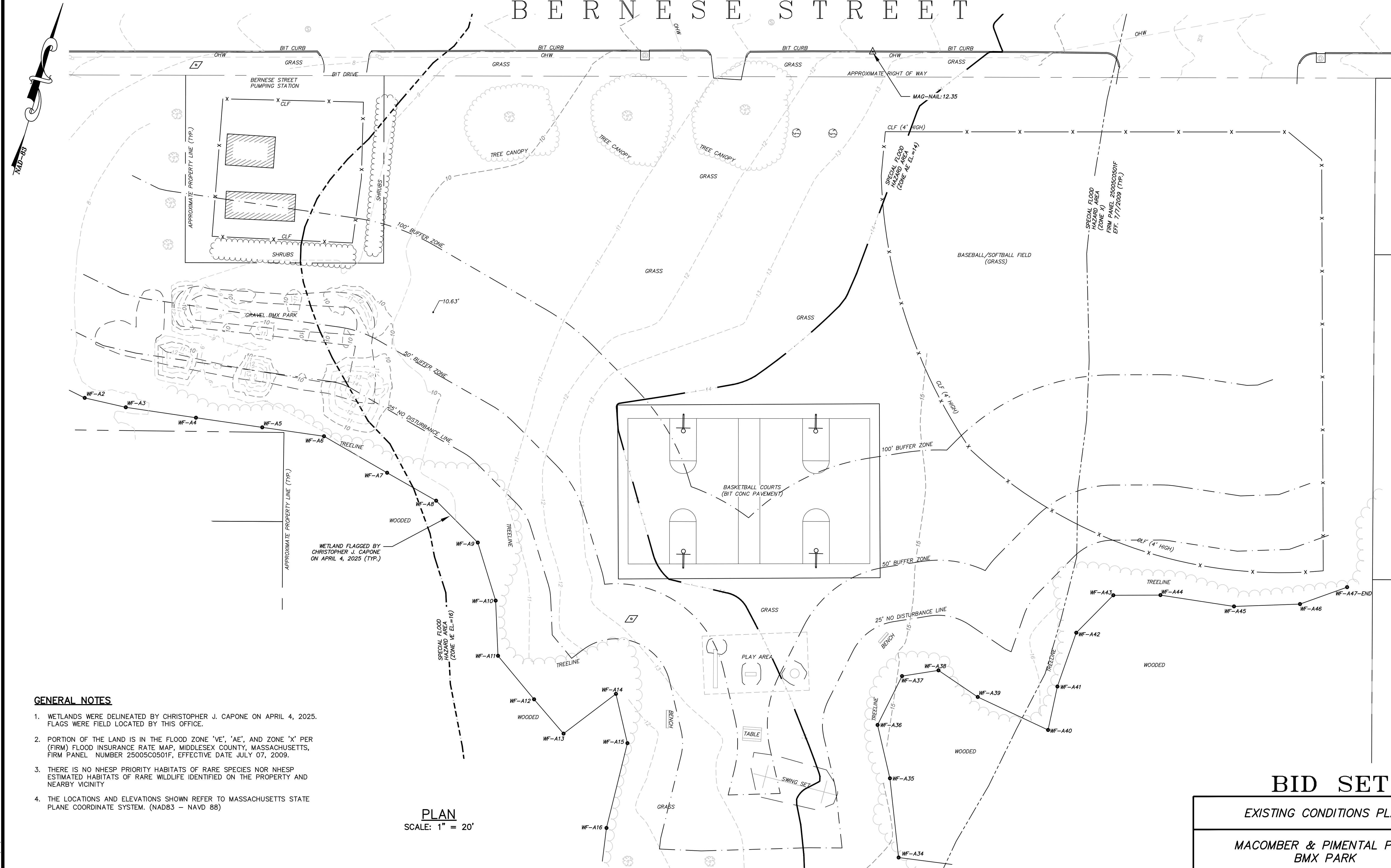
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PLAN NO.

2 OF 7



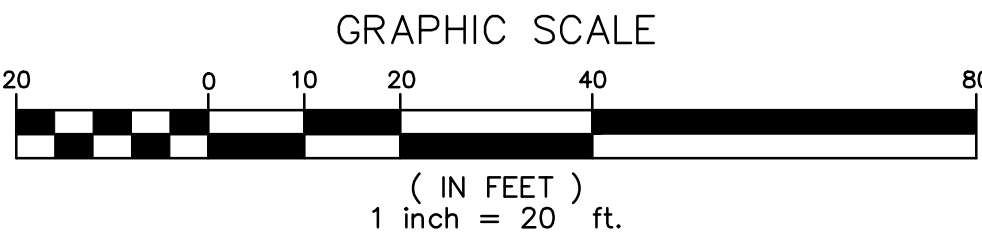
BERNESE STREET



GENERAL NOTES

1. WETLANDS WERE DELINEATED BY CHRISTOPHER J. CAPONE ON APRIL 4, 2025. FLAGS WERE FIELD LOCATED BY THIS OFFICE.
2. PORTION OF THE LAND IS IN THE FLOOD ZONE 'VE', 'AE', AND ZONE 'X' PER (FIRM) FLOOD INSURANCE RATE MAP, MIDDLESEX COUNTY, MASSACHUSETTS, FIRM PANEL NUMBER 25005C0501F, EFFECTIVE DATE JULY 07, 2009.
3. THERE IS NO NHESP PRIORITY HABITATS OF RARE SPECIES NOR NHESP ESTIMATED HABITATS OF RARE WILDLIFE IDENTIFIED ON THE PROPERTY AND NEARBY VICINITY
4. THE LOCATIONS AND ELEVATIONS SHOWN REFER TO MASSACHUSETTS STATE PLANE COORDINATE SYSTEM. (NAD83 - NAVD 88)

PLAN
SCALE: 1" = 20'



BID SET

EXISTING CONDITIONS PLAN

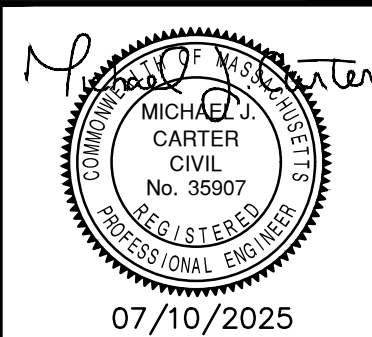
MACOMBER & PIMENTAL PARK
BMX PARK

GCG ASSOCIATES, INC.

WILMINGTON MASSACHUSETTS

SCALE: 1" = 20' DATE: JULY 10, 2025

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	CHECKED BY: M.J.C.	



BERNESE STREET

HATCH LEGEND

- 5' BMX BIKE PATH, 12" GRAVEL
2" INTERMEDIATE COURSE
1 1/2" SURFACE COURSE
- GRAVEL SLOPE, THICKNESS VARIES (MINIMUM 12")
- 6" LOAM AND SEED

BID SET

PROPOSED BMX PARK

MACOMBER & PIMENTAL PARK
BMX PARK

GCG ASSOCIATES, INC.

WILMINGTON

MASSACHUSETTS

SCALE: 1" = 20'

DATE: JULY 10, 2025

JOB NO. \FILE NAME:

DESIGNED BY: L.P.B.

PLAN NO.

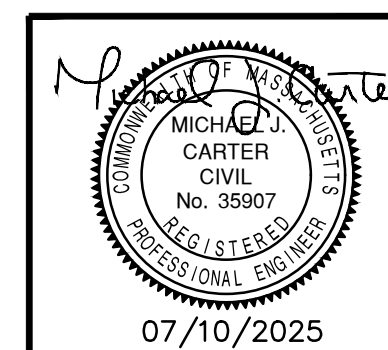
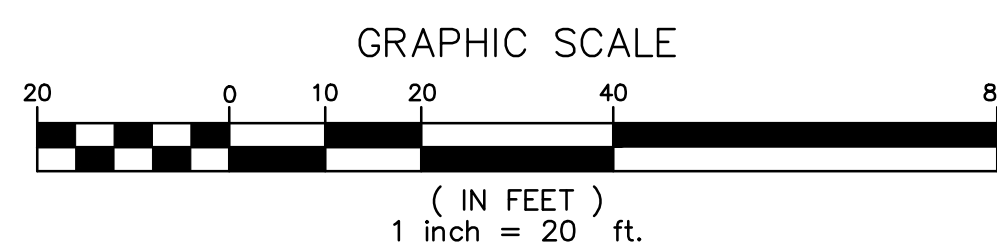
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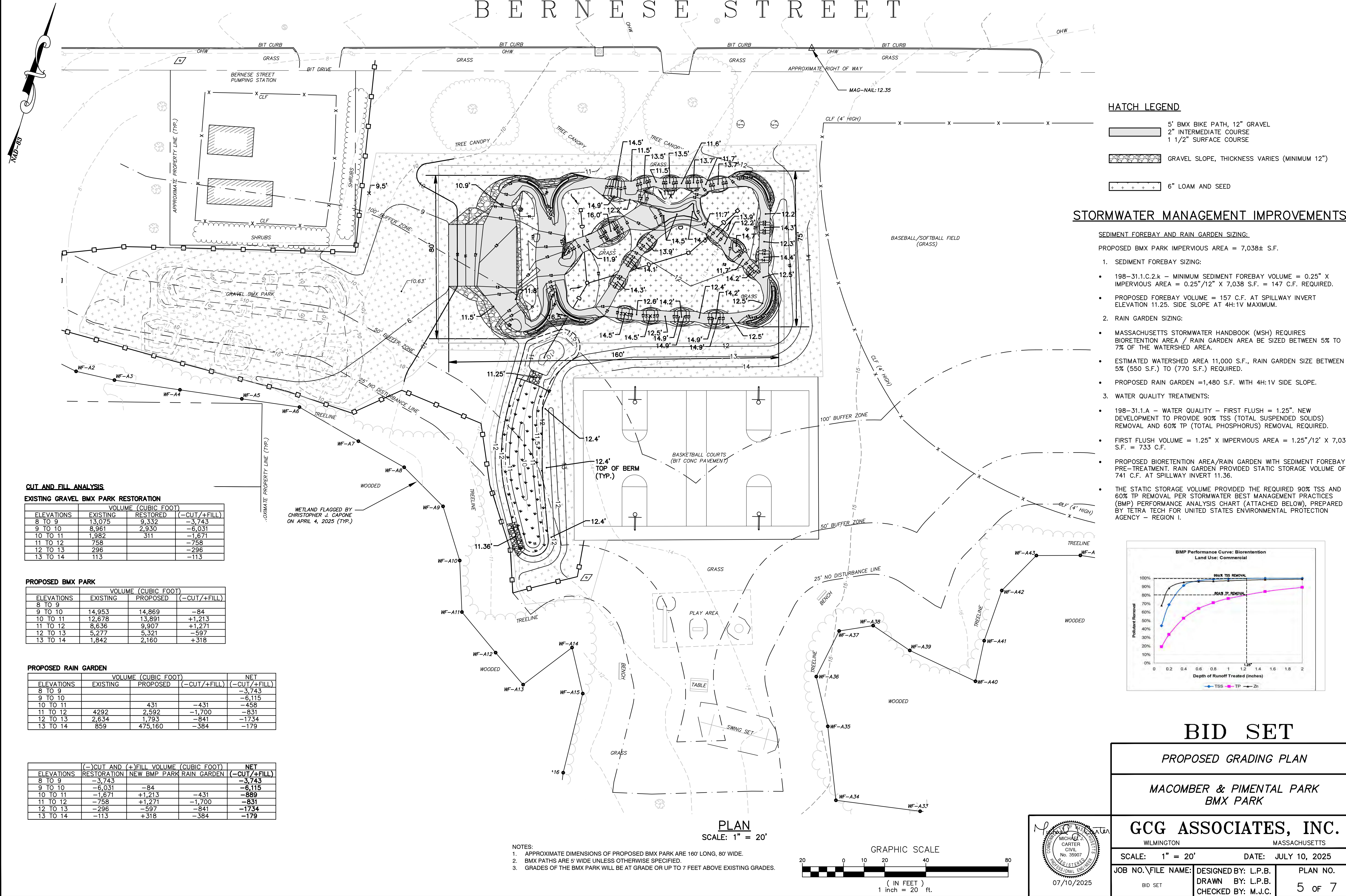
4 OF 7

- NOTES:
- APPROXIMATE DIMENSIONS OF PROPOSED BMX PARK ARE 160' LONG, 80' WIDE.
 - BMX PATHS ARE 5' WIDE UNLESS OTHERWISE SPECIFIED.
 - GRADES OF THE BMX PARK WILL BE AT GRADE OR UP TO 7 FEET ABOVE EXISTING GRADES.

PLAN
SCALE: 1" = 20'



BERNESE STREET



HATCH LEGEND

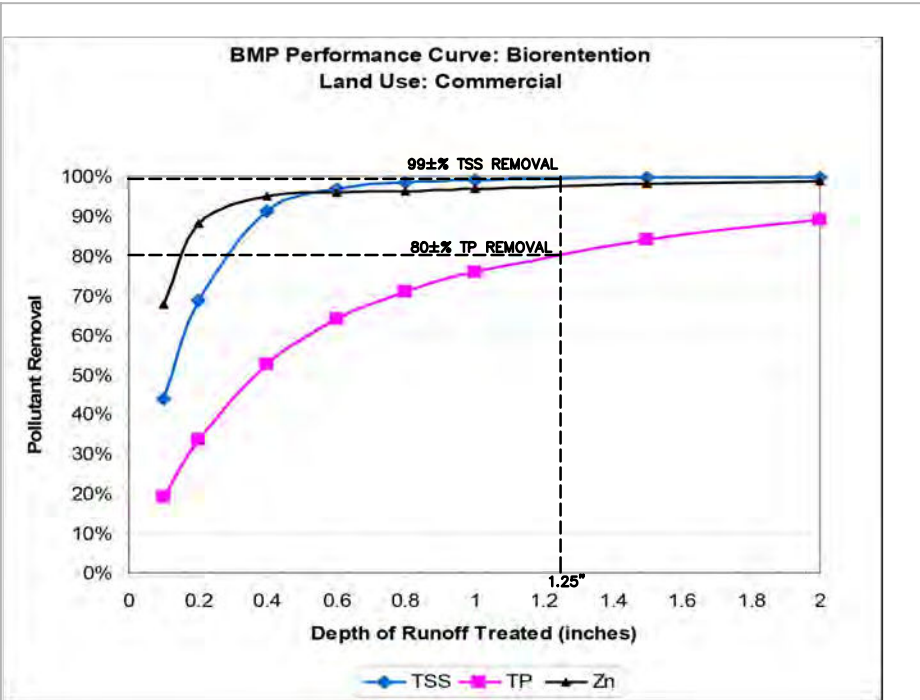
- 5' BMX BIKE PATH, 12" GRAVEL
2" INTERMEDIATE COURSE
1 1/2" SURFACE COURSE
- GRAVEL SLOPE, THICKNESS VARIES (MINIMUM 12")
- 6" LOAM AND SEED

STORMWATER MANAGEMENT IMPROVEMENTS

SEDIMENT FOREBAY AND RAIN GARDEN SIZING:

PROPOSED BMX PARK IMPERVIOUS AREA = 7,038± S.F.

- SEDIMENT FOREBAY SIZING:
 - 198-31.1.C.2.k - MINIMUM SEDIMENT FOREBAY VOLUME = 0.25" X IMPERVIOUS AREA = 0.25"/12" X 7,038 S.F. = 147 C.F. REQUIRED.
 - PROPOSED FOREBAY VOLUME = 157 C.F. AT SPILLWAY INVERT ELEVATION 11.25. SIDE SLOPE AT 4H:1V MAXIMUM.
- RAIN GARDEN SIZING:
 - MASSACHUSETTS STORMWATER HANDBOOK (MSH) REQUIRES BIORETENTION AREA / RAIN GARDEN AREA BE SIZED BETWEEN 5% TO 7% OF THE WATERSHED AREA.
 - ESTIMATED WATERSHED AREA 11,000 S.F., RAIN GARDEN SIZE BETWEEN 5% (550 S.F.) TO (770 S.F.) REQUIRED.
 - PROPOSED RAIN GARDEN = 1,480 S.F. WITH 4H:1V SIDE SLOPE.
- WATER QUALITY TREATMENTS:
 - 198-31.1.A - WATER QUALITY - FIRST FLUSH = 1.25". NEW DEVELOPMENT TO PROVIDE 90% TSS (TOTAL SUSPENDED SOLIDS) REMOVAL AND 60% TP (TOTAL PHOSPHORUS) REMOVAL REQUIRED.
 - FIRST FLUSH VOLUME = 1.25" X IMPERVIOUS AREA = 1.25"/12" X 7,038 S.F. = 733 C.F.
 - PROPOSED BIORETENTION AREA/RAIN GARDEN WITH SEDIMENT FOREBAY PRE-TREATMENT. RAIN GARDEN PROVIDED STATIC STORAGE VOLUME OF 741 C.F. AT SPILLWAY INVERT 11.36.
 - THE STATIC STORAGE VOLUME PROVIDED THE REQUIRED 90% TSS AND 60% TP REMOVAL PER STORMWATER BEST MANAGEMENT PRACTICES (BMP) PERFORMANCE ANALYSIS CHART (ATTACHED BELOW), PREPARED BY TETRA TECH FOR UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION I.



BID SET

PROPOSED GRADING PLAN

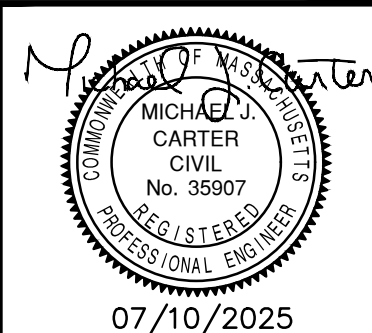
MACOMBER & PIMENTAL PARK
BMX PARK

GCG ASSOCIATES, INC.

WILMINGTON MASSACHUSETTS

SCALE: 1" = 20' DATE: JULY 10, 2025

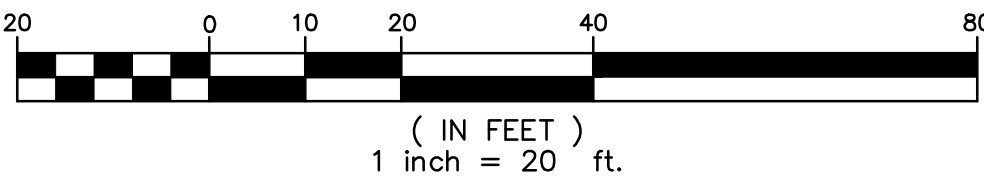
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BID SET DRAWN BY: M.J.C. 5 OF 7
CHECKED BY: M.J.C.



PLAN

SCALE: 1" = 20'

GRAPHIC SCALE



- NOTES:
- APPROXIMATE DIMENSIONS OF PROPOSED BMX PARK ARE 160' LONG, 80' WIDE.
 - BMX PATHS ARE 5' WIDE UNLESS OTHERWISE SPECIFIED.
 - GRADES OF THE BMX PARK WILL BE AT GRADE OR UP TO 7 FEET ABOVE EXISTING GRADES.

CUT AND FILL ANALYSIS

EXISTING GRAVEL BMX PARK RESTORATION

ELEVATIONS	VOLUME (CUBIC FOOT)		
	EXISTING	RESTORED	(-CUT/+FILL)
8 TO 9	13,075	9,332	-3,743
9 TO 10	8,961	2,930	-6,031
10 TO 11	1,982	311	-1,671
11 TO 12	758		-758
12 TO 13	296		-296
13 TO 14	113		-113

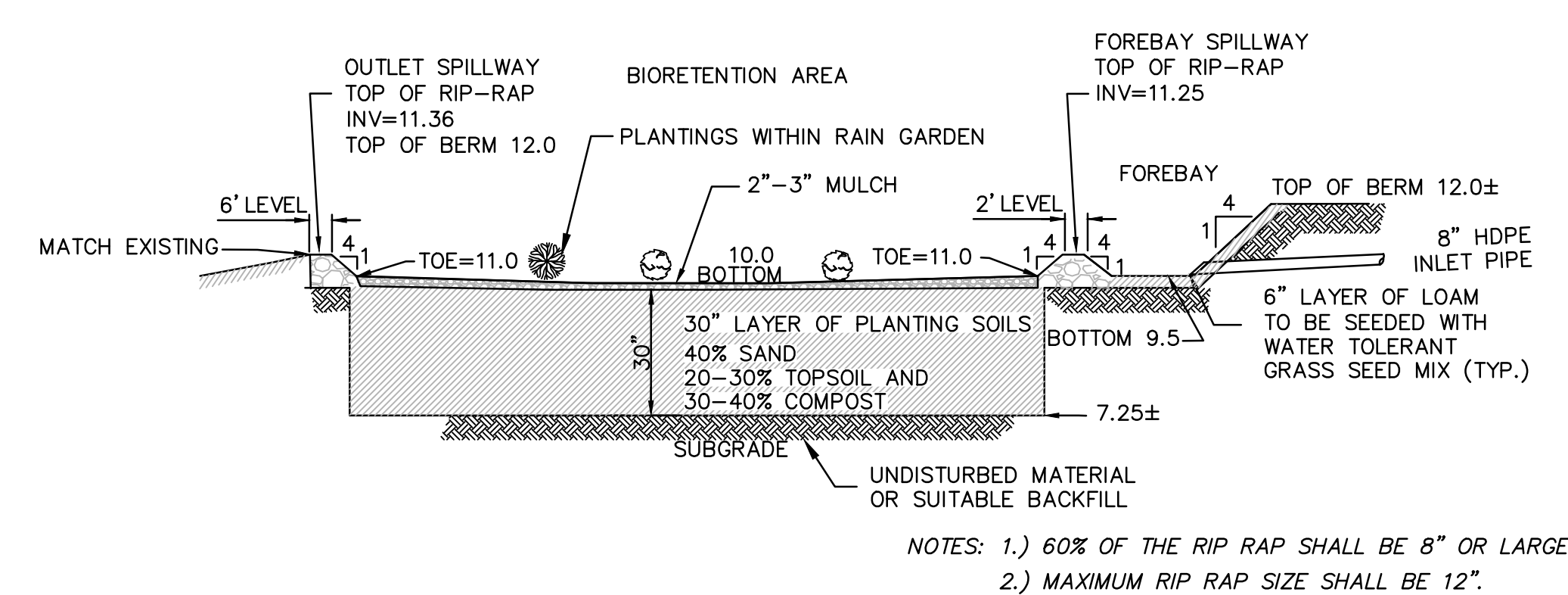
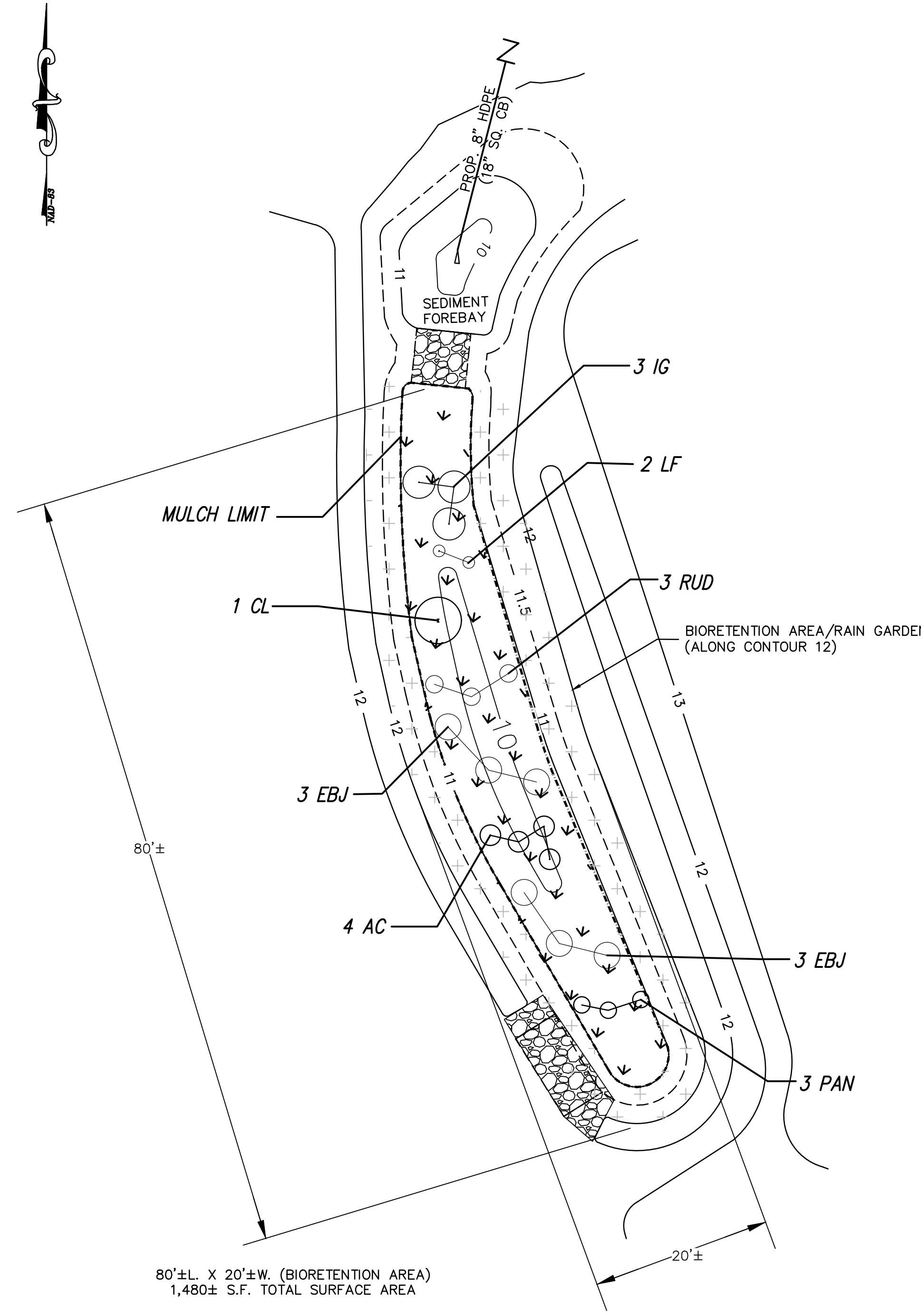
PROPOSED BMX PARK

ELEVATIONS	VOLUME (CUBIC FOOT)		
	EXISTING	PROPOSED	(-CUT/+FILL)
8 TO 9			
9 TO 10	14,953	14,869	-84
10 TO 11	12,678	13,891	+1,213
11 TO 12	8,636	9,907	+1,271
12 TO 13	5,277	5,321	+54
13 TO 14	1,842	2,160	+318

PROPOSED RAIN GARDEN

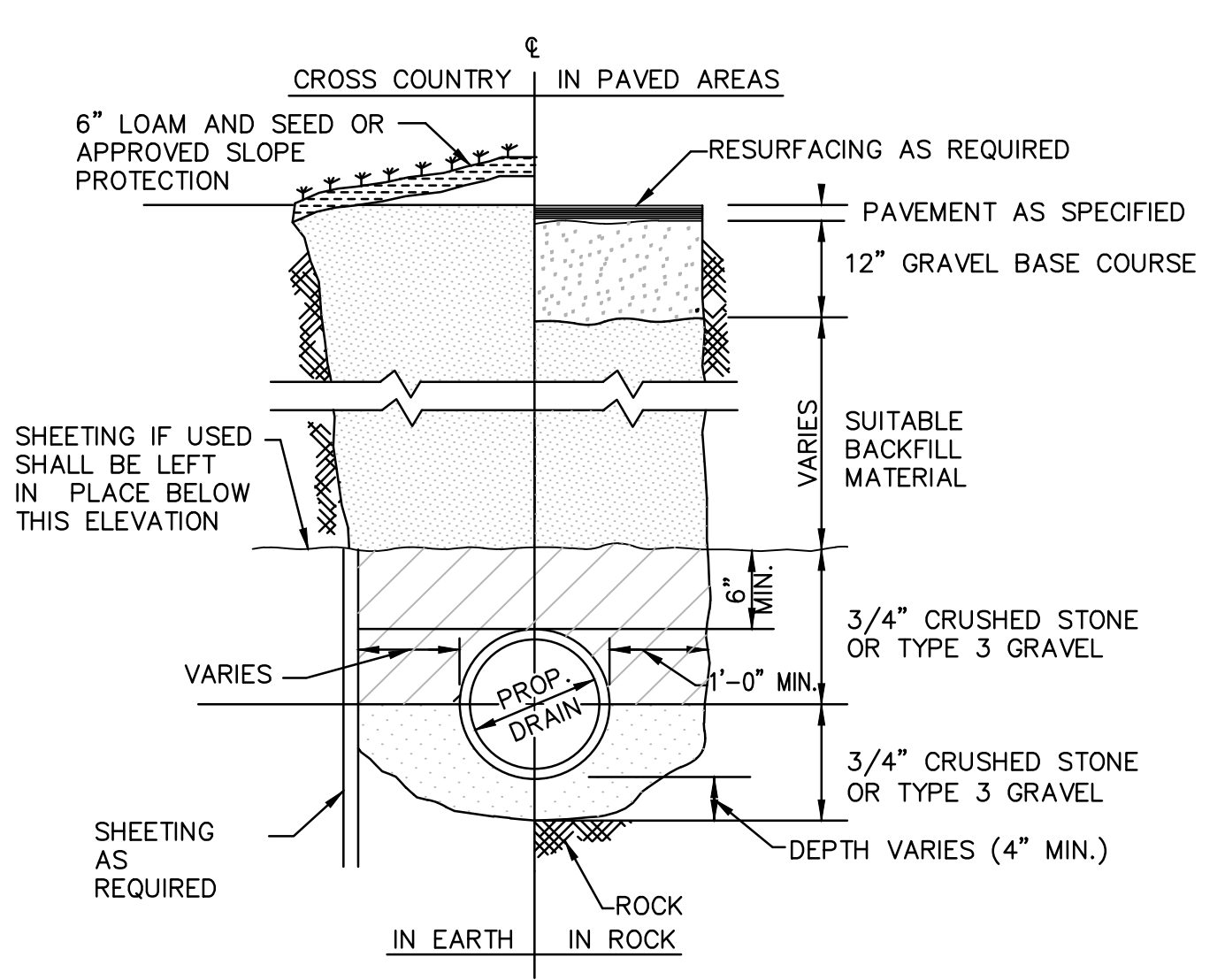
ELEVATIONS	VOLUME (CUBIC FOOT)			NET (-CUT/+FILL)
	EXISTING	PROPOSED	(-CUT/+FILL)	
8 TO 9				-3,743
9 TO 10				-6,115
10 TO 11		431	-431	-458
11 TO 12	4292	2,592	-1,700	-831
12 TO 13	2,634	1,793	-841	-1734
13 TO 14	859	475,160	-384	-179

ELEVATIONS	(-)CUT AND (+)FILL VOLUME (CUBIC FOOT)			NET (-CUT/+FILL)
	RESTORATION	NEW BMP PARK RAIN GARDEN		
8 TO 9	-3,743			-3,743
9 TO 10	-6,031	-84		-6,115
10 TO 11	-1,671	+1,213	-431	-889
11 TO 12	-758	+1,271	-1,700	-831
12 TO 13	-296	-597	-841	-1734
13 TO 14	-113	+318	-384	-179



- NOTE:
1. THE PLANTING PLAN SHOULD INCLUDE A MIX OF HERBACEOUS PERENNIALS, SHRUBS, AND UNDERSTORY TREES THAT CAN TOLERATE INTERMITTENT PONDING, OCCASIONALLY SALINE CONDITIONS (DUE TO ROAD SALT), AND EXTENDED DRY PERIODS.
 2. BIORETENTION BASIN SHALL BE CONSTRUCTED AND MAINTAINED AS SPECIFIED IN THE "MA DEP STORMWATER HANDBOOK, 2008 EDITION." MORE SPECIFICALLY IN VOL. 2, CH. 2 P. 25-29.
 3. PLANTING SOIL LAYER MIXTURE SHALL BE:
40% SAND
20-30% TOPSOIL WITH LESS THAN 5% CLAY CONTENT
30%-40% ORGANIC LEAF COMPOST

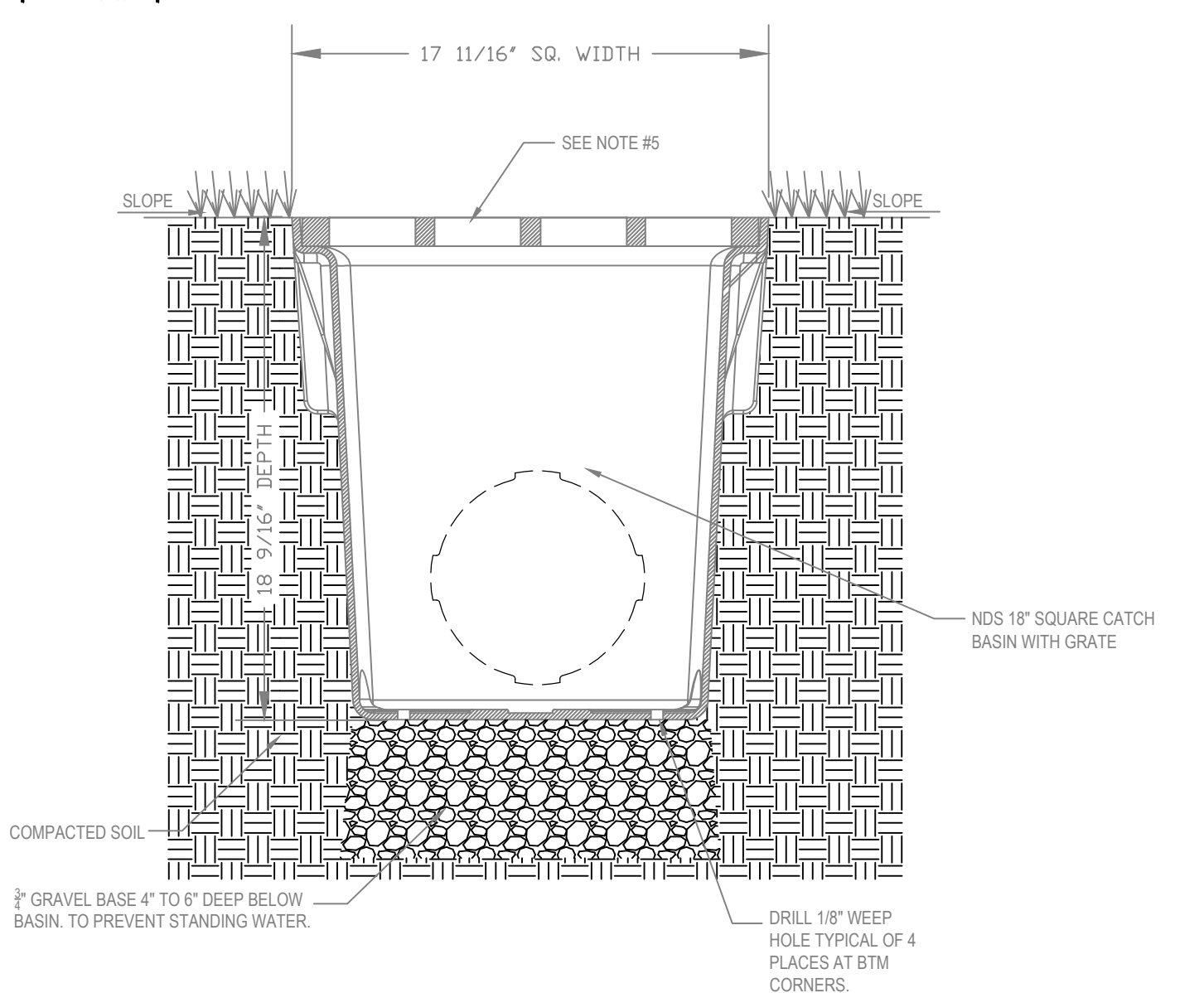
BIORETENTION AREA CROSS SECTION
N.T.S.



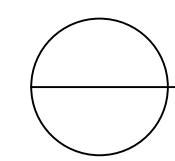
TYPICAL DRAIN/SEWER TRENCH DETAIL
NOT TO SCALE



INSTALLATION DETAIL



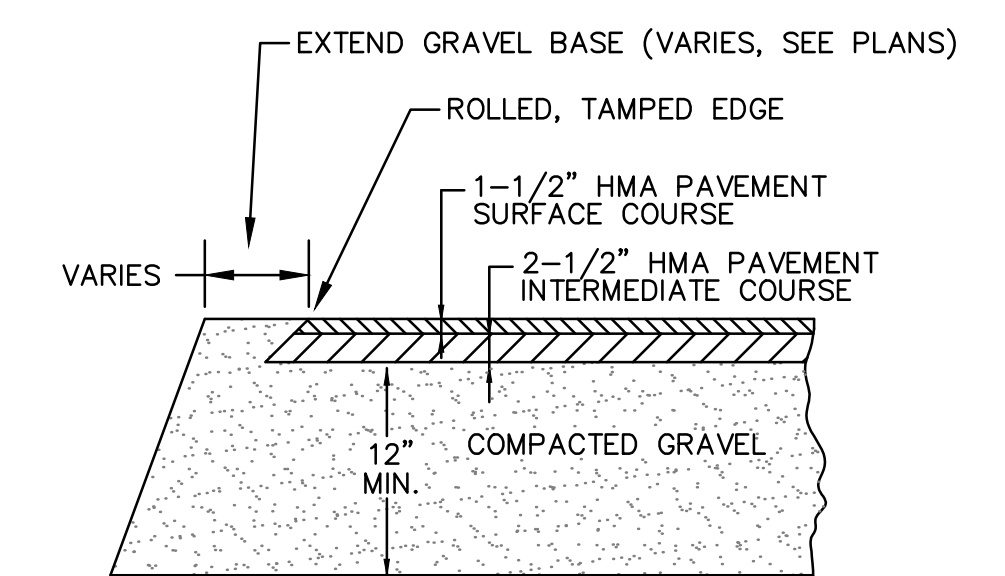
- NOTES:
1. GRATE TO BE ATTACHED TO CATCH BASIN WITH SCREW PROVIDED AT TIME OF INSTALLATION.
 2. RISER CAN BE CUT TO ACHIEVE EXACT ELEVATION.
 3. EXISTING SOILS SHOULD BE EVALUATED TO ENSURE PROPER STRUCTURAL AND PERMEABILITY PROPERTIES.
 4. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 5. RECESS CHANNEL AND GRATE 1/8" FOR PEDESTRIAN TRAFFIC
 6. DO NOT SCALE DRAWING.
 7. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY.
 8. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.



SQUARE CATCH BASIN

18" SQUARE CATCH BASIN - INSTALLATION FOR LANDSCAPE APPLICATIONS

FOR PRODUCT ASSISTANCE, CONTACT NDS TECHNICAL SERVICE AT techservice@ndspro.com, DESIGN ASSISTANCE- designworx@ndspro.com
851 N. HARVARD AVE. LINDSAY, CA 93247 WWW.NDSPRO.COM 1-800-726-1994



TYPICAL BMX PARK PAVEMENT SECTION
N.T.S.

- NOTES:
1. BIORETENTION BASIN SHALL BE 24" BELOW SURROUNDING GRASSED AREA. GRASS SHALL BE SLOPED TOWARD PLANTING AREA. BIORETENTION BASIN SHALL HAVE MINIMUM DIMENSIONS: 1' DEEP, BOTTOM AREA AS SHOWN ON SITE PLAN, 4:1 SIDE MAX. SLOPES.
 2. BIORETENTION BASIN SHALL BE CONSTRUCTED AND MAINTAINED AS SPECIFIED IN THE "MA DEP STORMWATER HANDBOOK, 2008 EDITION." MORE SPECIFICALLY IN VOL. 2, CH. 2 P. 25-29.

SHRUBS			
IG	- ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	2' HT
CL	- CLETHRA A. 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	#3
PERENNIALS, GRASSES			
AC	- ASTER CORDIFOLIUS	BLUE WOOD ASTER	2 OT
LF	- LOBELIA 'FLAMINGO'	CARDINAL FLOWER	2 OT
EBJ	- EUPATORIUM D. 'BABY JOE'	JOE PYE WEED	2 OT
RUD	- RUDBECKIA 'GOLDSTRUM'	CONEFLOWER	2 OT
PAN	- PANICUM 'HEAVY METAL'	SWITCH GRASS	2 GAL

ALL SEED MIXES CAN BE PURCHASED FROM: NEW ENGLAND WETLAND PLANTS 413-548-8000

BIORETENTION BASIN/ "RAIN GARDEN"
TYPICAL PLANTINGS
N.T.S.

BID SET

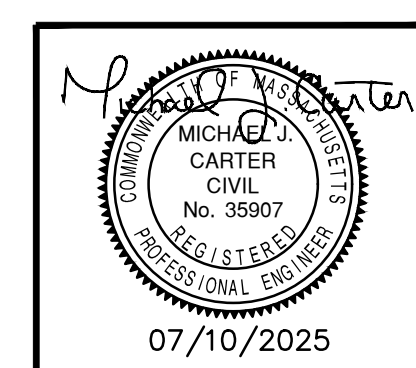
DETAILS I

MACOMBER & PIMENTAL PARK
BMX PARK

GCG ASSOCIATES, INC.
WILMINGTON MASSACHUSETTS

SCALE: 1" = 20' DATE: JULY 10, 2025

JOB NO. \ FILE NAME:	DESIGNED BY: L.P.B.	PLAN NO.
BID SET	DRAWN BY: L.P.B.	6 OF 7
	CHECKED BY: M.J.C.	



GENERAL

THIS PLAN PROPOSES EROSION CONTROL MEASURES TO ADEQUATELY CONTROL ACCELERATED SEDIMENTATION AND REDUCE THE DANGER FROM STORM WATER RUNOFF AT THE SITE. THE RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION, AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY AND PRESERVING NATURAL VEGETATION WHEREVER POSSIBLE.

EXISTING VEGETATION SHALL BE PROTECTED AND ONLY THAT CLEARING AND GRUBBING ABSOLUTELY NECESSARY TO THE PROPOSED CONSTRUCTION SHALL BE PERFORMED. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS. THE CONTRACTOR SHALL TAKE SPECIAL CARE WITH HIS CONSTRUCTION METHODS AND SHALL COMPLY WITH THE FOLLOWING GUIDELINES.

SEDIMENTATION CONTROL

ALL AREAS SHALL BE PROTECTED FROM SEDIMENTATION DURING AND AFTER CONSTRUCTION, PARTICULARLY THE STORAGE OF EXCAVATED OR STOCKPILED MATERIAL. THE CONTRACTOR SHALL CAREFULLY STRIP ALL TOPSOIL, LOAM, OR ORGANIC MATTER PRIOR TO THE TRENCHING OR OTHER OPERATIONS AND SHALL STORE THEM SEPARATELY FROM ALL OTHER MATERIALS DURING EXCAVATION. EACH STOCKPILE MUST BE ADEQUATELY RINGED WITH SEDIMENT CONTROL MATERIAL (i.e., STRAW FILTER TUBES).

DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION WILL NOT BE DISCARDED ON SITE.

STABILIZING OF SLOPES SHALL BE DONE IMMEDIATELY AFTER CONSTRUCTION OF SLOPES. SLOPES STEEPER THAN 3:1 SHALL BE PROTECTED WITH EROSION MATS. THESE MATS ARE MANUFACTURED COMBINATIONS OF MULCH AND NETTING AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL OTHER AREAS SHALL BE MULCHED WITH STRAW AT A RATE OF 1.5 TO 2 TONS PER ACRE. STRAW MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING.

EROSION AND SEDIMENTATION CONTROL PLAN

SEDIMENTATION CONTROL SYSTEM – THE SEDIMENTATION CONTROL SYSTEM SHALL CONSIST OF STRAW FILTER TUBES. THE SEDIMENTATION CONTROL SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER A CUT SLOPE HAS BEEN GRADED, BEFORE A FILL SLOPE HAS BEEN CREATED, AND AS INDICATED ON THE PLANS. DESIGN THE SYSTEM TO INTERCEPT SILT AND SEDIMENT BEFORE IT REACHES THE WETLANDS OR WATERCOURSES. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE FENCE. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. THE SEDIMENTATION CONTROL SYSTEM IS TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE FENCE ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

STRAW FILTER TUBES (IN ADDITION TO CRUSHED STONE) USED FOR EROSION CONTROL SHALL BE RINGED AT CATCH BASINS LOCATED IN AREAS THAT WILL NOT BE PAVED AND WHERE SEDIMENT MAY ENTER THE CATCH BASIN OR AS DIRECTED BY THE RESIDENT ENGINEER. DEPOSITS OF SEDIMENT AND SILT ARE TO BE PERIODICALLY REMOVED FROM THE UPSTREAM SIDE OF THE EROSION CHECKS. THIS MATERIAL IS TO BE SPREAD AND STABILIZED IN AREAS NOT SUBJECT TO EROSION, OR IN AREAS WHICH ARE NOT TO BE PAVED OR BUILT ON. STRAW FILTER TUBES ARE TO BE REPLACED AS NECESSARY TO PROVIDE PROPER FILTERING ACTION. THE SYSTEM IS TO REMAIN IN PLACE AND BE MAINTAINED TO INSURE EFFICIENT SILTATION CONTROL UNTIL ALL AREAS ABOVE THE EROSION CHECKS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED.

SILT SACK – SILT SACKS SHALL BE PLACED WITHIN ALL CATCH BASINS PRIOR TO CONSTRUCTION OR IMMEDIATELY AFTER INSTALLATION OF NEW CATCH BASINS. DEPOSITS OF SEDIMENT ARE TO BE PERIODICALLY REMOVED DURING CONSTRUCTION AND SPREAD AS DESCRIBED ABOVE. SILT SACKS SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND SURROUNDING AREAS ARE STABILIZED.

IN ALL AREAS, REMOVAL OF TREES, BUSHES, AND OTHER VEGETATION, AND DISTURBANCE TO THE SOIL, IS TO BE KEPT TO AN ABSOLUTE MINIMUM WHILE ALLOWING PROPER DEVELOPMENT OF THE SITE.

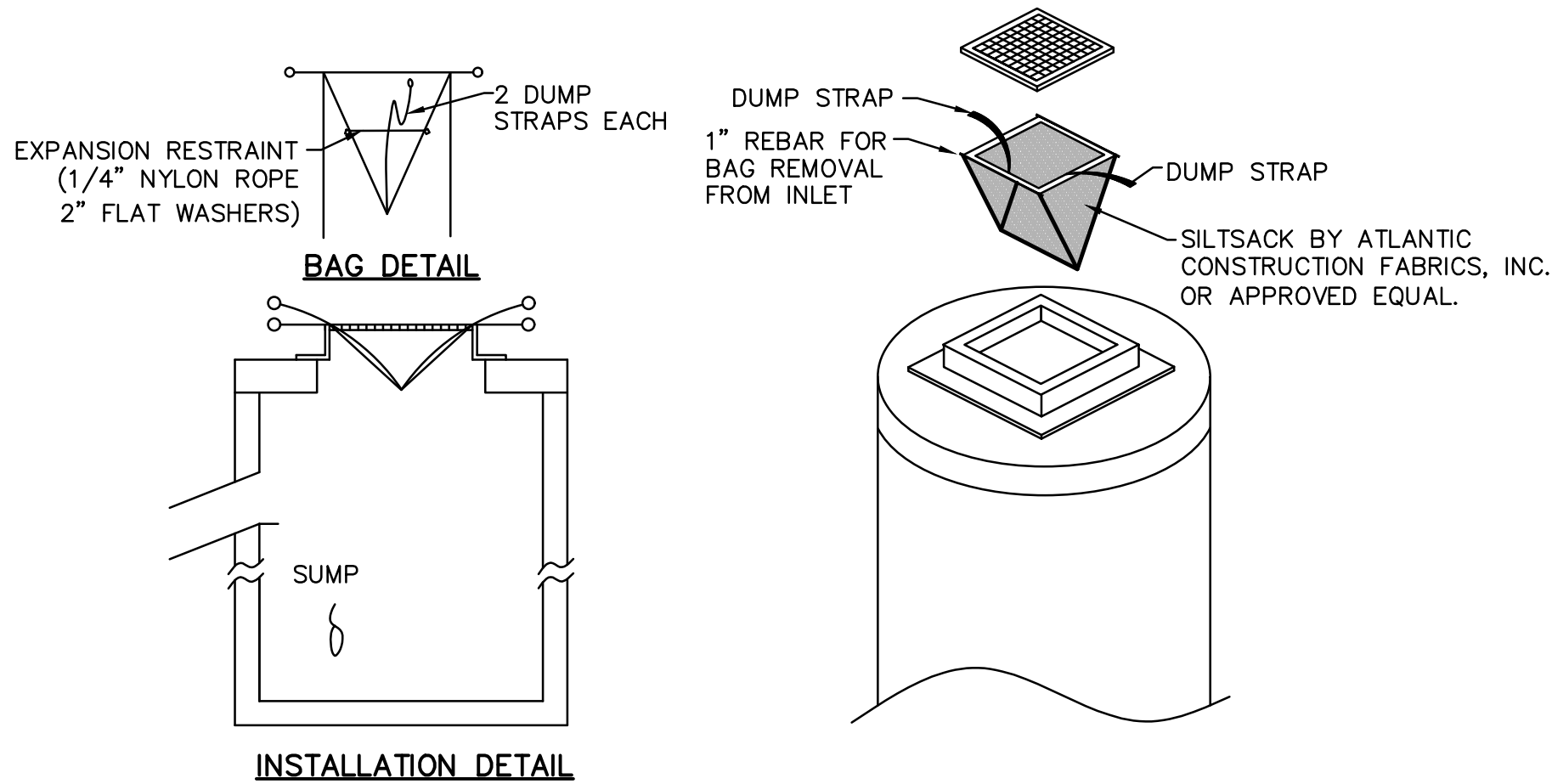
DEWATERING OF GROUNDWATER MAY BE NECESSARY DURING CONSTRUCTION. ALL DEWATERING ACTIVITIES SHALL BE CONDUCTED IN A MANNER THAT WILL NOT INTRODUCE SILT, SEDIMENT, CONTAMINATION, ETC. INTO A WETLAND RESOURCE AREA OR AN ADJACENT UPLAND RESOURCE AREA. DISCHARGED GROUNDWATER SHALL BE PROPERLY DETAINED, SETTLED, FILTERED OR OTHERWISE TREATED PRIOR TO ENTERING A WETLAND RESOURCE AREA OR AN ADJACENT UPLAND RESOURCE AREA (SEE DEWATERING DETAIL).

EROSION AND SEDIMENT CONTROL MAINTENANCE PROCEDURES

DURING CONSTRUCTION, AS SMALL AN AREA OF SOIL AS POSSIBLE SHOULD BE EXPOSED FOR AS SHORT A TIME AS POSSIBLE. AFTER CONSTRUCTION, GRADE, RESPREAD TOPSOIL, AND STABILIZE SOIL BY SEEDING AND MULCHING TO PREVENT EROSION.

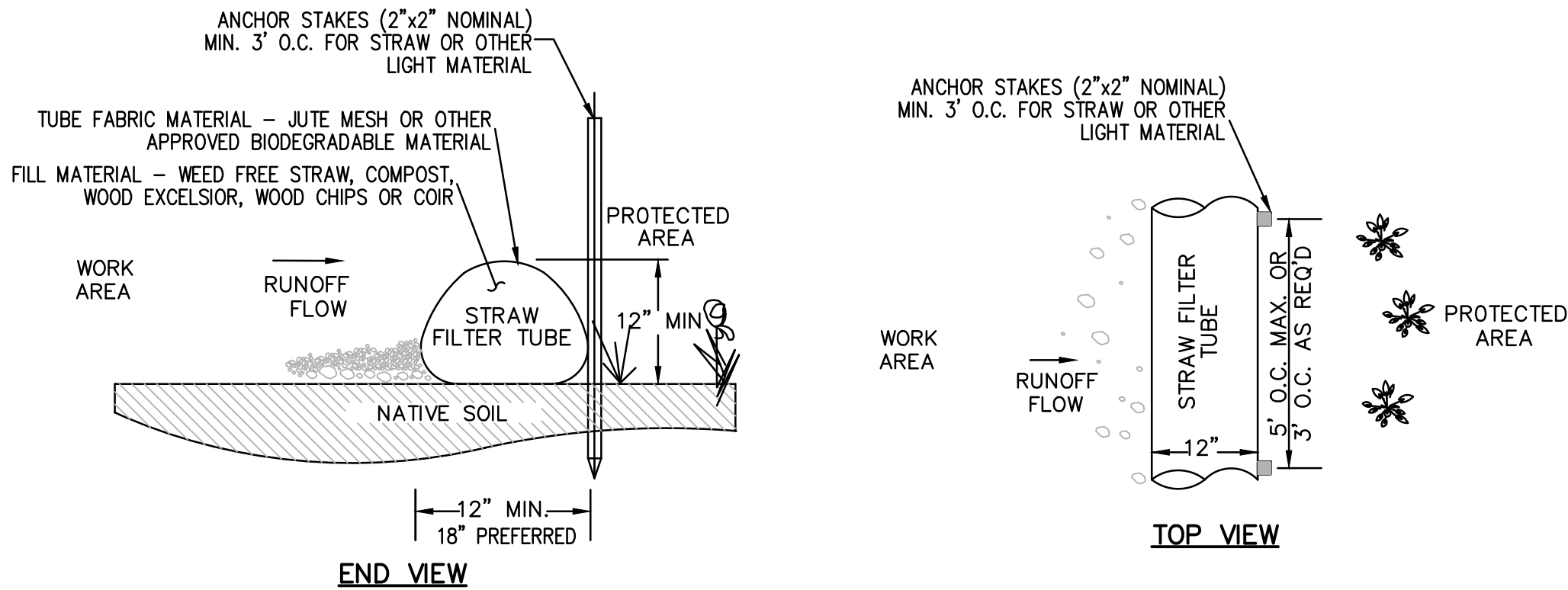
ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE INSPECTED DURING CONSTRUCTION ON A DAILY BASIS AND FOLLOWING ALL STORMS BY THE RESIDENT ENGINEER. THE CONTRACTOR SHALL MAINTAIN AND MAKE REPAIRS AND REMOVE SEDIMENT AS REQUESTED BY THE RESIDENT ENGINEER. THIS WORK SHALL BE PERFORMED WITHIN 24 HOURS OF REQUEST.

THE CONTRACTOR SHALL CLEAN SEDIMENT AND DEBRIS FROM ALL DRAINAGE STRUCTURES AND PIPES. AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REPAIR ALL ERODED AREAS AND ENSURE A GOOD STAND OF TURF IS ESTABLISHED THROUGHOUT. THE CONTRACTOR SHALL REPAIR ALL ERODED OR DISPLACED RIPRAP, AND CLEAN SEDIMENT COVERED STONES.

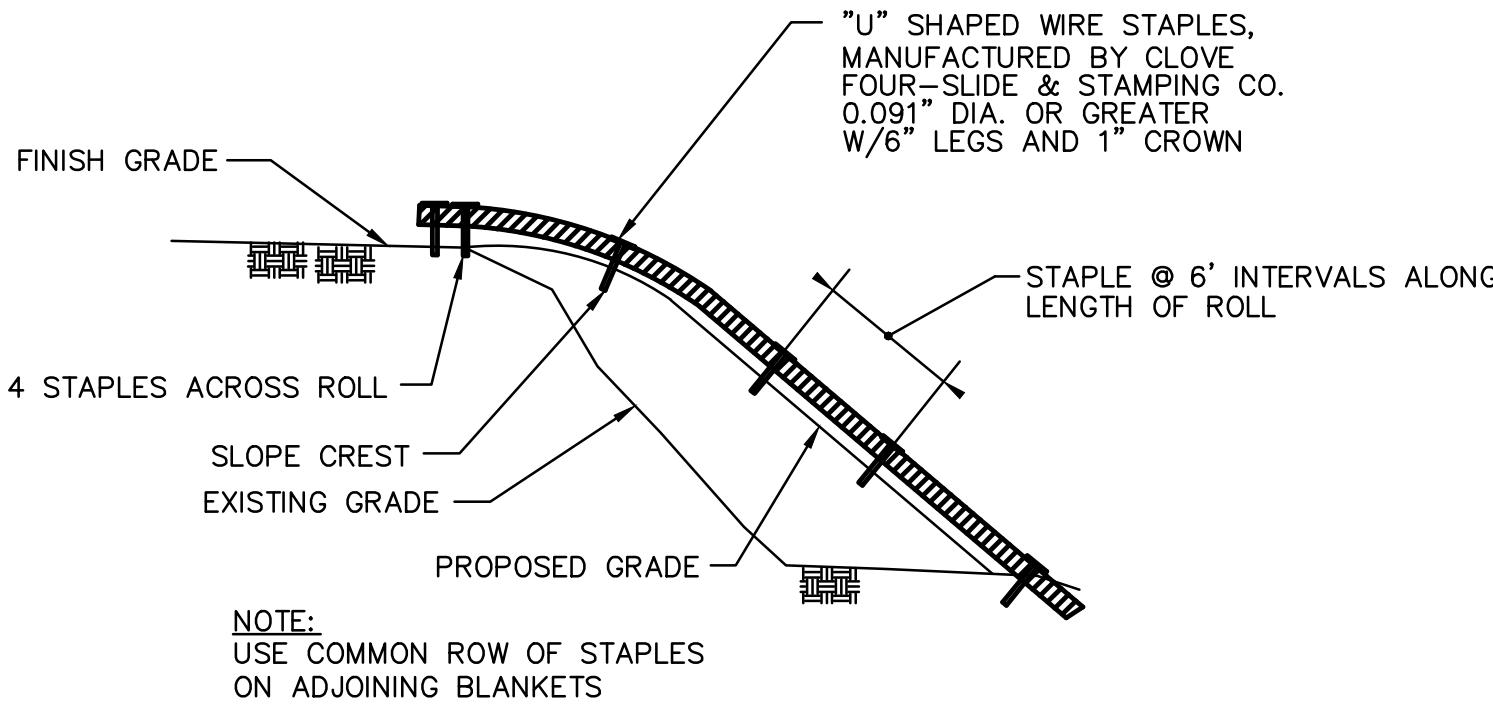


- 1. SILT SACKS SHALL BE INSTALLED IN ALL CATCH BASINS DURING CONSTRUCTION PERIOD.
- 2. INSPECTION SHALL BE WEEKLY AND REPAIR/REPLACEMENT MADE PROMPTLY AS NEEDED.
- 3. SILT SACKS SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

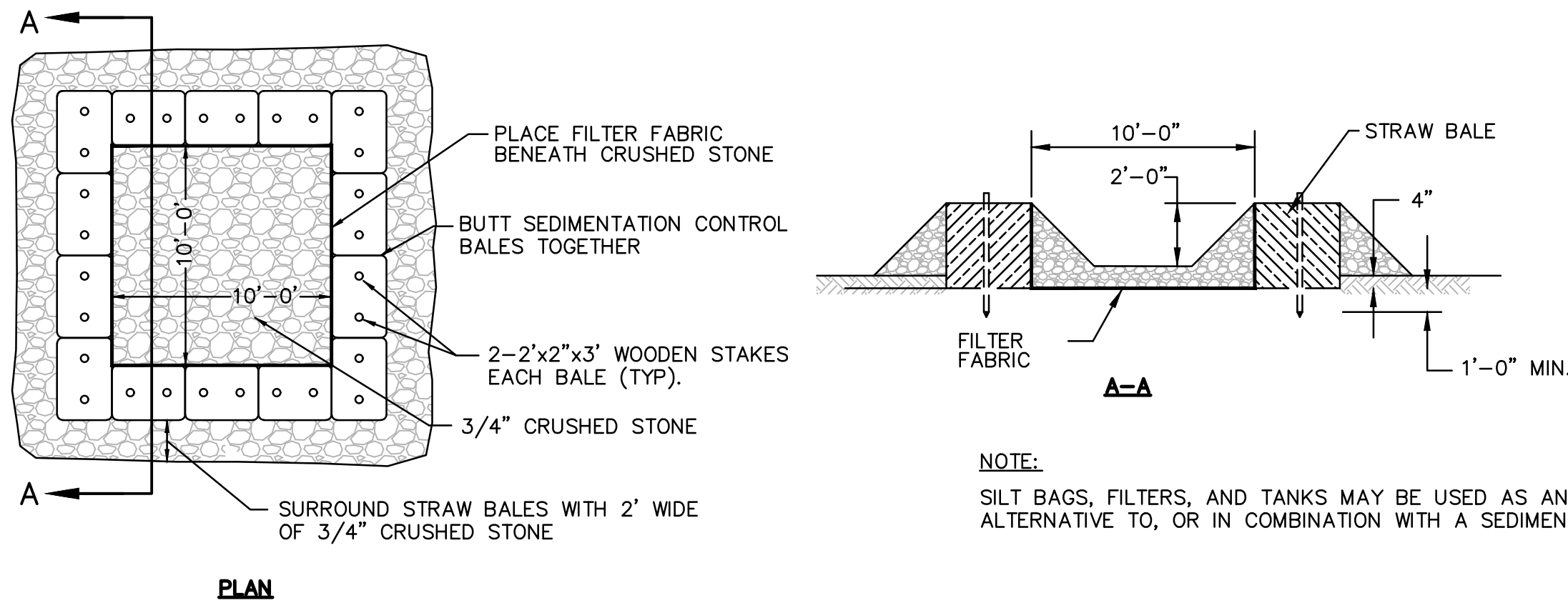
SILTSACK DETAIL
N.T.S.



- NOTES:
1. TUBES MAY BE FILLED ON SITE OR SHIPPED.
 2. ENSURE PROPER LOCATION AT SITE FOR EFFECTIVENESS.
 3. TUBES SHALL BE PLACED AND STAKED IN PLACE AS REQUIRED TO ENSURE STABILITY AGAINST WATER FLOWS.
 4. TUBES FILLED WITH LIGHT MATERIAL SHALL BE STAKED AT A MAXIMUM OF 3 FEET ON CENTER. FOR HEAVIER MATERIAL, 5 FEET ON CENTER.
 5. TUBES SHALL BE TAMPED TO ENSURE GOOD CONTACT WITH SOIL.
 6. INSPECT AFTER EACH RAINFALL OR DAILY DURING RAINFALL EVENTS. CORRECT ALL DEFICIENCIES IMMEDIATELY.
 7. FAILURE INCLUDES BUT IS NOT LIMITED TO WASHOUT, OVERTOPPING, CLOGGING, AND EROSION. IF OVERTOPPING OR WASHOUT OCCURS, NEW FILTER TUBES WITH ADDITIONAL STAKING OR STRAW MATERIAL SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
 8. FILTER TUBES SHALL BE REMOVED ONCE SITE WORK IS COMPLETE, SITE IS STABLE, ADEQUATE GROWTH HAS BEEN ESTABLISHED AND AS DIRECTED BY THE ENGINEER. TUBE FABRIC SHALL BE CUT, REMOVED AND DISPOSED OF OFF-SITE BY THE CONTRACTOR AT NO ADDITIONAL COST.



EROSION CONTROL BLANKET DETAIL
N.T.S.



SEDIMENTATION CONTROL SYSTEM
FOR ONSITE DEWATERING
N.T.S.

BID SET

DETAILS II

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