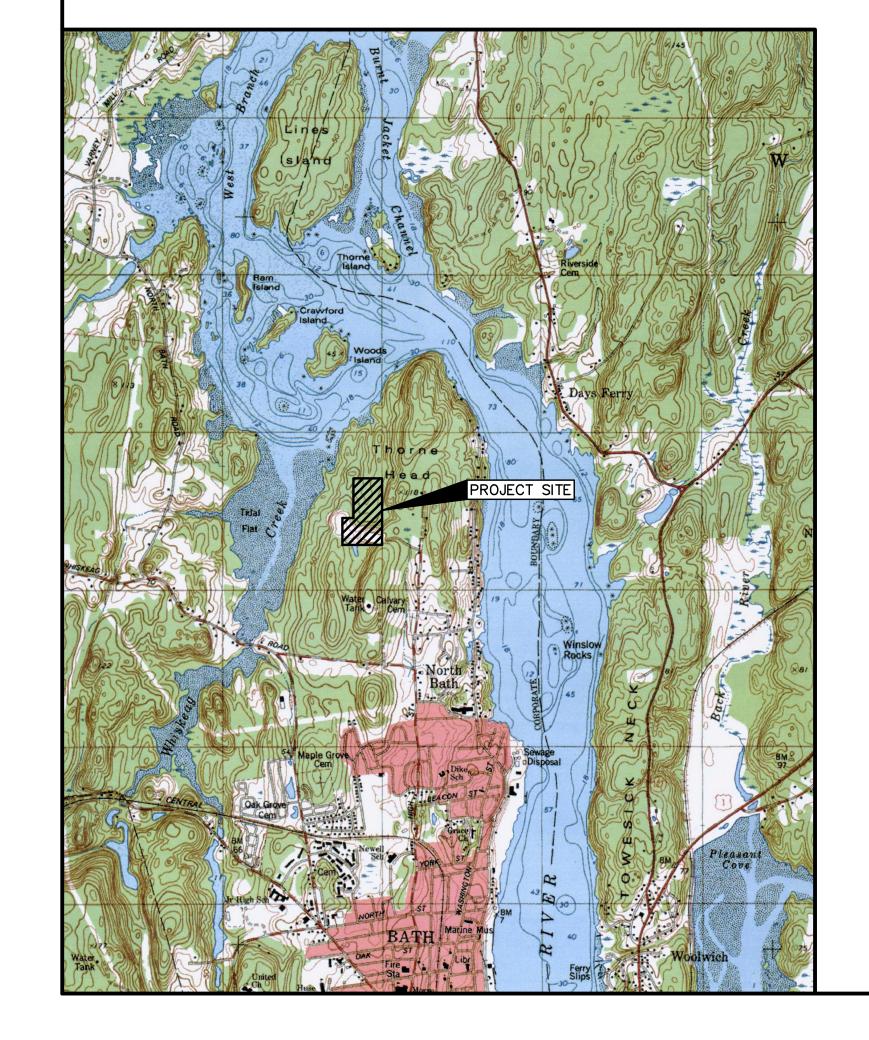
# CITY OF BATH 2023 INTERMEDIATE COVER INSTALLATION BATH, MAINE

TITLE	DWG NO
COVER SHEET	
SYMBOLS & ABBREVIATIONS	C-100
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ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

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				SYME	BOLS			
EXISTING	PROPOSED	NODTH ADDOM (TDUE)	EXISTING	PROPOSED	DDAINACE COURCE	EXISTING	PROPOSED	
Z (		NORTH ARROW (TRUE)		<del></del>	DRAINAGE COURSE (WITH DIRECTION)	G	——— UG ———	UNDERGROUND GAS MAIN
DATE 2		NORTH ARROW (MAGNETIC)			EDGE OF WATER	— т — —	——— UT———	UNDERGROUND TELEPHONE LINE
N		NORTH ARROW (PLAN NORTH)			WATER ELEVATION (GROUND OR SURFACE)	—— Е ——	UGE	UNDERGROUND ELECTRICAL LINE
25	25	CONTOUR LINES		<del></del>	FENCE LINE (WOOD)	OHE	ОНЕ	OVERHEAD ELECTRICAL LINE
	INV 25.56	SPOT ELEVATION (INVERT ELEVATION)	xx	xx	FENCE LINE (WIRE)	——от—	—— от——	OVERHEAD TELEPHONE LINE
		EXISTING GROUND	-0-0-0-0		STONE WALL	12" SS	——12" SS ——	SANITARY SEWER
		SURVEY BASELINE WITH TRIANGULATION OR INTERSECTION PT.			RETAINING WALL	8" FM	8" FM	FORCE MAIN
		- PROPERTY LINE OR R.O.W.	000	000	GUARD RAIL	8" W	8" W	WATER MAIN
35°- <u>10</u> '-1 <u>0"</u> W 251.17'	N35°-10'-10"W	PROPERTY LINE W/ BEARING AND DISTANCE			BUILDING AND STRUCTURES	12" SD	——12" SD ——	STORM DRAIN
7		CELL DESIGNATION		2 OR 2:1	SLOPE RATIO (HORIZONTAL TO VERTICAL)	8" UD	8" UD	UNDERDRAIN
		BOUNDARY LINE (State, County, Municipality)	TOP OF SLOPE	TOP OF SLOPE	SLOPES (WITH SLOPE RATIO)	LFG	LFG	LANDFILL GAS
·	•	SURVEY MONUMENT			EDGE OF ROAD	6" LT	6" LT	LEACHATE TRANSPORT
<b>A</b>		SURVEY CONTROL		C•——F•——	CUT OR FILL LINE	6" LC	6" LC	LEACHATE COLLECTION
0	•	PROPERTY PIN, DRILL HOLE, PK, OR STAKE			GRAVEL ACCESS ROAD	LD	6" LD	LEAK DETECTION
		WOODS OR BRUSH LINE		4 4 4	CONCRETE	GC	——6" GC ———	GAS COLLECTION
		INDIVIDUAL TREE	B-12 MW-12 P-12	B-12 MW-12 P-12	TEST BORING, MONITORING WELL, OR PIEZOMETER AND NUMBER	GT	6" GT	GAS TRANSPORT
		WETLAND DELINEATED	TP-12	- TP-12	TEST PIT AND NUMBER	$\triangleright$	<b>&gt;</b>	REDUCER
sille sille		WETLAND PHOTO INTERPRETED		<b>SW-12</b>	SURFACE WATER SAMPLE LOCATION	E	E	MECHANICAL CAP OR PLUG
		WETLAND TO BE IMPACTED	<b>⊕</b>	•	GAS EXTRACTION WELL	_=_		COUPLING
$\bigcirc$	•	GAS VENT	(C)	©	GAS CONDENSATE TRAP	T <sub>1</sub>	L <sub>i</sub>	BEND
		GAS VENT (CAPPED)			GAS FLARE		, I	TEE
$\oslash$	0	CLEAN OUT STRUCTURE	0	•	MANHOLE		***********	PIPE TO BE ABANDONED
	<b>•</b>	SAMPLE SUMP	©	0	CATCH BASIN		<b> • -</b>	RISER PIPE & INLET GRATE
		CULVERT	->-	<b>-</b>	WATER OR GAS VALVE			STORM GRATE
	<b>\times</b>	SLOPE INCLINOMETER	~	~	HYDRANT			DRAINAGE INLET STRUCTURE
$\boxtimes$	⊠	VIBRATING WIRE SETTLEMENT CELL		<u> </u>	AIR RELEASE VALVE			UNDERDRAIN SUMP
$\otimes$	⊗	VERTICAL/HORIZONTAL DISPLACEMENT MONUMENT	Ø	<b>"</b>	UTILITY POLE		SF	SILTATION FENCE
	Þ	VERTICAL DISPLACEMENT MONUMENT	<b>☆</b>	*	LIGHT POLE		LOW	LIMIT OF WORK LINE
ASI ACI AG ALL API OX API AIF ASI	SPHALT COATED CMP SBESTOS CEMENT PIPE CRE GGREGATE LUMINUM PPROVED PPROXIMATE IR RELEASE MANHOLE SBESTOS SPHALT	D DEGREE OF CURVE DBL DOUBLE DEG OR ° DEGREE DEPT DEPARTMENT DI DUCTILE IRON DIA OR Ø DIAMETER DIM DIMENSION DIST DISTANCE DN DOWN DR DRAIN	HDPE HORIZ HP HYD ID IN OR " INV INV	HIGH DENSITY POLYETHY HORIZONTAL HORSEPOWER HYDRANT INSIDE DIAMETER INCHES INVERT INVERT ELEVATION	PERF PERFORATED PP POWER POLE PSI POUNDS PER SQUAF PVC POLYVINYL CHLORII PVMT PAVEMENT  QTY QUANTITY  RCP REINFORCED CONCI	DE	SECTIO	W MARKERS & IDENTIFICATION  ON TITLE & NO.  DETAIL TITLE  MANHOLE

ROW RAD

REQD

SCH

TEMP

VA TEE

VERT

W/O

TYP

LEACHATE COLLECTION

LEACHATE TRANSPORT

MECHANICAL JOINT

LEAK DETECTION

LINEAR FEET

LOCATION

MANHOLE

MATERIAL

MAXIMUM

MINIMUM

MONUMENT

NUMBER

ON CENTER

MANUFACTURE

MISCELLANEOUS

NOT TO SCALE

NOW OR FORMERLY

OUTSIDE DIAMETER

POINT OF CURVE

PERIMETER DRAIN

POINT OF TANGENT

POINT OF INTERSECTION

POST INDICATOR VALVE

NOT IN THIS CONTRACT

MATL

MAX

MIN

MISC

NITC

NO OR #

NTS

RADIUS

ROUTE

SLOPE

SHEET

STREET

STATION

TANGENT

TYPICAL

VOLTS

VERTICAL

WITH

YARD

WITHOUT

WATER GATE

**TEMPORARY** 

UNDERDRAIN

SQUARE YARD

SCHEDULE

SQUARE FEET

SANITARY MANHOLE

TOTAL DYNAMIC HEAD

VALVE ANCHORING TEE

REQUIRED RIGHT

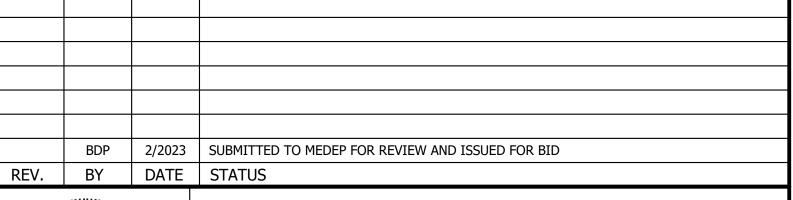
**GENERAL NOTES:** 

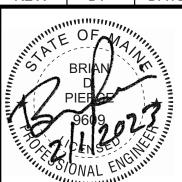
1. BASE MAP PREPARED BY AERIAL SURVEY & PHOTO INC., NORRIDGEWOCK, MAINE. PHOTO DATE 10/22/2022, GROUND CONTROL PROVIDED BY THE CITY OF BATH, DATED OCTOBER 2017. HORIZONTAL DATUM: MAINE STATE COORDINATES, WEST ZONE, NAD 83. VERTICAL DATUM: NAVD 88.

### BENCHMARK:

THE BATH LANDFILL PROJECT BENCHMARK: TOP OF 6" DIA CASING OF MW-401. EL 103.00, NGVD 88.

- 2. EXISTING TOPOGRAPHY SHOWN AT 2-FOOT INTERVALS AND REPRESENTS GRADES AT THE TIME OF THE SURVEY. STANDARD PRACTICE DICTATES THAT THE CONTRACTOR SHOULD FIELD VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION, AND LOCATIONS OF ALL UTILITIES AND EXISTING PIPING IN THE CONSTRUCTION AREA.
- 3. THE CONTRACTOR SHALL COMPLY FULLY WITH THE CONDITIONS CONTAINED IN THE MEDEP "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES 2016".
- 4. THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL ABIDE BY ALL SAFETY REQUIREMENTS ASSOCIATED WITH WORKING AT AN ACTIVE SOLID WASTE LANDFILL FACILITY (i.e., RISK OF WORKER EXPOSURE TO LANDFILL GASES, LEACHATE, SOLID WASTE) INCLUDING THE FOLLOWING:
- THE EMPLOYEES OF THE CONTRACTOR AND HIS SUBCONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY PROCEDURES UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND REGULATIONS ISSUED THEREUNDER AND STATE LABOR (SAFETY) DEPARTMENT AND MILL RULES, PROCEDURES, AND REGULATIONS REGARDING SAFETY; COMPLY WITH ALL CITY OF BATH CONSTRUCTION OPERATIONAL SAFETY REQUIREMENTS, INCLUDING USE OF HARD
- HATS, SAFETY GLASSES, AND FLUORESCENT SAFETY VESTS AT ALL TIMES; FOLLOW CONFINED SPACE ENTRY RULES ESTABLISHED BY OSHA FOR ALL CONFINED SPACES, INCLUDING, BUT NOT LIMITED TO, MANHOLES, CATCH BASINS, PUMP STATIONS, TEST PITS, TRENCHES, ETC.; AND
- ALL EQUIPMENT USED ON SITE SHALL BE EQUIPPED WITH BACK-UP WARNING LIGHTS AND AUDIBLE INDICATOR.
- 5. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO ENSURE THAT NO SILTATION OF STORMWATER DRAINAGE COURSES OCCURS AS A RESULT OF SOIL DISTURBANCE ASSOCIATED WITH THE CONTRACT SCOPE OF WORK.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE PROTECTION OF THE PROJECT DURING CONSTRUCTION FROM ANY ACTS OF NATURE OR MAN, SUCH AS, BUT NOT LIMITED TO, FLOODS, WIND DAMAGE, EARTH SLIDES, AND SLOPE FAILURES. DAMAGE TO THE PROJECT CAUSED BY SUCH ACTS WILL NOT BE SUFFICIENT CAUSE TO INCREASE CONTRACT COSTS TO THE OWNER.
- 7. THE CONTRACTOR SHALL PROTECT EXISTING ON-SITE STRUCTURES FROM DAMAGE DURING CONSTRUCTION, INCLUDING: MONITORING WELLS, POWER LINES, MAINTENANCE FACILITIES, PHASES I AND II COVER AND EXISTING LEACHATE COLLECTION AND TRANSPORT SYSTEMS, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS REQUIRED TO CORRECT DAMAGE MADE TO EXISTING ON-SITE STRUCTURES INCLUDING THOSE DESCRIBED ABOVE RESULTING FROM ANY CONSTRUCTION ACTIVITY.





DRAWING WHERE —

DETAIL APPEARS

DRAWING WHERE -

SECTION APPEARS

SEE DWG C-300

CITY OF BATH 2023 INTERMEDIATE COVER INSTALLATION BATH, MAINE

# **SYMBOLS & ABBREVIATIONS**

SME SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
/ Planchard Doad DO Poy SEA Cumberland Maine 0/02]

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AUTO AUX

BCCMP

BLDG BOT

CEM LIN

CONC CONST CONTR

AUXILIARY

**AVENUE** 

AZIMUTH

BENCH MARK

BITUMINOUS

BUILDING

BOTTOM

BEARING

CENTER

CUBIC FEET

CAST IRON

CONCRETE

CONSTRUCTION

CONTRACTOR

**CURB STOP** 

CUBIC YARD

CENTER

COPPER

CLASS

BALL VALVE

CATCH BASIN

CEMENT LINED

CORRUGATED METAL PIPE

CUBIC FEET PER SECOND

BITUMINOUS COATED CMP

ELECTRIC

ELBOW

ELEVATION

**EQUIPMENT** 

ESTIMATED

**EXCAVATE** 

EXISTING

FINISH GRADE

FIBERGLASS

**FOUNDATION** 

FEET PER SECOND

**FLEXIBLE** 

FLOOR

FOOTING

GALVANIZED

GALLONS PER DAY

GALLONS PER MINUTE

GAUGE

EDGE OF PAVEMENT

ELEC

EQUIP EST

EXC EXIST

FBRGL

FDN FLEX

FT OR '

FTG

GALV GPD GPM

EXISTING GROUND OR GRADE

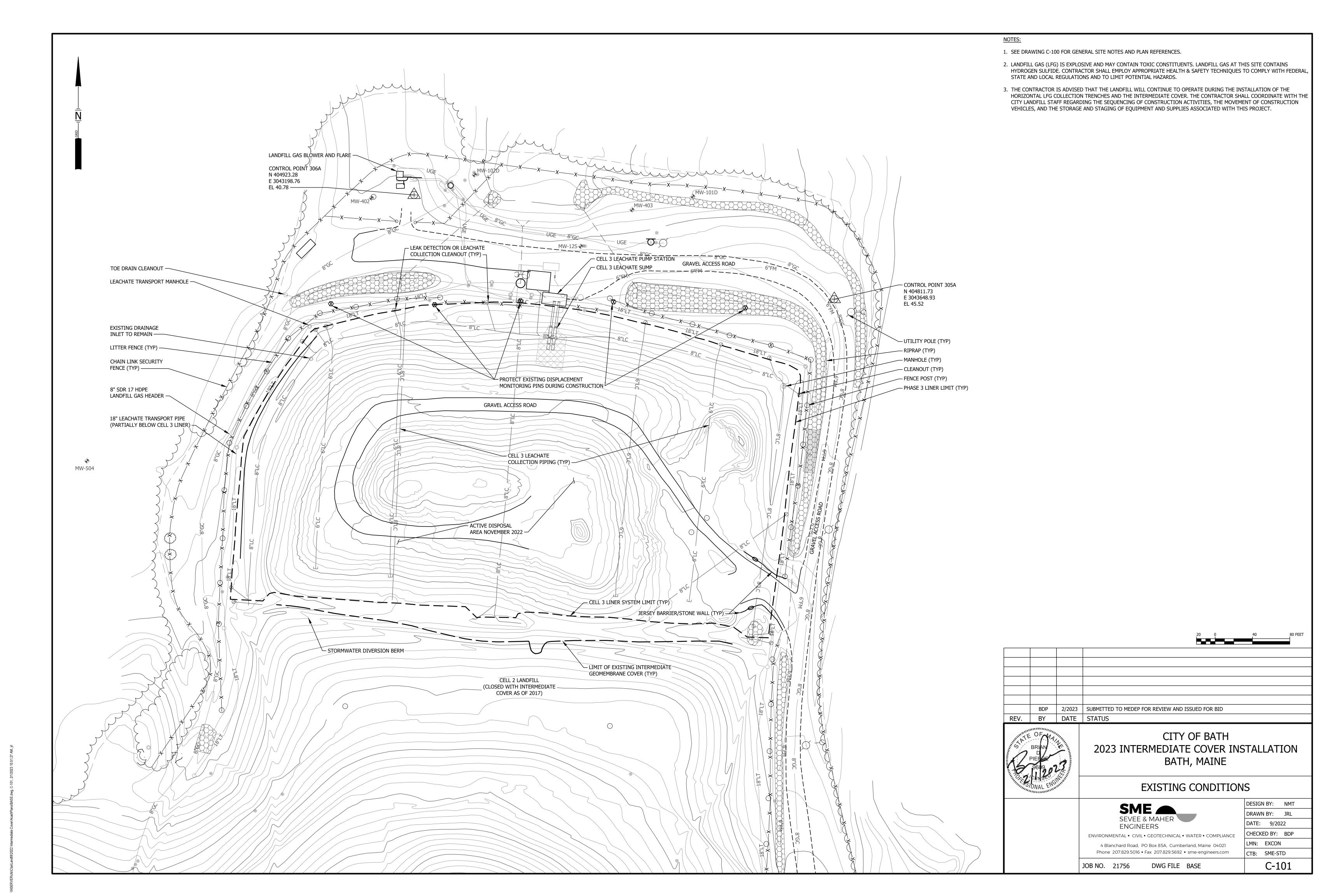
DATE: 11/2022 CHECKED BY: BDP LMN: LMN CTB: SME-STD

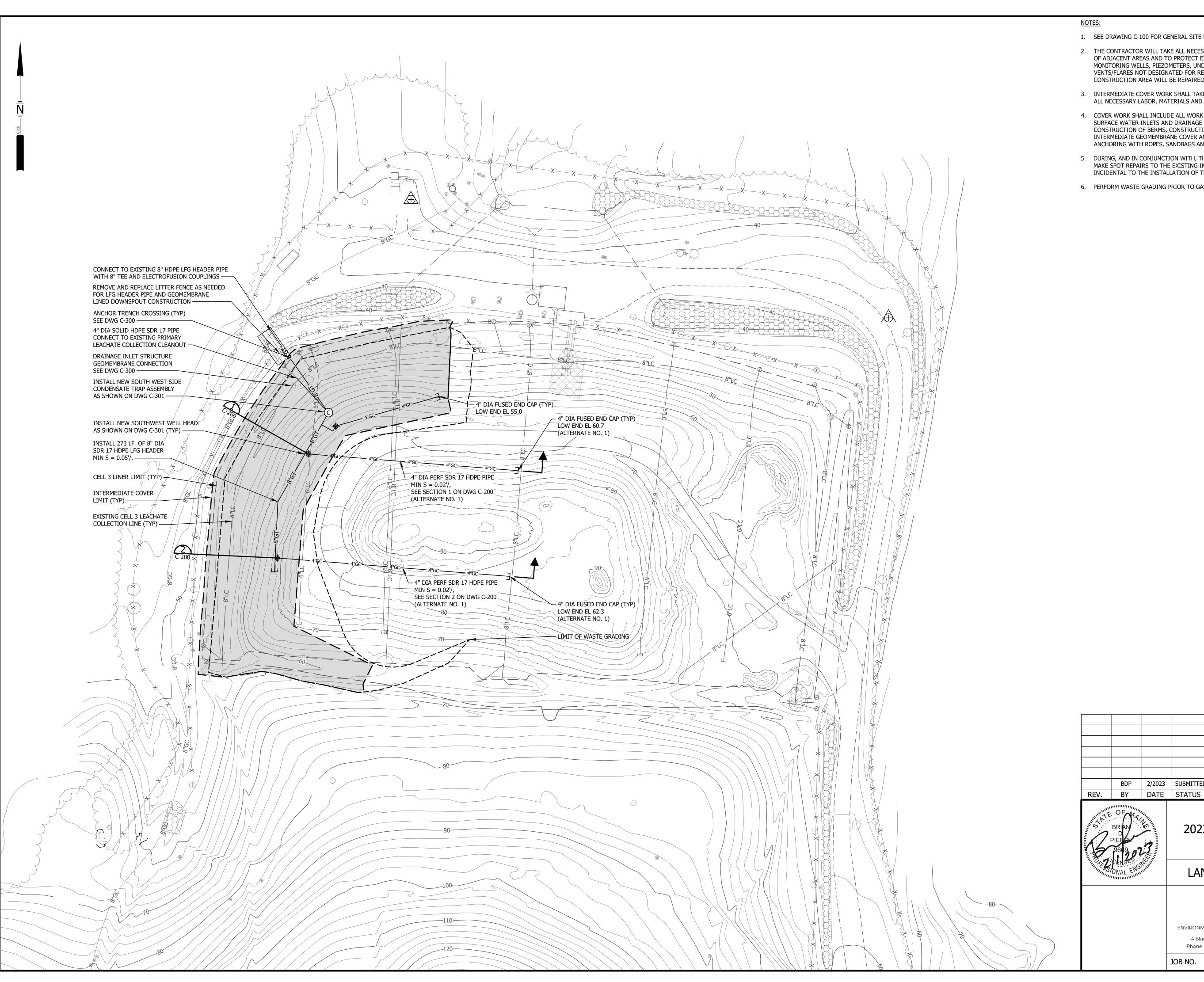
DESIGN BY: NMT

DRAWN BY: JRL

C-100

JOB NO. 21756 DWG FILE SYMSHT





- 1. SEE DRAWING C-100 FOR GENERAL SITE NOTES AND PLAN REFERENCES.
- 2. THE CONTRACTOR WILL TAKE ALL NECESSARY PRECAUTIONS DURING CONSTRUCTION TO MINIMIZE THE DISTURBANCE OF ADJACENT AREAS AND TO PROTECT EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO GROUNDWATER MONITORING WELLS, PIEZOMETERS, UNDERDRAIN PIPING, GAS COLLECTION PIPING, SOIL GAS PROBES AND GAS VENTS/FLARES NOT DESIGNATED FOR REMOVAL. DAMAGE TO ANY ITEM OUTSIDE OF THE DEFINED LIMIT OF THE CONSTRUCTION AREA WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 3. INTERMEDIATE COVER WORK SHALL TAKE PLACE IN THE WEST AREA OR EAST AREA. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO PERFORM THE WORK.
- 4. COVER WORK SHALL INCLUDE ALL WORK WITHIN THE DEFINED LIMIT OF THE AREA INCLUDING INSTALLATION OF SURFACE WATER INLETS AND DRAINAGE PIPE AS SHOWN ON THE DRAWINGS, RELOCATION AND GRADING OF WASTE, CONSTRUCTION OF BERMS, CONSTRUCTION OF NEW ACCESS ROADS, PLACEMENT OF BEDDING LAYER BELOW INTERMEDIATE GEOMEMBRANE COVER AND INSTALLATION 30 MIL TEXTURED HDPE INTERMEDIATE COVER INCLUDING ANCHORING WITH ROPES, SANDBAGS AND TRENCHES.
- 5. DURING, AND IN CONJUNCTION WITH, THE INSTALLATION OF THE INTERMEDIATE COVER, THE CONTRACTOR SHALL MAKE SPOT REPAIRS TO THE EXISTING INTERMEDIATE COVER SYSTEM. SPOT REPAIRS MAY WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE INTERMEDIATE COVER.
- 6. PERFORM WASTE GRADING PRIOR TO GAS SYSTEM CONSTRUCTION.

BDP 2/2023 SUBMITTED TO MEDEP FOR REVIEW AND ISSUED FOR BID

CITY OF BATH 2023 INTERMEDIATE COVER INSTALLATION BATH, MAINE

### LANDFILL GAS COLLECTION SYSTEM PLAN

SME **4** SEVEE & MAHER **ENGINEERS** ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

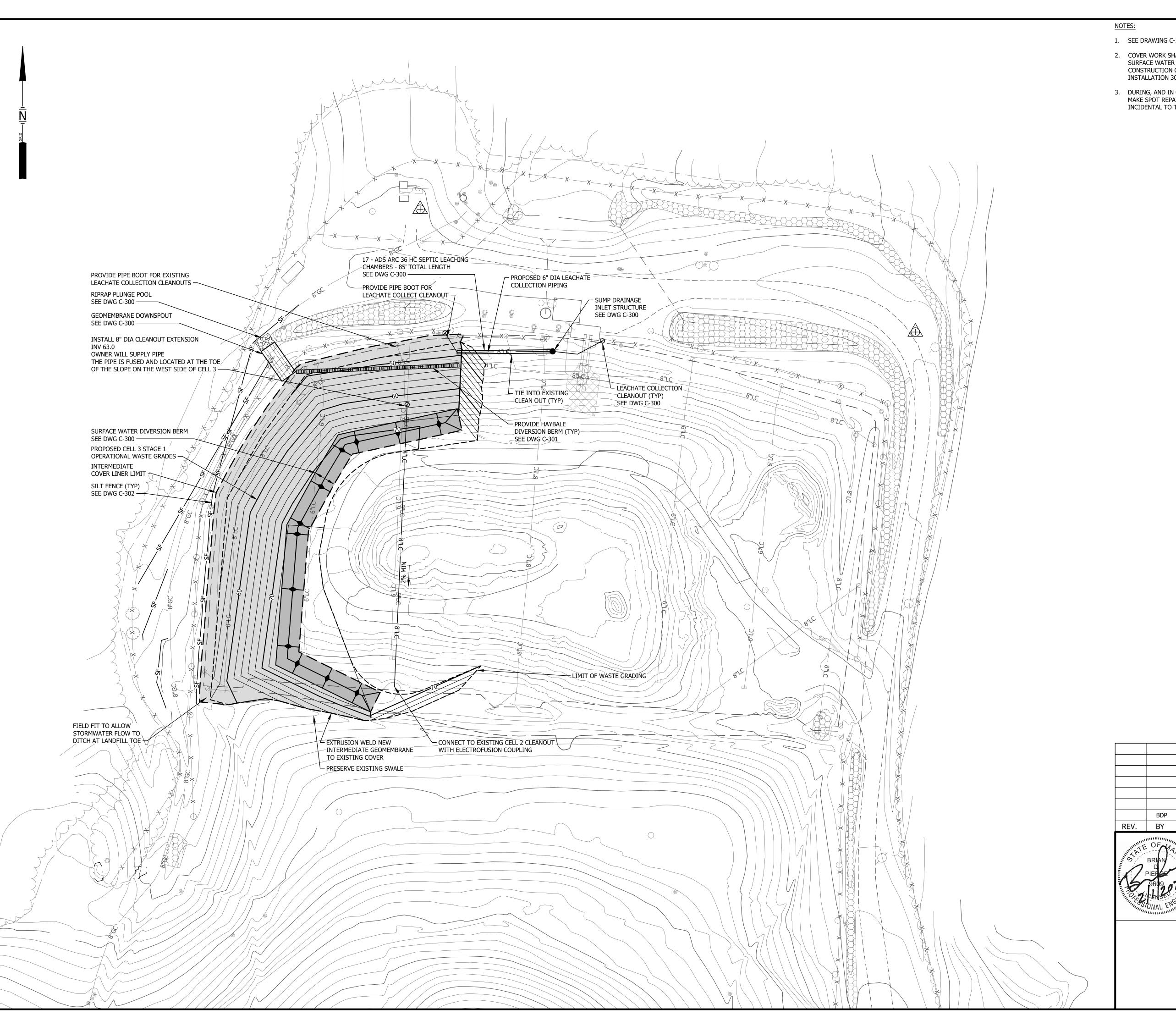
DATE: 9/2022 CHECKED BY: BDP LMN: LFG 4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021 Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com CTB: SME-STD

DWG FILE BASE JOB NO. 21756

C-102

DESIGN BY: NMT

DRAWN BY: JRL



- 1. SEE DRAWING C-100 FOR GENERAL SITE NOTES AND PLAN REFERENCES.
- 2. COVER WORK SHALL INCLUDE ALL WORK WITHIN THE DEFINED LIMIT OF THE AREA INCLUDING INSTALLATION OF SURFACE WATER INLETS AND DRAINAGE PIPE AS SHOWN ON THE DRAWINGS, RELOCATION AND GRADING OF WASTE, CONSTRUCTION OF BERMS, PLACEMENT OF BEDDING LAYER BELOW INTERMEDIATE GEOMEMBRANE COVER, AND INSTALLATION 30 MIL TEXTURED HDPE INTERMEDIATE COVER INCLUDING ANCHORING.
- 3. DURING, AND IN CONJUNCTION WITH, THE INSTALLATION OF THE INTERMEDIATE COVER, THE CONTRACTOR SHALL MAKE SPOT REPAIRS TO THE EXISTING INTERMEDIATE COVER SYSTEM. SPOT REPAIRS MAY WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE INTERMEDIATE COVER.

BDP 2/2023 SUBMITTED TO MEDEP FOR REVIEW AND ISSUED FOR BID REV. BY DATE STATUS



CITY OF BATH 2023 INTERMEDIATE COVER INSTALLATION BATH, MAINE

# SITE DEVELOPMENT PLAN - 2022

SME SEVEE & MAHER **ENGINEERS** 

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JOB NO. 21756 DWG FILE BASE C-103

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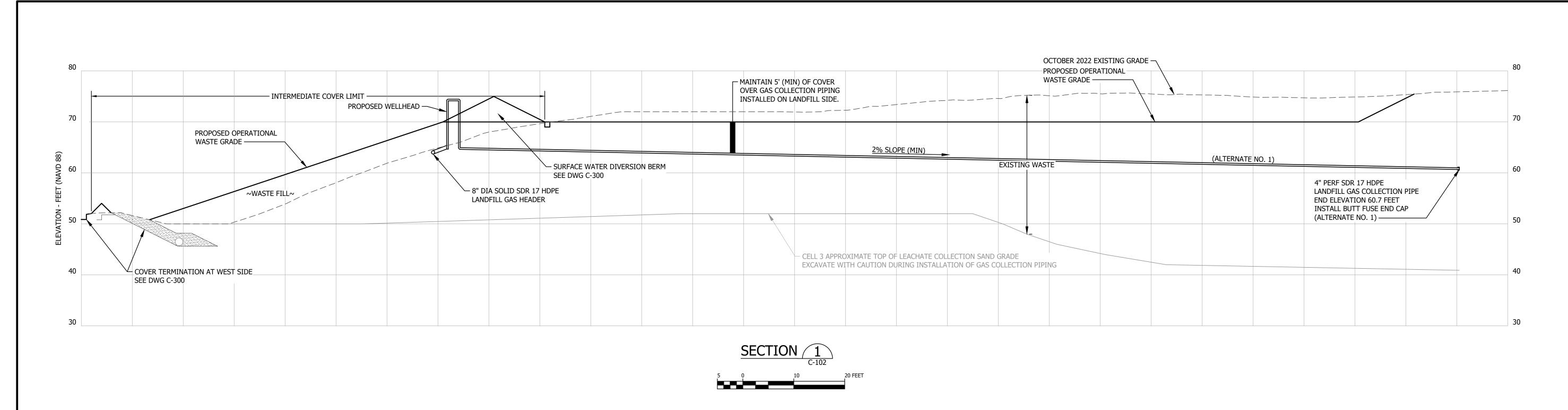
DRAWN BY: JRL

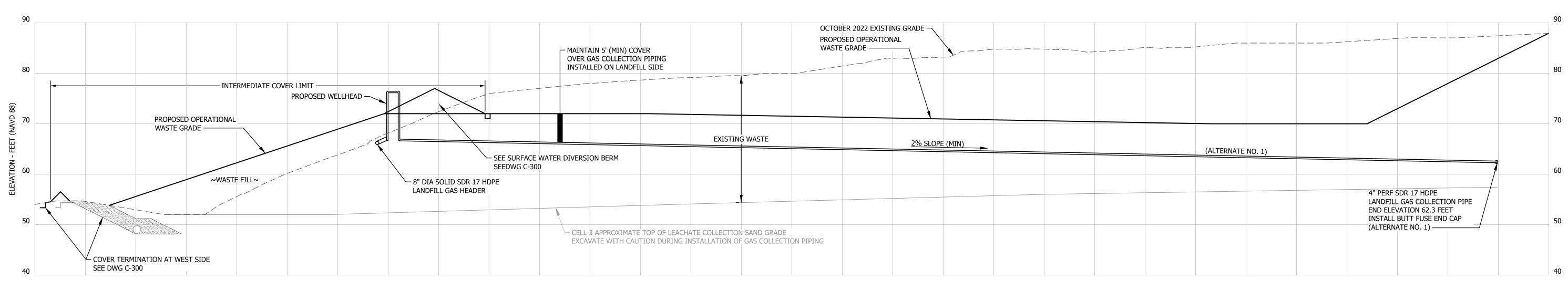
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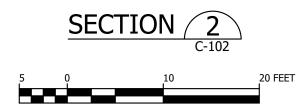
DATE: 9/2022

LMN: LFG

CTB: SME-STD







	BDP	2/2023	SUBMITTED TO MEDEP FOR REVIEW AND ISSUED FOR BID
REV.	BY	DATE	STATUS

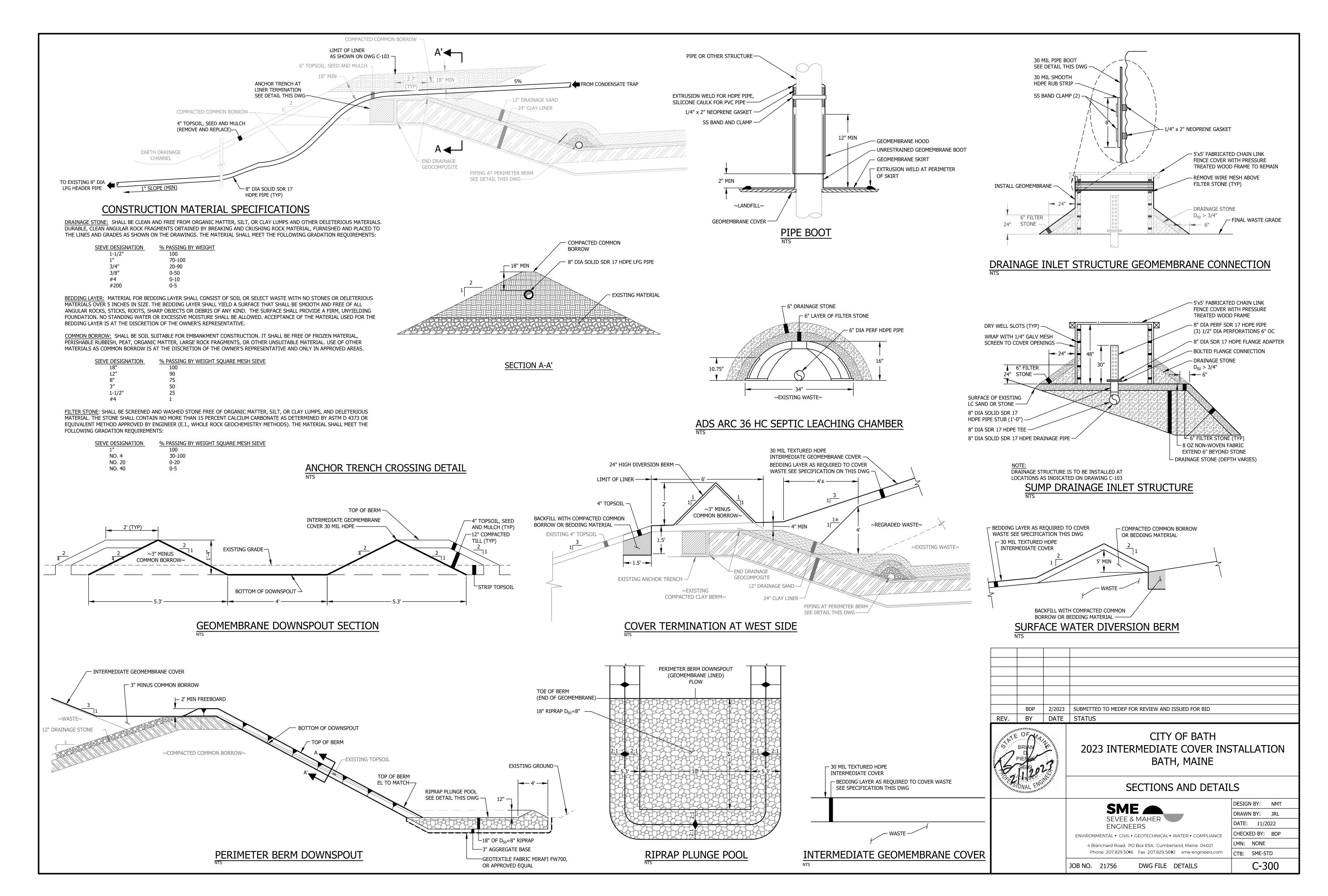


# CITY OF BATH 2023 INTERMEDIATE COVER INSTALLATION BATH, MAINE

# LANDFILL GAS COLLECTION SYSTEM PROFILES

CME _	DESIGN BY: NMT
SME	DRAWN BY: JRL
SEVEE & MAHER ENGINEERS	DATE: 11/2022
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OB NO. 21756 DWG FILE BASE	C-200

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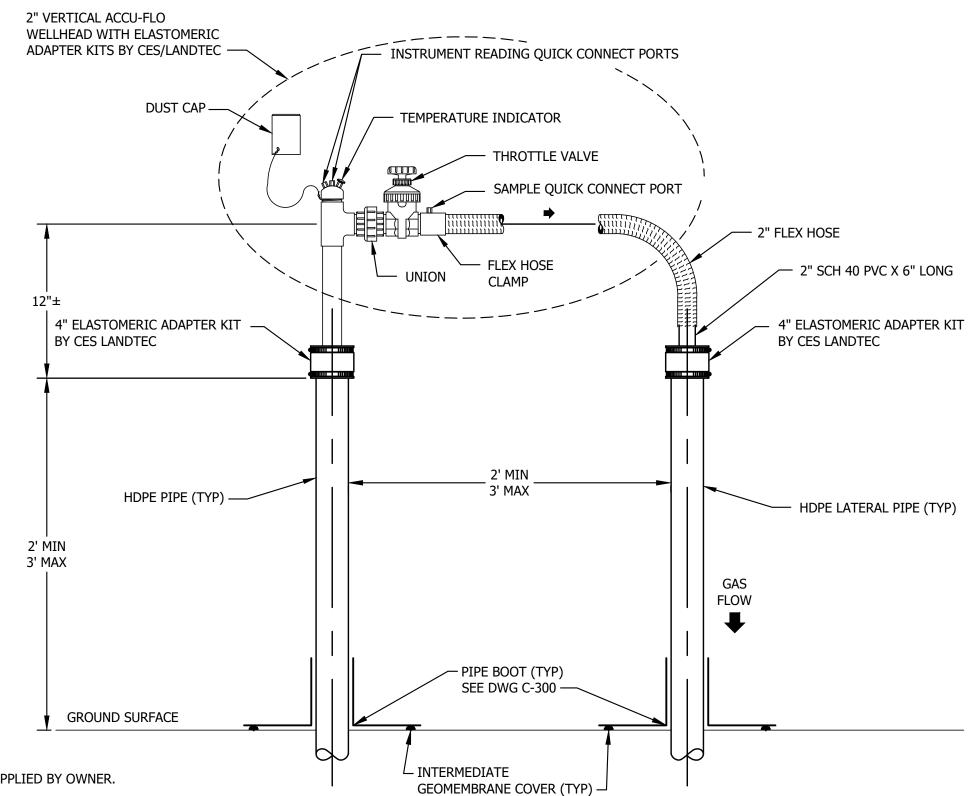


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# HORIZONTAL COLLECTOR TRENCH SECTIONS (TYP) (ALTERNATE NO. 1)

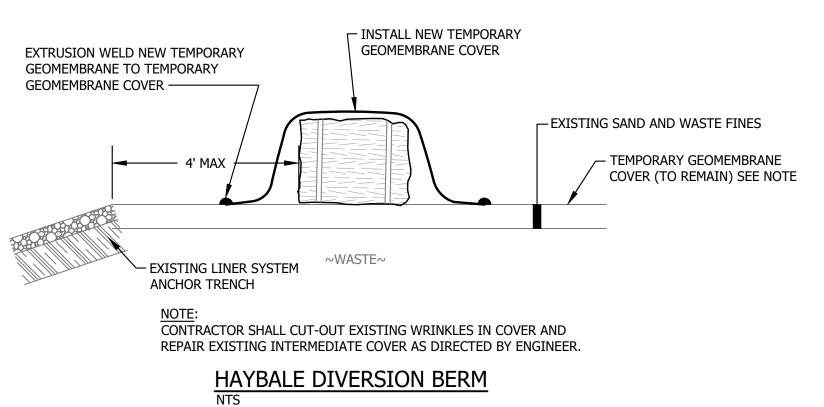
THE ENGINEER.

GEOTEXTILE SHALL BE 10-OZ. NONWOVEN OR 6-OZ. WOVEN WITH GRAB TENSILE STRENGTH OF AT LEAST 250 POUNDS IN BOTH DIRECTIONS. CONTRACTOR TO PROVIDE SUBMITTAL FOR APPROVAL BY

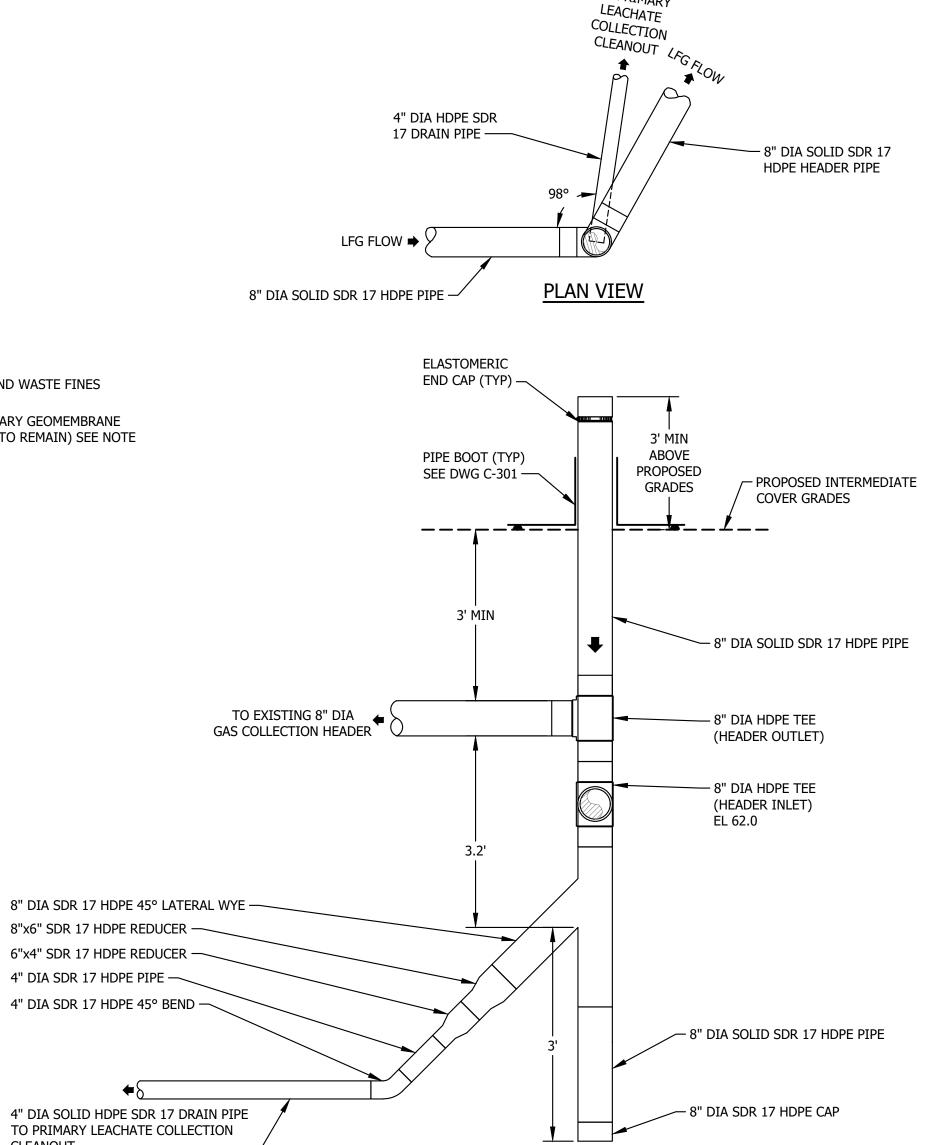


- WELLHEAD NOTES:
- 1. WELLHEAD ASSEMBLY TO BE SUPPLIED BY OWNER.
- 2. THE WELLHEAD ASSEMBLY SHALL BE CES-LANDTEC ACCU-FLOW WELLHEAD MODEL 200.
- 3. REFER TO CES-LANDTEC ACCU-FLOW WELLHEAD INSTALLATION INSTRUCTION MANUAL AND PROJECT SPECIFICATIONS. READ INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING ASSEMBLY AND INSTALLATION OF WELLHEAD ON WELL CASING.
- 4. WELLHEAD AND FLOW MEASUREMENT TUBE ASSEMBLY SHALL BE COMPATIBLE WITH CES-LANDTEC GEM-2000 (LANDFILL GAS ANALYZER).
- 5. FOR FLEXIBLE CONNECTIONS TO PIPE, USE ONLY "IPS WELD-ON 795" PLASTIC PIPE CEMENT OR EQUAL. SEE SPECIFICATIONS.
- 6. WARNING: DO NOT CUT THE FLOW MEASUREMENT TUBE ASSEMBLY. FAILURE TO HEED THIS WARNING WILL RESULT IN A DAMAGED OR INOPERATIVE WELLHEAD AND VOID THE WARRANTY. SUCH DAMAGE WOULD REQUIRE REPLACEMENT OF THE WELLHEAD AT THE CONTRACTOR'S EXPENSE.
- 7. ALLOW SUFFICIENT SLACK IN FLEX HOSE FOR PIPE EXPANSION AND CONTRACTION (8 INCHES TO 12 INCHES). DO NOT ALLOW SAG POINT IN THE FLEX HOSE WHERE CONDENSATE CAN ACCUMULATE.

### TYPICAL WELLHEAD ASSEMBLY DETAIL



CLEANOUT —

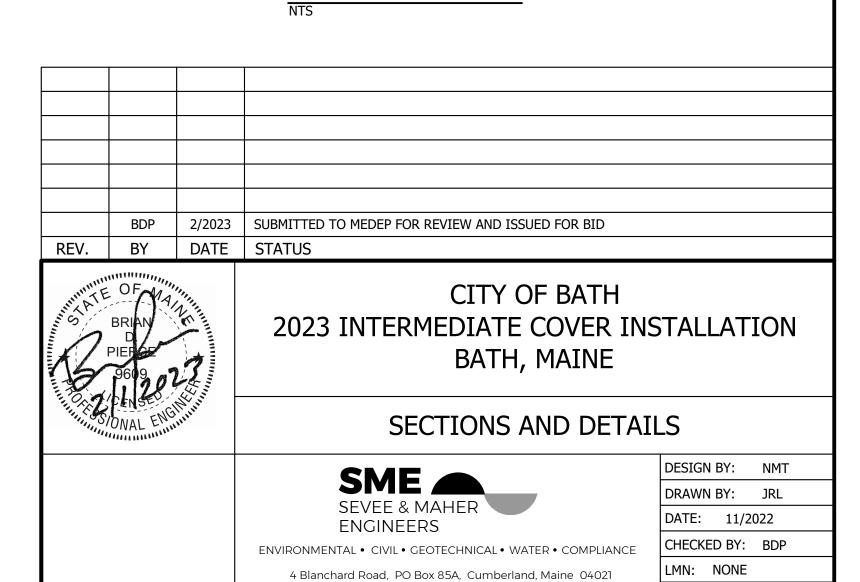


LIQUID TO PRIMARY

## **ELEVATION VIEW**

PIPE ORIENTATION SHOWN HAS BEEN SIMPLIFIED FOR CLARITY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO CONSTRUCTION.

# CONDENSATE TRAP



Phone 207.829.5016 Fax 207.829.5692 sme-engineers.com

DWG FILE DETAILS

JOB NO. 21756

CTB: SME-STD

C-301

- 1. Soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department
- of Environmental Protection (MEDEP), October 2016. 2. The Contractor (to be determined) will be responsible for the

repair/replacement/maintenance of all erosion control measures until all disturbed areas are

- 3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.
- 4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.
- 5. Suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.
- B. TEMPORARY MEASURES
- 1. STABILIZED CONSTRUCTION ENTRANCE/EXIT
- A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site.
- 2. SILT FENCE
- a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.
- b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.
- c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.
- d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.
- 3. STONE CHECK DAMS
- Stone check dams will be installed in grass-lined swales and ditches during construction.
- 4. BARK MULCH SEDIMENT BARRIER
- a. Where approved, bark mulch sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.
- b. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.
- 5. TEMPORARY SEEDING

Temporary vegetation should be established on an area that will not be worked for 30 days and until it can be permanently stabilized. Annual grasses and legumes are most effective; but they will not reproduce for a second growing season. Inoculate all legume seeds with the correct type and amount of inoculant.

6. TEMPORARY MULCHING

- Use temporary mulch in the following locations and/or circumstances: • In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm
- Apply temporary mulch within 14 days of disturbance or prior to any storm event in all
- other areas. Areas which have been temporarily or permanently seeded will be mulched
- immediately following seeding. Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings. Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).
- The following materials may be used for temporary mulch:

a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 2 tons/acre to cover ground surface.

- b. Erosion Control Mix: It can be used as a stand-alone reinforcement: on slopes 2 horizontal to 1 vertical or less;
- on frozen ground or forested areas; and
- at the edge of gravel parking areas and areas under construction.
- c. Erosion control mix alone is not suitable:
- on slopes with groundwater seepage;
- at low points with concentrated flows and in gullies; • at the bottom of steep perimeter slopes exceeding 100 feet in length;
- below culvert outlet aprons; and
- around catch basins and closed storm systems.
- d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.
- e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15 to October 15) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on:
- the base of grassed waterways;
- steep slopes (15 percent or greater); and any disturbed soil within 100 feet of lakes, streams, or wetlands.
- During the late fall and winter (October 15 to April 15) use heavy grade mats indicated on

drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:

 sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

7. TEMPORARY DUST CONTROL

prohibited

- To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water to control dusting by preserving the moisture level in the road surface materials. The use of calcium chloride or any other chemicals for dust control is

- CONSTRUCTION DE-WATERING
- Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, or other approved Best Management Practices (BMP's).
- b. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.
- A. PERMANENT MEASURES
- Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.
- Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and
- a. Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.
- Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

PERMANENT SEEDING SPECIFICATIONS

Mixture:	Lawn (lbs/acre)
Kentucky Bluegrass	55
White Clover	0
Creeping Red Fescue	55
Perennial Ryegrass	15

- Mulch in accordance with specifications for temporary mulching.
- d. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.
- 3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.
- WINTER CONSTRUCTION AND STABILIZATION
- Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day prior to any snow event. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked

- Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.
- Sediment Barriers: During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.
- 4. Mulching: All areas will be considered to be denuded until seeded and mulched. Hay and straw mulch will be applied at a rate of twice the normal accepted rate.
- Mulch will not be spread on top of snow.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.

- 5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources.
- 6. Seeding: Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 85 percent catch) will be revegetated by replacing loam, seed, and mulch.

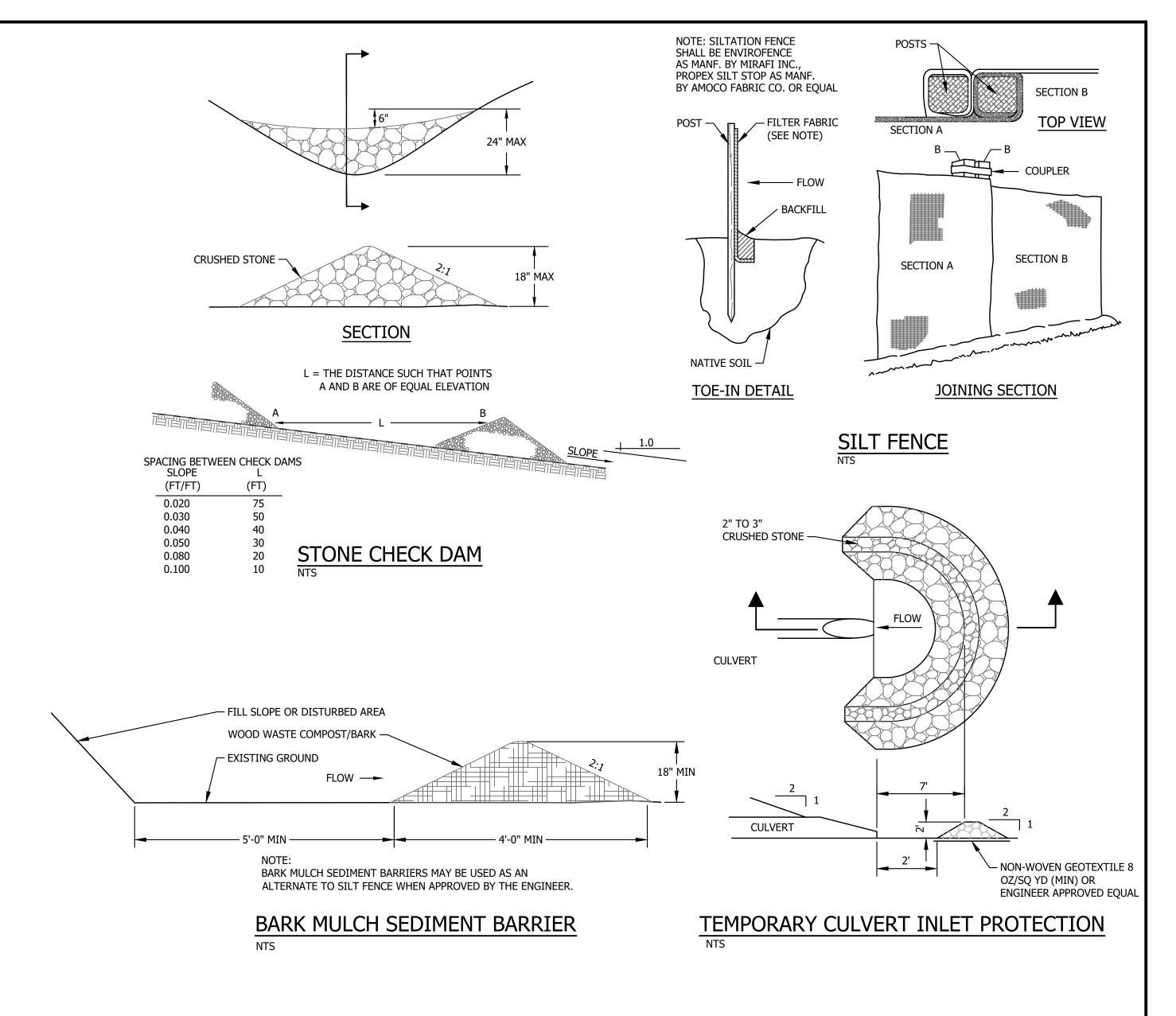
If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

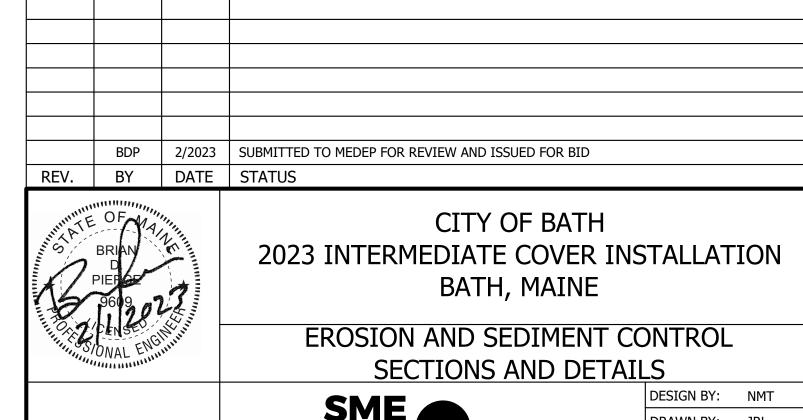
7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, the site contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.

Following the temporary and/or final seeding and mulching, the contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 percent of areas vegetated with vigorous growth.

- E. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES
- Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.
- Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:
- Stabilize the soil with temporary vegetation and erosion control mesh.
- Stabilize the slope with erosion control mix. Stabilize the slope with stone riprap.

3. Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.





SME \_ DRAWN BY: JRL SEVEE & MAHER DATE: 11/2022 **ENGINEERS** CHECKED BY: BDP ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE \_MN: NONE 4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021 Phone 207.829.5016 Fax 207.829.5692 sme-engineers.com CTB: SME-STD C-302 JOB NO. 21756 DWG FILE DETAILS