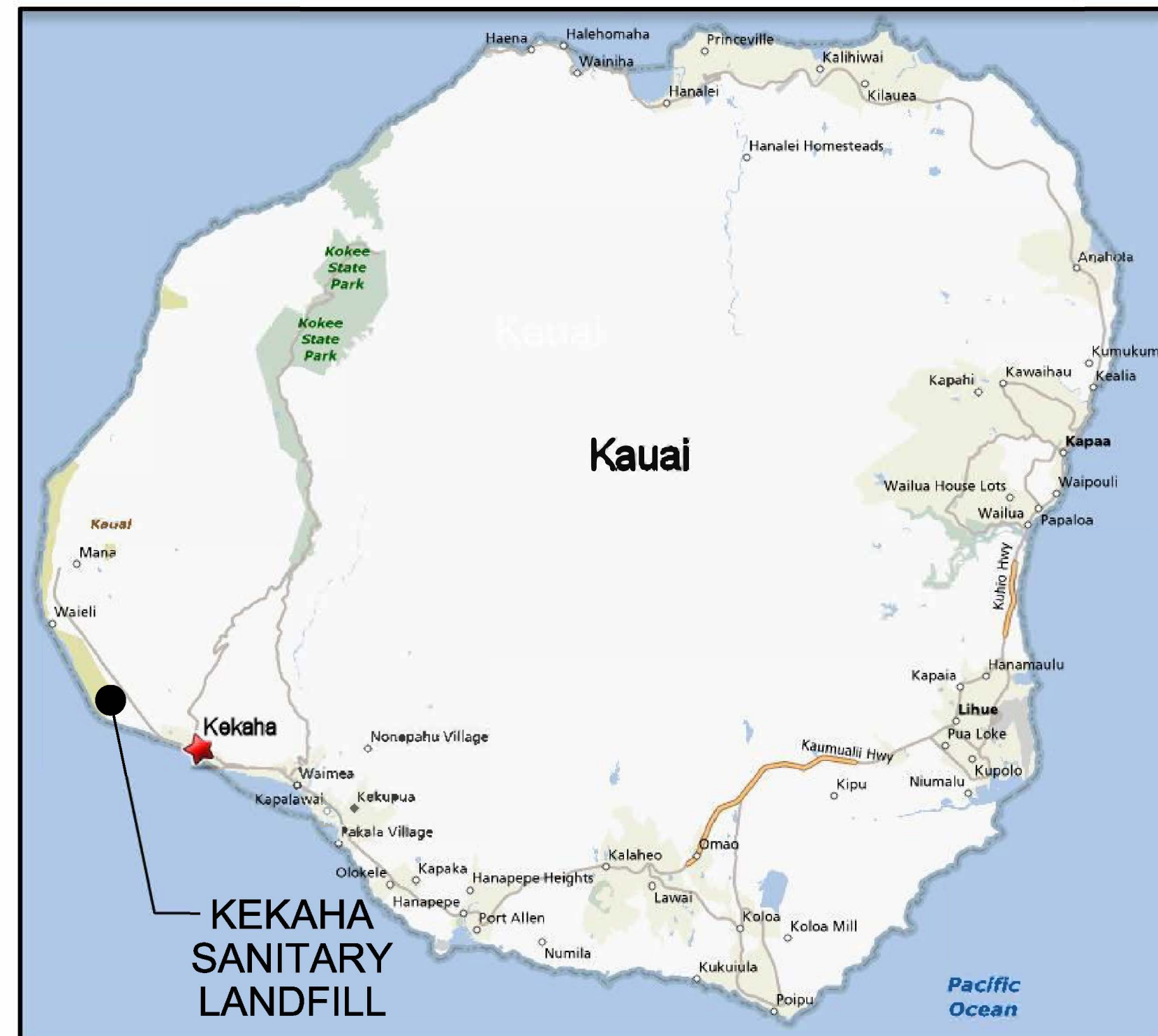
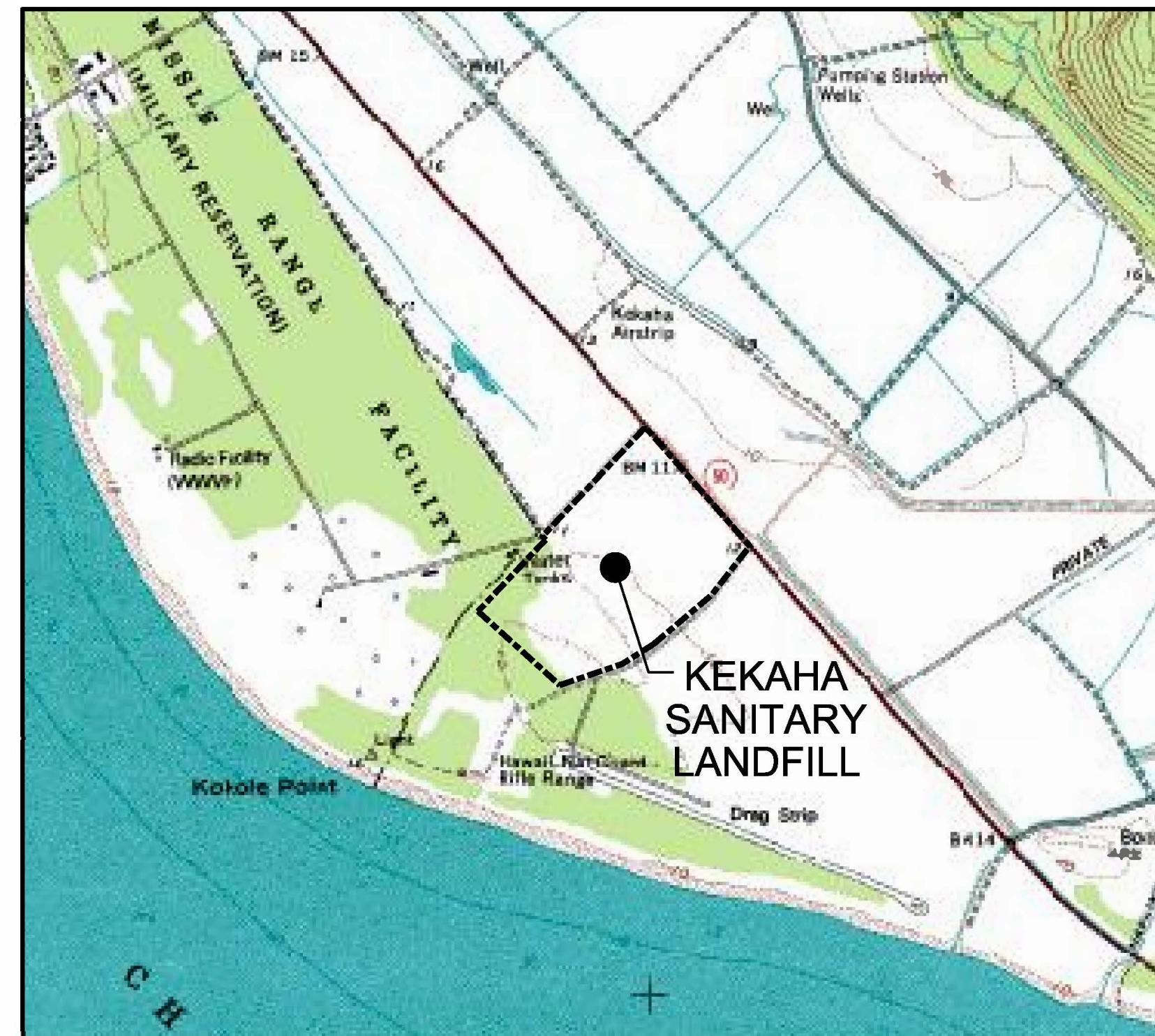


# CELL 2 BASE LINER CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL

KAUAI, HAWAII  
OCTOBER 2018



VICINITY MAP



SOURCE:  
BASE MAP TAKEN FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE:  
KAUAI QUADRANGLE, HAWAII

LOCATION MAP

DRAWING INDEX	
<b>CIVIL DRAWINGS</b>	
---	Title and Index
C-1	Existing Site Conditions
C-2	Project Overview
C-3	Repairs to Damaged Phase II Liner
C-4	Subbase Grades
C-5	Subcell 2-A Subbase Grades Control Points
C-6	Subcell 2-A Leachate Management System
C-7	Subcell 2-A Cross Sections
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C-9	Subcell 2-B Leachate Management System
C-10	Subcell 2-B Cross Sections
C-11	Leachate Transfer Piping Plan and Profile
C-12	Base Liner Details
C-13	Base Liner Details
C-14	Leachate Collection Details
C-15	Leachate Collection Details
C-16	Details

<b>ELECTRICAL DRAWINGS* [Not In 90% Draft]</b>	
E-1	Electrical Plans and Details
E-2	Leachate System Controls

\*Electrical and Instrumentation & Control (E I & C)  
Drawings will be prepared when AECOM obtains  
E I & C Documents for current conditions.

PREPARED FOR

COUNTY OF KAUAI, DEPARTMENT OF PUBLIC WORKS  
4444 Rice Street  
Lihue, Kauai, 96766

KEKAHA LANDFILL  
6900-D Kaunualii Highway  
Kekaha, Hawaii  
808-337-1416

APPROVED:

Bernard P. Carvalho, Jr. Mayor, County of Kauai

Lyle Tabata

Acting County Engineer, County of Kauai

PREPARED BY

**AECOM**

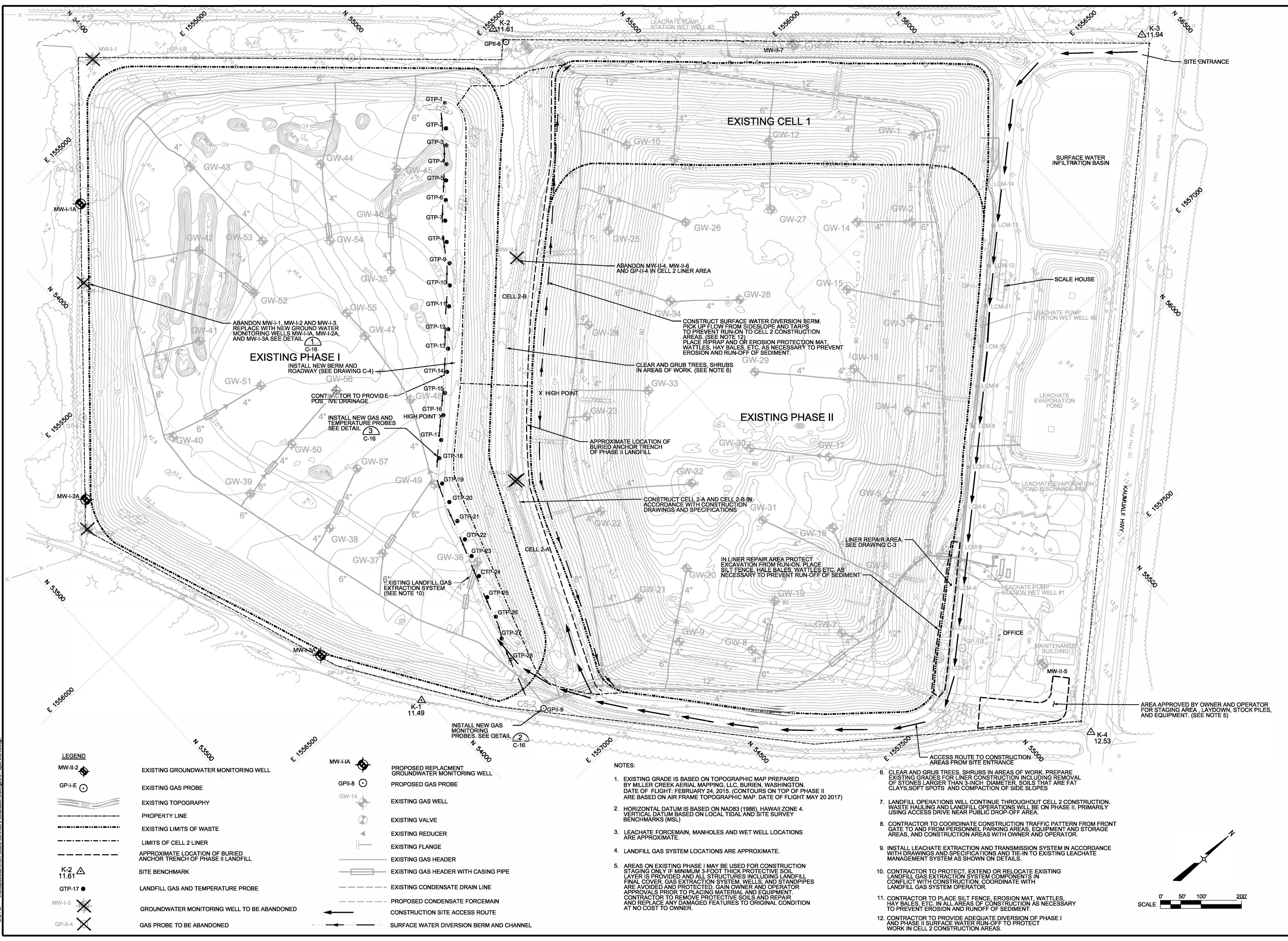
1001 BISHOP STREET  
SUITE 1600  
HONOLULU, HAWAII 96813  
808-523-8874

DRAFT



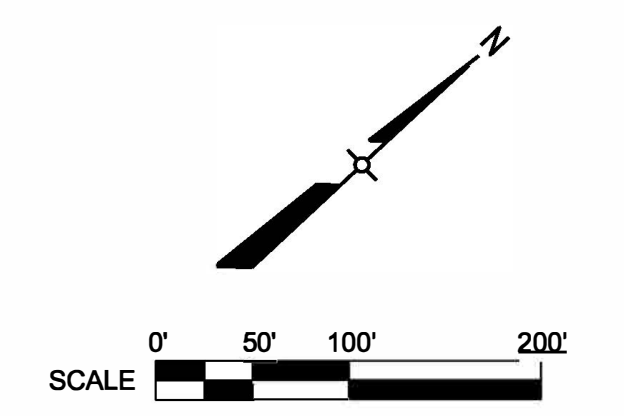
APRIL 30, 2020  
EXPIRATION DATE  
OF THE LICENSE





LEGEND	
MW-II-2	EXISTING GROUNDWATER MONITORING WELL
GP-I-E	EXISTING GAS PROBE
(Contour Line)	EXISTING TOPOGRAPHY
(Dashed Line)	PROPERTY LINE
(Dotted Line)	EXISTING LIMITS OF WASTE
(Dash-dot Line)	LIMITS OF CELL 2 LINER
(Dashed Line)	APPROXIMATE LOCATION OF BURIED ANCHOR TRENCH OF PHASE II LANDFILL
K-2 11.61	SITE BENCHMARK
GTP-17	LANDFILL GAS AND TEMPERATURE PROBE
MW-I-3	GROUNDWATER MONITORING WELL TO BE ABANDONED
GP-II-4	GAS PROBE TO BE ABANDONED
MW-I-A	PROPOSED REPLACEMENT GROUNDWATER MONITORING WELL
GPII-8	PROPOSED GAS PROBE
GW-14	EXISTING GAS WELL
(Valve Symbol)	EXISTING VALVE
(Reducer Symbol)	EXISTING REDUCER
(Flange Symbol)	EXISTING FLANGE
(Gas Header Symbol)	EXISTING GAS HEADER
(Gas Header with Casing Pipe Symbol)	EXISTING GAS HEADER WITH CASING PIPE
(Condensate Drain Line Symbol)	EXISTING CONDENSATE DRAIN LINE
(Proposed Condensate Force Main Symbol)	PROPOSED CONDENSATE FORCE MAIN
(Access Route Symbol)	CONSTRUCTION SITE ACCESS ROUTE
(Surface Water Diversion Berm and Channel Symbol)	SURFACE WATER DIVERSION BERM AND CHANNEL

- NOTES:
- EXISTING GRADE IS BASED ON TOPOGRAPHIC MAP PREPARED BY MILLER CREEK AERIAL MAPPING, LLC, BURIEN, WASHINGTON. DATE OF FLIGHT: FEBRUARY 24, 2015. (CONTOURS ON TOP OF PHASE II ARE BASED ON AIR FRAME TOPOGRAPHIC MAP. DATE OF FLIGHT MAY 20 2017)
  - HORIZONTAL DATUM IS BASED ON NAD83 (1986), HAWAII ZONE 4. VERTICAL DATUM BASED ON LOCAL TIDAL AND SITE SURVEY BENCHMARKS (MSL).
  - LEACHATE FORCE MAIN, MANHOLES AND WET WELL LOCATIONS ARE APPROXIMATE.
  - LANDFILL GAS SYSTEM LOCATIONS ARE APPROXIMATE.
  - AREAS ON EXISTING PHASE I MAY BE USED FOR CONSTRUCTION STAGING ONLY IF MINIMUM 3-FOOT THICK PROTECTIVE SOIL LAYER IS PROVIDED AND ALL STRUCTURES INCLUDING LANDFILL FINAL COVER, GAS EXTRACTION SYSTEM, WELLS, AND STANDPIPES ARE AVOIDED AND PROTECTED. GAIN OWNER AND OPERATOR APPROVALS PRIOR TO PLACING MATERIAL AND EQUIPMENT. CONTRACTOR TO REMOVE PROTECTIVE SOILS AND REPAIR AND REPLACE ANY DAMAGED FEATURES TO ORIGINAL CONDITION AT NO COST TO OWNER.
  - CLEAR AND GRUB TREES, SHRUBS IN AREAS OF WORK. PREPARE EXISTING GRADES FOR LINER CONSTRUCTION INCLUDING REMOVAL OF STONES LARGER THAN 3-INCH DIAMETER, SOILS THAT ARE FAT CLAYS, SOFT SPOTS, AND COMPACTION OF SIDE SLOPES.
  - LANDFILL OPERATIONS WILL CONTINUE THROUGHOUT CELL 2 CONSTRUCTION. WASTE HAULING AND LANDFILL OPERATIONS WILL BE ON PHASE II, PRIMARILY USING ACCESS DRIVE NEAR PUBLIC DROP-OFF AREA.
  - CONTRACTOR TO COORDINATE CONSTRUCTION TRAFFIC PATTERN FROM FRONT GATE TO AND FROM PERSONNEL PARKING AREAS, EQUIPMENT AND STORAGE AREAS, AND CONSTRUCTION AREAS WITH OWNER AND OPERATOR.
  - INSTALL LEACHATE EXTRACTION AND TRANSMISSION SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS AND TIE-IN TO EXISTING LEACHATE MANAGEMENT SYSTEM AS SHOWN ON DETAILS.
  - CONTRACTOR TO PROTECT, EXTEND OR RELOCATE EXISTING LANDFILL GAS EXTRACTION SYSTEM COMPONENTS IN CONFLICT WITH CONSTRUCTION. COORDINATE WITH LANDFILL GAS SYSTEM OPERATOR.
  - CONTRACTOR TO PLACE SILT FENCE, EROSION MAT, WATTLES, HAY BALES, ETC. IN ALL AREAS OF CONSTRUCTION AS NECESSARY TO PREVENT EROSION AND RUN-OFF OF SEDIMENT.
  - CONTRACTOR TO PROVIDE ADEQUATE DIVERSION OF PHASE I AND PHASE II SURFACE WATER RUN-OFF TO PROTECT WORK IN CELL 2 CONSTRUCTION AREAS.



NO.	REVISIONS	CHK.	DATE

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 EXPIRATION DATE OF THE LICENSE

DRN	CFE
DES	NKW
CHK	RBM/RH
APP	NKW

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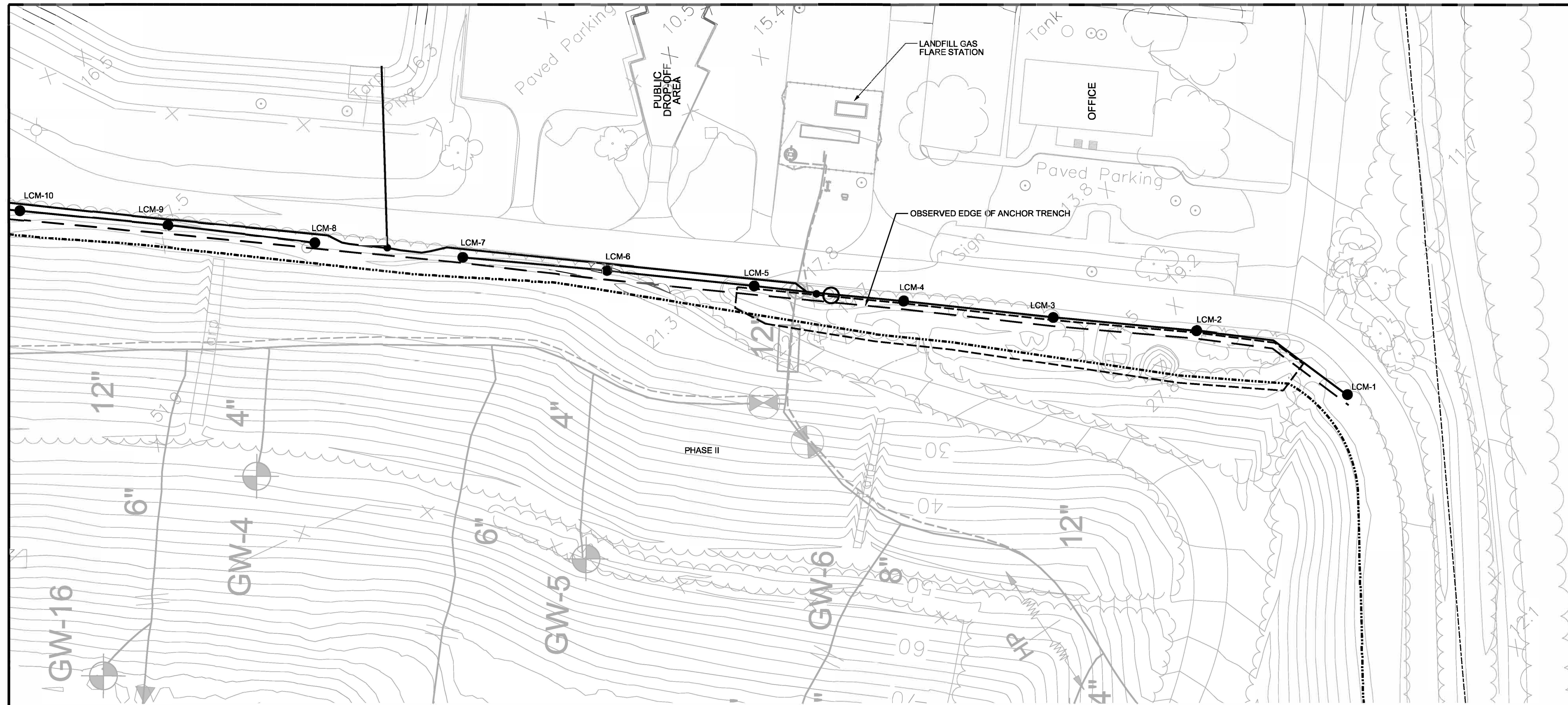
AECOM

PREPARED BY: **DRAFT**

PROJECT OVERVIEW AND CONSTRUCTION STAGING AREAS

DATE	OCTOBER 2018
PROJECT NO	6558519
FILENAME	
SHEET NO	
DRAWING NO	C-2

8/12/2018 3:21:44 PM L:\GIS\Projects\01012018\Kekaha Cell 2\Cell 2 Construction Drawings\GPII-4.dwg Plot Title: IS L:\GIS\Projects\01012018\Kekaha Cell 2\Cell 2 Construction Drawings\GPII-4.dwg Project Overview.dwg



**LEGEND**

	EXISTING TOPOGRAPHY
	PROPERTY LINE
	PERMITTED LIMITS OF WASTE
	OBSERVED EDGE OF ANCHOR TRENCH
	EXISTING LEACHATE COLLECTION MANHOLE
	EXISTING LEACHATE MANAGEMENT PIPING
	LINER REPAIR AREA

NO.	REVISIONS	DRN	CHK	DATE

WANDY K. WRIGHT  
 LICENSED PROFESSIONAL ENGINEER  
 No. 16394-C  
 HAWAII, U.S.A.

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DRN	CFF
DES	NKW
CHK	RB/MRH
APP	NKW

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**AECOM**

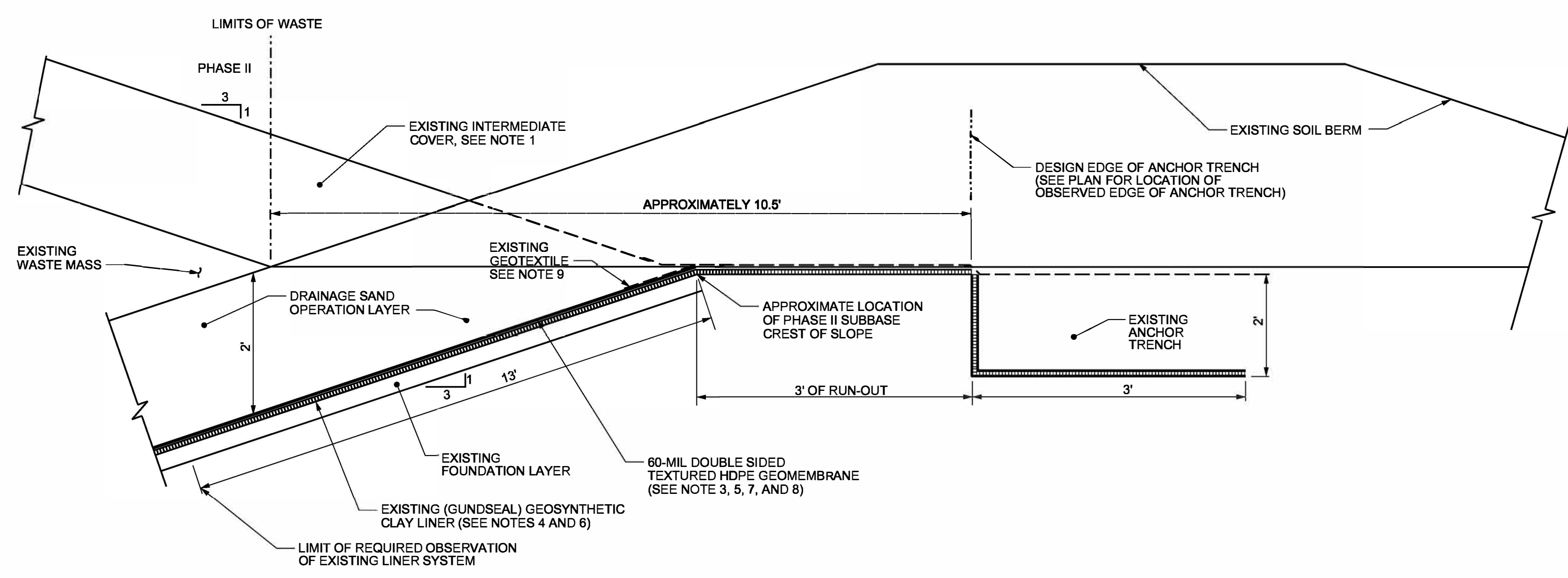
CELL 2 BASE LINER CONSTRUCTION DRAWINGS  
 PHASE II LATERAL EXPANSION  
 KEKAHA SANITARY LANDFILL  
 KAUAI, HAWAII

**DRAFT**

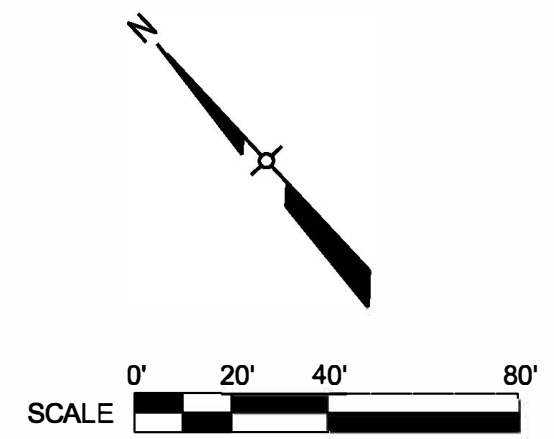
REPAIRS TO DAMAGED PHASE II LINER

DATE	OCTOBER 2018
PROJECT NO	6558519
FILENAME	
SHEET NO	
DRAWING NO	C-3

- NOTES:**
- LINER SYSTEM REPAIRS REQUIRED AS RESULTS OF DAMAGES CAUSED BY TERMITES. CONTRACTOR TO REVIEW TECHNICAL SPECIFICATIONS APPENDIX A, PHASE II LINER INVESTIGATION SUMMARY REPORT DATED MARCH 20, 2015, BY GEOSYNTEC CONSULTANTS TO UNDERSTAND SCOPE AND EXPECTED CONDITIONS FOR PHASE II LINER REPAIR PROJECT.
  - COORDINATE WITH OWNER ACCESS TO DAMAGED LINER REPAIR AREA TO AVOID CONFLICT WITH SITE OPERATION. COORDINATE WITH LANDFILL GAS SYSTEM OPERATOR REGARDING LFGS COMPONENTS IN LINER REPAIR AREA. EXPOSURE ACTIVITIES TO BE CONSTANTLY MONITORED BY QUALITY ASSURANCE CONSULTANT AND DOCUMENTED. DAMAGED LINER AND RESULTING REPAIRS CAUSED FROM EXPOSING DAMAGED LINER REPAIR AREA WILL BE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR TO MAINTAIN SURFACE WATER CONTROL FROM DAMAGED LINER REPAIR AREA.
  - CONTRACTOR TO CAREFULLY EXPOSE EXISTING GEOTEXTILE AND GEOMEMBRANE INCLUDING APPROXIMATE 3-FT RUN-OUT NEXT TO ANCHOR TRENCH AND 13-FT DOWN SIDESLOPE. LENGTH OF INSPECTION AREA TO BE APPROXIMATELY 390 FT. STOCKPILE REMOVED INTERMEDIATE COVER. DISPOSE OF REMOVED WASTE AT PHASE II ACTIVE FACE. CUT FACE OF WASTE IN PROJECT AREA SHALL BE COVERED WITH DAILY COVER MATERIAL AT END OF EACH DAY UNTIL BACKFILLED. STOCKPILE SOIL BERM MATERIAL. STOCKPILE DRAINAGE SAND/OPERATIONAL LAYER MATERIAL.
  - EXISTING GEOSYNTHETIC CLAY LINER (GCL) OF PHASE II IS COMPRISED OF A BENTONITE LAYER WITH A 20-MIL GEOMEMBRANE CARRIER LAYER ON THE UNDERSIDE. THE GEOMEMBRANE IS IN DIRECT CONTACT WITH THE SUBBASE.
  - EXISTING 60-MIL DOUBLE-SIDED TEXTURED HDPE GEOMEMBRANE MUST BE MOVED OR REMOVED TO EXPOSE 16-FT WIDTH OF EXISTING GEOSYNTHETIC CLAY LINER FOR INSPECTION. CAREFULLY CUT OUT ALL DAMAGED GEOMEMBRANE AND ENOUGH OF REMAINING EXPOSED GEOMEMBRANE TO ALLOW OBSERVATION OF ENTIRE WIDTH OF EXISTING GCL TO 13 FT DOWN THE SIDESLOPE FROM THE CREST OF SLOPE. (IF REMOVED GEOMEMBRANE IS IN GOOD SHAPE, IT MAY BE REUSED.)
  - QAC TO IDENTIFY GCL DAMAGE BY TERMITES. IF 20-MIL GEOMEMBRANE CARRIER LAYER IS DAMAGED, BENTONITE CLAY TOP LAYER SHALL BE REMOVED, GEOMEMBRANE CLEANED, AND 60-MIL HDPE GEOMEMBRANE PATCH CAREFULLY EXTRUSION WELDED TO 20-MIL HDPE GEOMEMBRANE TO COMPLETELY COVER HOLE. NEW GCL CONSISTING OF BENTONITE WITH GEOTEXTILE ON BOTH SIDES TO BE PLACED OVER PATCHES. NEW GCL CONSISTING OF BENTONITE WITH GEOTEXTILE ON BOTH SIDES TO BE PLACED OVER ENTIRE AREA OF EXISTING DAMAGED GCL. ASSUME ENTIRE EXPOSED LENGTH AND WIDTH OF EXISTING GCL WILL BE COVERED BY NEW GCL. IF NO TERMITE TRAILS ARE FOUND IN AN AREA, NEW GCL WILL NOT BE REQUIRED THERE. (NOTE: EXISTING GCL PANELS WERE SEAMED BY OVERLAPPING, NOT WELDING. OVERLAPPING IS ACCEPTABLE FOR REPAIRS.)
  - WHERE GEOMEMBRANE WAS CUT OUT, EITHER INSTALL NEW GEOMEMBRANE OR REUSE REMOVED GEOMEMBRANE WITH SOME NEW FOR OVERLAPS. CLEAN GEOMEMBRANE WHERE WELDING. WELD TO EXISTING GEOMEMBRANE WITH A MINIMUM 1-FT OVERLAP.
  - ALL NEW GEOMEMBRANE TO BE TEXTURED ON BOTH SIDES.
  - INSTALL NEW 1/2 ROLL-WIDTH LAYER OF 16 OZ/SY NON-WOVEN CUSHION GEOTEXTILE OVER GEOMEMBRANE AT CREST OF SLOPE.
  - WHEN DEPLOYING GEOTEXTILES OVER TEXTURED GEOMEMBRANE OR WHEN DEPLOYING TEXTURED GEOMEMBRANE OVER GCL OR GEOTEXTILES, A RUBSHEET SHALL BE USED BETWEEN THE TWO MATERIALS AND REMOVED AFTER FINAL MATERIAL POSITIONING.
  - INSTALL DRAINAGE SAND/OPERATIONS LAYER OVER REPAIR AREA. SUPPLEMENT STOCKPILED MATERIAL, IF NECESSARY, TO MATCH ORIGINAL THICKNESS.
  - INSTALL FILL SOILS WHERE WASTE WAS REMOVED. COMPACT FILL SOILS. (IF OWNER ALLOWED WASTE TO BE STOCKPILED AND COVERED, REPLACE WASTE AFTER REMOVING LARGE ITEMS, CONCRETE, AND METAL.)
  - INSTALL COVER SOIL. SUPPLEMENT STOCKPILED COVER SOIL, IF NECESSARY, TO MATCH ORIGINAL THICKNESS.
  - SEED, FERTILIZE, MULCH, AND WATER.

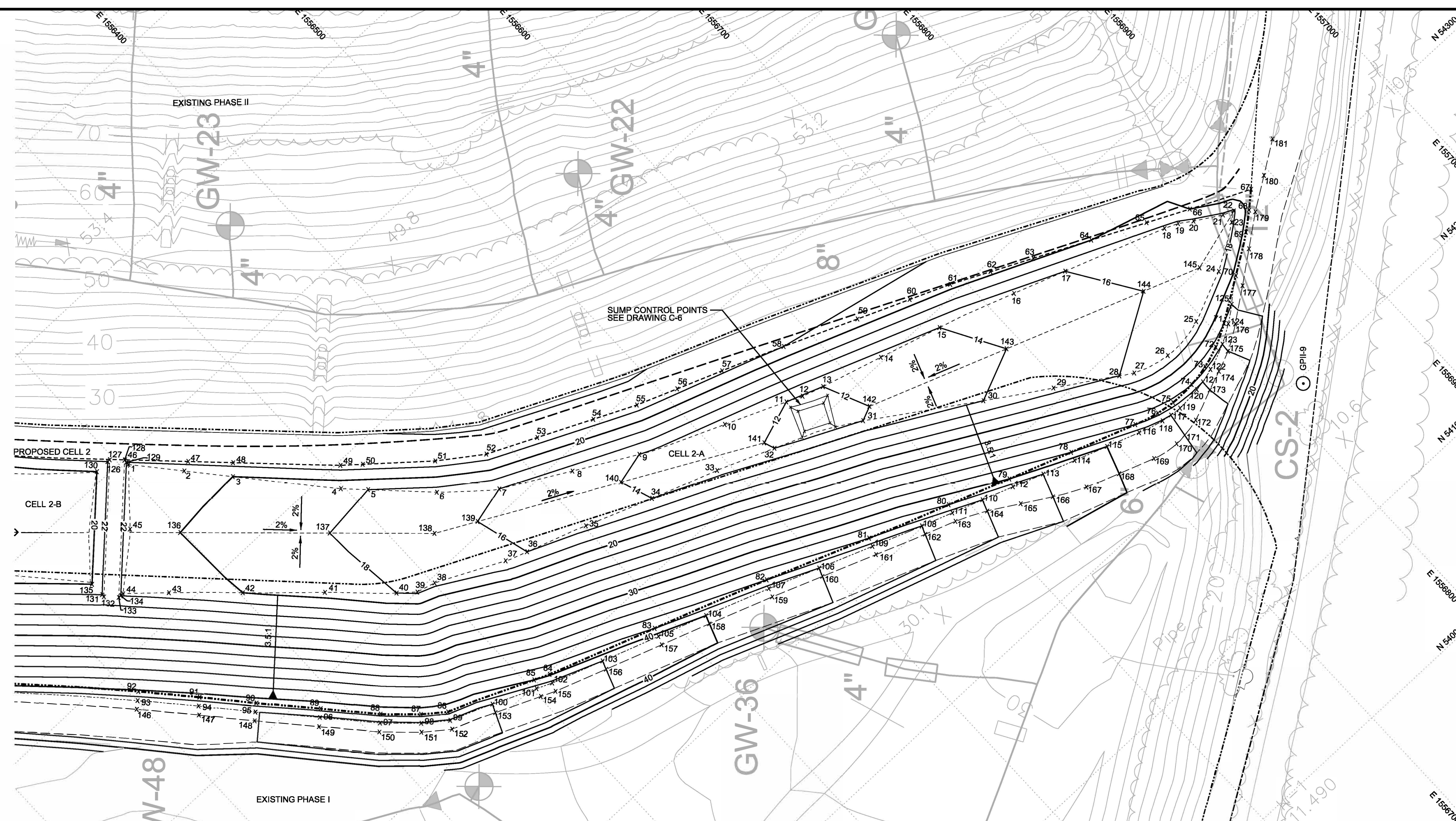


**BASE LINER DAMAGE REPAIR DETAIL**  
 NTS 1



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- LEGEND**
- EXISTING TOPOGRAPHY
  - PROPOSED GRADES
  - PROPERTY LINE
  - EXISTING LIMIT OF WASTE
  - PROPOSED LIMIT OF CELL 2 WASTE
  - ACCESS ROAD
  - GRADE BREAK
  - EXISTING GROUNDWATER MONITORING WELL
  - CONTROL POINT REFERENCE

- NOTES:**
- EXISTING GRADE IS BASED ON TOPOGRAPHIC MAP PREPARED BY MILLER CREEK AERIAL MAPPING, LLC, BURIEEN, WASHINGTON. DATE OF FLIGHT: FEBRUARY 24, 2015. (CONTOURS ON TOP OF PHASE II ARE BASED ON AIR FRAME TOPOGRAPHIC MAP. DATE OF FLIGHT MAY 20 2017)
  - HORIZONTAL DATUM IS BASED ON NAD83 (1986), HAWAII ZONE 4. VERTICAL DATUM BASED ON LOCAL TIDAL AND SITE SURVEY BENCHMARKS (MSL)
  - GRADES SHOWN REPRESENT TOP OF FINAL 6 INCH FOUNDATION LAYER FOR GEOSYNTHETIC LINER CONSTRUCTION.
  - EXACT HORIZONTAL AND VERTICAL LIMITS OF PHASE I WASTE ARE NOT KNOWN. EXCAVATION OF WASTE ON PHASE I NOT PLANNED OR DESIRED. IF CONTRACTOR ENCOUNTERS WASTE WHILE EXCAVATING FOR CELL 2 BASE LINER CONSTRUCTION, NOTIFY QAC AND OWNER. DESIGN MODIFICATION MAY BE REQUIRED.

NO	REVISIONS	CHK	DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2020  
EXPIRATION DATE OF THE LICENSE

DRN	CFF
DES	NKW
CHK	RB/MRH
APP	NKW

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**DRAFT**  
CELL 2 BASE LINER CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII

**SUBCELL 2-A**  
**SUBBASE GRADES CONTROL POINTS**

DATE: OCTOBER 2018

PROJECT NO: 6558519

FILENAME:

SHEET NO:

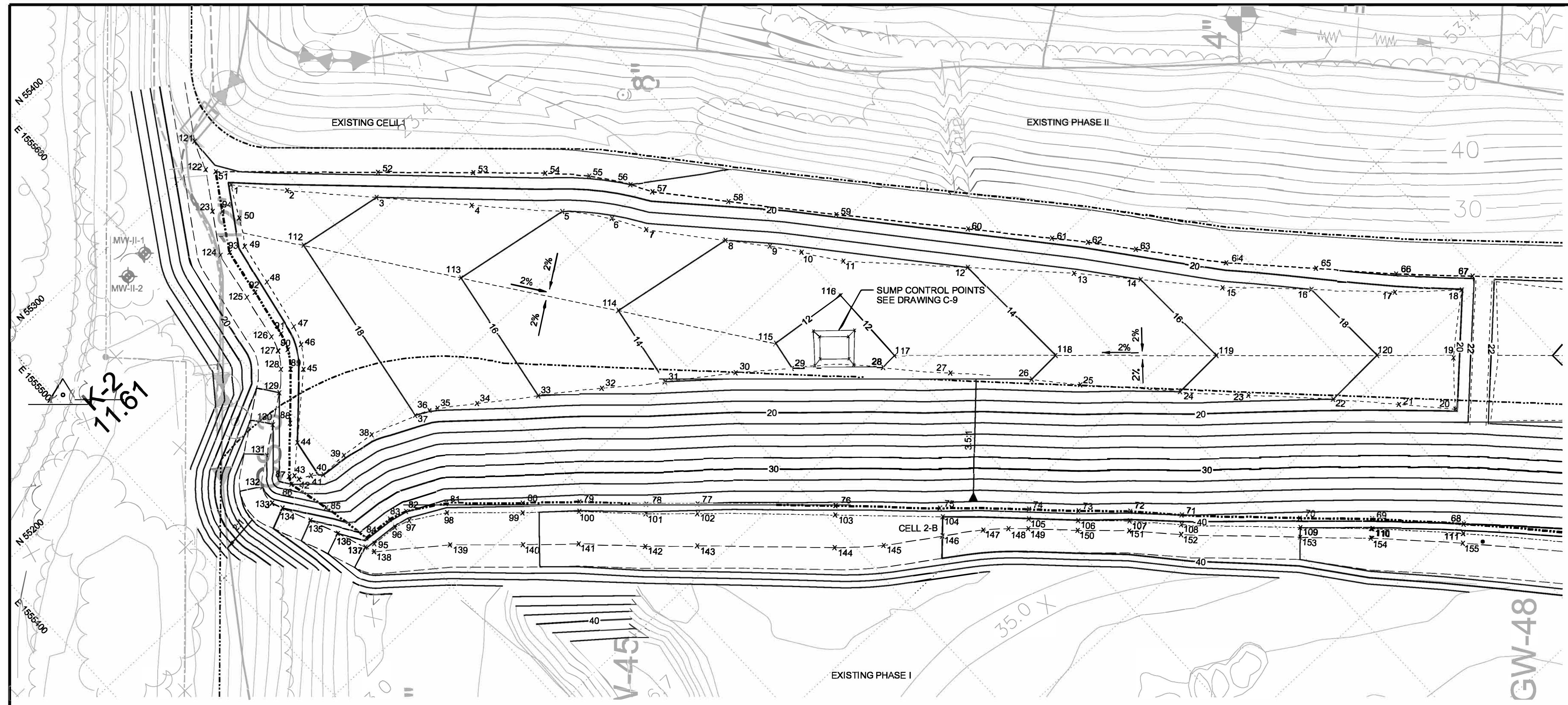
DRAWING NO: C-5

SUBGRADE CONTROL POINTS				SUBGRADE CONTROL POINTS				SUBGRADE CONTROL POINTS				SUBGRADE CONTROL POINTS			
POINT	NORTHING	EASTING	ELEVATION	POINT	NORTHING	EASTING	ELEVATION	POINT	NORTHING	EASTING	ELEVATION	POINT	NORTHING	EASTING	ELEVATION
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2	1556228.89	54666.45	20.74	54	1556453.85	54504.22	23.19	106	1556496.60	54327.25	38.00	158	1556417.20	54350.19	40.00
3	1556250.20	54641.36	20.00	55	1556481.84	54491.20	23.15	107	1556462.50	54340.23	39.02	159	1556460.41	54334.61	39.02
4	1556277.72	54585.78	18.37	56	1556509.06	54480.68	22.85	108	1556566.49	54300.77	36.00	160	1556494.48	54321.64	38.00
5	1556310.61	54572.84	18.00	57	1556539.43	54468.95	22.49	109	1556532.83	54313.44	37.00	161	1556530.82	54307.78	37.00
6	1556343.27	54539.97	17.02	58	1556580.95	54452.58	22.00	110	1556608.28	54285.80	34.00	162	1556564.31	54295.18	36.00
7	1556375.43	54513.05	16.00	59	1556629.86	54432.27	21.52	111	1556687.45	54293.26	35.00	163	1556585.14	54287.64	35.01
8	1556419.84	54488.30	14.95	60	1556664.51	54417.87	21.17	112	1556629.28	54278.28	33.00	164	1556605.53	54278.10	34.00
9	1556460.37	54465.83	14.00	61	1556691.39	54406.70	20.91	113	1556650.28	54270.82	32.00	165	1556625.32	54266.37	32.98
10	1556516.17	54441.31	12.85	62	1556717.02	54394.44	20.65	114	1556671.79	54263.07	31.00	166	1556644.43	54254.99	32.00
11	1556556.81	54424.13	12.00	63	1556744.08	54381.48	20.37	115	1556694.11	54255.11	30.00	167	1556665.30	54244.46	31.00
12	1556567.42	54419.48	11.77	64	1556781.06	54363.78	20.00	116	1556716.24	54247.22	29.00	168	1556687.68	54236.17	30.01
13	1556581.87	54414.87	12.00	65	1556816.25	54346.94	19.64	117	1556739.98	54241.19	28.00	169	1556711.72	54227.60	28.94
14	1556623.74	54402.73	12.99	66	1556843.75	54333.78	20.00	118	1556733.22	54242.21	28.28	170	1556729.65	54224.50	28.27
15	1556666.22	54380.02	14.00	67	1556882.96	54315.51	20.65	119	1556747.64	54240.46	27.64	171	1556737.59	54225.02	28.00
16	1556718.56	54373.03	15.22	68	1556924.45	54306.11	20.64	120	1556764.41	54241.83	26.46	172	1556749.89	54227.33	27.48
17	1556753.89	54360.47	16.00	69	1556960.76	54296.71	20.63	121	1556770.95	54242.90	26.00	173	1556770.68	54235.68	26.00
18	1556822.42	54335.94	17.47	70	1556985.90	54279.94	20.61	122	1556780.41	54245.50	25.31	174	1556783.72	54240.74	25.03
19	1556831.32	54332.09	17.55	71	1556988.23	54262.00	22.00	123	1556797.81	54252.44	24.00	175	1556797.31	54246.43	24.00
20	1556840.10	54326.13	17.58	72	1556993.21	54254.04	22.72	124	1556810.11	54259.79	23.00	176	1556813.42	54256.46	22.67
21	1556857.40	54315.67	17.65	73	1556778.98	54249.36	23.36	125	1556820.64	54267.87	22.00	177	1556834.55	54271.92	20.84
22	1556864.50	54312.78	17.74	74	1556764.25	54246.75	24.00	126	1556195.54	54206.18	22.00	178	1556854.63	54287.14	20.62
23	1556888.23	54307.98	17.62	75	1556746.78	54246.43	24.74	127	1556197.41	54206.17	22.44	179	1556874.70	54302.37	20.41
24	1556829.44	54289.88	17.21	76	1556734.41	54248.10	25.28	128	1556204.46	54209.22	22.44	180	1556895.64	54316.35	20.21
25	1556795.33	54275.64	16.97	77	1556718.12	54252.92	26.00	129	1556204.46	54209.22	22.00	181	1556915.43	54329.56	20.00
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32	1556529.80	54406.80	12.00	84	1556635.38	54398.68	39.66	136	1556198.56	54637.78	20.00				
33	1556491.33	54422.16	12.91	85	1556630.21	54403.07	40.00	137	1556271.96	54588.91	18.00				
34	1556446.35	54438.11	14.00	86	1556624.16	54426.91	41.26	138	1556323.33	54520.70	16.60				
35	1556401.26	54455.04	15.07	87	1556623.56	54438.05	41.24	139	1556349.92	54506.81	16.00				
36	1556360.46	54469.22	16.00	88	1556623.62	54456.67	41.37	140	1556348.55	54460.50	14.00				
37	1556345.74	54474.64	16.33	89	1556624.45	54486.90	41.29	141	1556357.18	54414.18	13.00				
38	1556300.65	54496.33	17.35	90	1556615.79	54519.07	40.98	142	1556357.18	54414.18	12.00				
39	1556287.93	54499.90	17.72	91	1556612.75	54548.01	40.66	143	1556357.18	54414.18	14.00				
40	1556277.32	54508.86	18.00	92	1556610.06	54578.88	40.28	144	1556357.18	54414.18	16.00				
41	1556242.41	54542.06	18.92	93	1556100.62	54574.84	43.28	145	1556281.64	54300.50	16.82				
42	1556201.82	54579.54	20.00	94	1556128.25	54544.04	43.66	146	1556096.19	54570.80	43.28				
43	1556165.41	54613.44	20.96	95	1556153.30	54515.09	43.98	147	1556124.29	54539.45	43.67				
44	1556142.38	54634.01	21.59	96	1556182.51	54482.89	44.29	148	1556148.81	54511.11	43.98				
45	1556175.44	54662.55	20.76	97	1556209.51	54452.49	44.37	149	1556178.05	54478.88	44.29				
46	1556204.89	54699.12	22.47	98	1556229.67	54433.47	44.24	150	1556205.20	54448.31	44.37				
47	1556235.19	54669.37	22.60	99	1556245.21	54421.62	44.20	151	1556225.78	54428.89	44.24				
48	1556256.77	54648.10	22.69	100	1556273.57	54410.28	44.00	152	1556242.25	54416.32	44.26				
49	1556308.36	54597.53	22.91	101	1556302.41	54397.74	43.02	153	1556271.18	54404.78	44.00				
50	1556319.81	54587.80	22.96	102	1556312.70	54393.26	42.67	154	1556300.92	54391.84	43.00				
51	1556357.00	54556.22	23.11	103	1556347.54	54380.96	42.00	155	1556310.50	54387.68	42.67				
52	1556385.28	54536.10	23.17	104	1556419.21	54355.84	40.00	156	1556345.55	54375.30	42.00				

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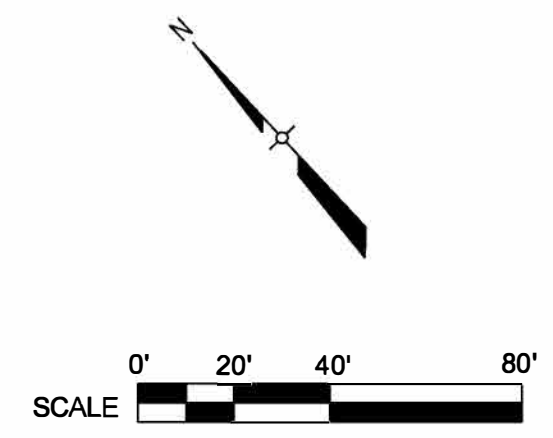




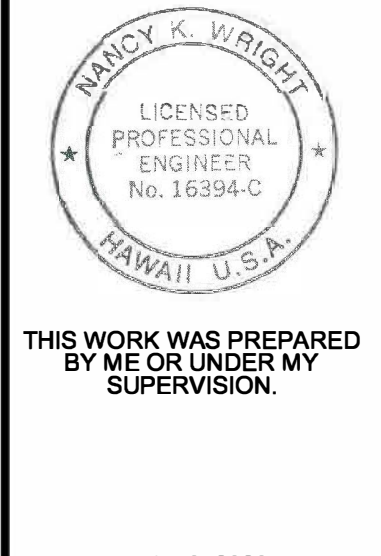
**LEGEND**

	EXISTING TOPOGRAPHY
	PROPOSED GRADES
	PROPERTY LINE
	EXISTING LIMIT OF WASTE
	PROPOSED LIMIT OF CELL 2 WASTE
	ACCESS ROAD
	GRADE BREAK
	EXISTING GROUNDWATER MONITORING WELL
	CONTROL POINT REFERENCE

- NOTES:**
- EXISTING GRADE IS BASED ON TOPOGRAPHIC MAP PREPARED BY MILLER CREEK AERIAL MAPPING, LLC, BURIE, WASHINGTON. DATE OF FLIGHT: FEBRUARY 24, 2015. (CONTOURS ON TOP OF PHASE II ARE BASED ON AIR FRAME TOPOGRAPHIC MAP. DATE OF FLIGHT MAY 20 2017)
  - HORIZONTAL DATUM IS BASED ON NAD83 (1986), HAWAII ZONE 4. VERTICAL DATUM BASED ON LOCAL TIDAL AND SITE SURVEY BENCHMARKS (MSL)
  - GRADES SHOWN REPRESENT TOP OF FINAL 6 INCH FOUNDATION LAYER FOR GEOSYNTHETIC LINER CONSTRUCTION.
  - EXACT HORIZONTAL AND VERTICAL LIMITS OF PHASE I WASTE ARE NOT KNOWN. EXCAVATION OF WASTE ON PHASE I NOT PLANNED OR DESIRED. IF CONTRACTOR ENCOUNTERS WASTE WHILE EXCAVATING FOR CELL 2, BASE LINER CONSTRUCTION, NOTIFY QAC AND OWNER. DESIGN MODIFICATION MAY BE REQUIRED.



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APRIL 30, 2020  
EXPIRATION DATE OF THE LICENSE

DRN	CFF
DES	NKW
CHK	RB/MRH
APP	NKW

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**DRAFT**  
CELL 2-B BASE LINER CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII

**SUBCELL 2-B SUBBASE GRADES CONTROL POINTS**

DATE: OCTOBER 2018

PROJECT NO: 6558519

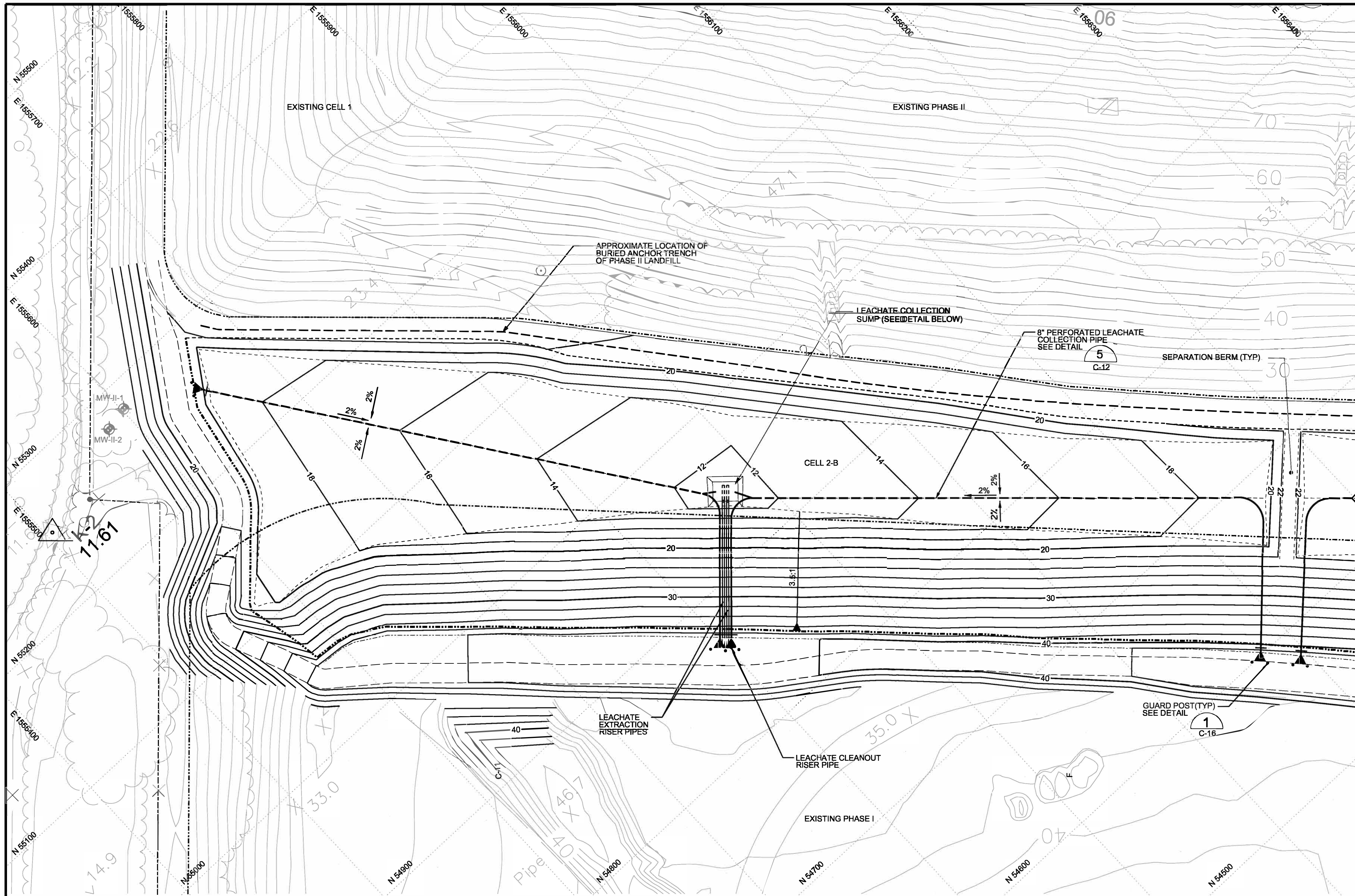
FILENAME:

SHEET NO:

DRAWING NO: C-8

SUBGRADE CONTROL POINTS				SUBGRADE CONTROL POINTS				SUBGRADE CONTROL POINTS						
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1555669.63	55276.15	19.59	TOE OF SLOPE	53	1555785.19	55178.85	22.75	APPROXIMATE LIMITS OF WASTE	105	1555890.81	54785.60	40.15	TOP OF SLOPE
2	1555692.85	55249.82	18.97	TOE OF SLOPE	54	1555817.78	55148.13	22.88	APPROXIMATE LIMITS OF WASTE	106	1555912.58	54763.92	40.16	TOP OF SLOPE
3	1555730.50	55208.68	18.00	TOE OF SLOPE	55	1555858.64	55094.30	21.76	APPROXIMATE LIMITS OF WASTE	107	1555935.93	54741.91	40.42	TOP OF SLOPE
4	1555770.71	55164.74	16.97	TOE OF SLOPE	56	1555851.47	55106.79	22.00	APPROXIMATE LIMITS OF WASTE	108	1555957.90	54718.22	41.00	TOP OF SLOPE
5	1555809.18	55123.47	16.00	TOE OF SLOPE	57	1555836.31	55128.21	22.45	APPROXIMATE LIMITS OF WASTE	109	1556010.82	54666.54	42.00	TOP OF SLOPE
6	1555828.63	55099.21	15.42	TOE OF SLOPE	58	1555889.14	55057.51	20.96	APPROXIMATE LIMITS OF WASTE	110	1556042.78	54635.87	42.35	TOP OF SLOPE
7	1555839.80	55079.58	14.92	TOE OF SLOPE	59	1555932.74	55005.90	20.54	APPROXIMATE LIMITS OF WASTE	111	1556082.38	54594.63	43.00	TOP OF SLOPE
8	1555871.19	55041.12	14.00	TOE OF SLOPE	60	1555986.56	54943.35	20.86	APPROXIMATE LIMITS OF WASTE	112	1556177.07	55217.83	18.00	SUBBASE SURFACE
9	1555888.80	55019.63	13.49	TOE OF SLOPE	61	1556020.82	54903.55	21.03	APPROXIMATE LIMITS OF WASTE	113	1556234.81	55136.21	16.00	SUBBASE SURFACE
10	1555900.69	55003.36	13.03	TOE OF SLOPE	62	1556035.37	54886.39	21.10	APPROXIMATE LIMITS OF WASTE	114	1556292.55	55054.59	14.00	SUBBASE SURFACE
11	1555916.04	54981.68	12.44	TOE OF SLOPE	63	1556054.07	54862.92	21.20	APPROXIMATE LIMITS OF WASTE	115	1556350.29	54972.96	12.00	SUBBASE SURFACE
12	1555969.79	54926.02	14.00	TOE OF SLOPE	64	1556089.52	54818.55	21.38	APPROXIMATE LIMITS OF WASTE	116	1556400.33	54967.16	12.00	SUBBASE SURFACE
13	1556015.85	54878.09	15.25	TOE OF SLOPE	65	1556127.93	54777.79	21.83	APPROXIMATE LIMITS OF WASTE	117	1556499.37	54916.80	12.00	SUBBASE SURFACE
14	1556043.32	54847.14	16.00	TOE OF SLOPE	66	1556162.27	54741.36	22.29	APPROXIMATE LIMITS OF WASTE	118	1556597.52	54848.65	14.00	SUBBASE SURFACE
15	1556077.38	54808.78	16.92	TOE OF SLOPE	67	1556195.97	54707.88	22.43	APPROXIMATE LIMITS OF WASTE	119	1556645.67	54780.49	16.00	SUBBASE SURFACE
16	1556116.79	54770.19	18.00	TOE OF SLOPE	68	1556206.73	54698.76	40.00	APPROXIMATE LIMITS OF WASTE	120	1556118.83	54712.34	18.00	SUBBASE SURFACE
17	1556153.93	54733.50	19.01	TOE OF SLOPE	69	1556247.01	54640.13	39.35	APPROXIMATE LIMITS OF WASTE	121	1556271.58	55311.40	22.00	INSIDE EDGE OF ROAD
18	1556184.94	54706.23	19.86	TOE OF SLOPE	70	1556241.84	54671.01	39.00	APPROXIMATE LIMITS OF WASTE	122	1556264.80	55293.89	21.84	INSIDE EDGE OF ROAD
19	1556152.64	54678.70	18.99	TOE OF SLOPE	71	1555962.07	54722.54	38.00	APPROXIMATE LIMITS OF WASTE	123	1556250.30	55271.97	21.81	INSIDE EDGE OF ROAD
20	1556131.51	54654.64	19.64	TOE OF SLOPE	72	1555940.19	54746.14	37.42	APPROXIMATE LIMITS OF WASTE	124	1556235.09	55248.60	21.76	INSIDE EDGE OF ROAD
21	1556108.05	54680.77	18.88	TOE OF SLOPE	73	1555916.76	54768.23	37.16	APPROXIMATE LIMITS OF WASTE	125	1556229.16	55218.19	21.65	INSIDE EDGE OF ROAD
22	1556080.08	54710.97	18.00	TOE OF SLOPE	74	1555894.97	54789.93	37.15	APPROXIMATE LIMITS OF WASTE	126	1556223.88	55190.02	21.56	INSIDE EDGE OF ROAD
23	1556043.54	54748.73	16.90	TOE OF SLOPE	75	1555854.99	54828.29	37.00	APPROXIMATE LIMITS OF WASTE	127	1556220.77	55180.55	21.53	INSIDE EDGE OF ROAD
24	1556013.73	54779.36	16.00	TOE OF SLOPE	76	1555808.73	54873.67	36.58	APPROXIMATE LIMITS OF WASTE	128	1556214.25	55170.90	21.48	INSIDE EDGE OF ROAD
25	1555971.47	54824.69	14.68	TOE OF SLOPE	77	1555746.43	54933.04	36.00	APPROXIMATE LIMITS OF WASTE	129	1556203.43	55161.05	22.00	INSIDE EDGE OF ROAD
26	1555951.44	54847.90	14.00	TOE OF SLOPE	78	1555723.00	54954.68	35.63	APPROXIMATE LIMITS OF WASTE	130	155587.21	55149.35	24.00	INSIDE EDGE OF ROAD
27	1555917.33	54885.66	12.90	TOE OF SLOPE	79	1555693.63	54984.16	35.22	APPROXIMATE LIMITS OF WASTE	131	1555571.00	55137.64	26.00	INSIDE EDGE OF ROAD
28	1555889.02	54916.43	12.00	TOE OF SLOPE	80	1555667.46	55007.58	34.91	APPROXIMATE LIMITS OF WASTE	132	1555555.77	55125.25	28.00	INSIDE EDGE OF ROAD
29	1555847.20	54954.97	12.00	TOE OF SLOPE	81	1555632.46	55040.17	34.52	APPROXIMATE LIMITS OF WASTE	133	1555553.43	55113.87	29.25	INSIDE EDGE OF ROAD
30	1555819.62	54976.72	12.87	TOE OF SLOPE	82	1555610.75	55053.32	33.80	APPROXIMATE LIMITS OF WASTE	134	1555556.02	55107.27	30.00	INSIDE EDGE OF ROAD
31	1555783.59	55002.34	14.00	TOE OF SLOPE	83	1555600.05	55056.62	33.42	APPROXIMATE LIMITS OF WASTE	135	1555563.45	55089.76	32.00	INSIDE EDGE OF ROAD
32	1555752.23	55026.14	14.99	TOE OF SLOPE	84	1555581.46	55058.12	33.49	APPROXIMATE LIMITS OF WASTE	136	1555570.62	55072.15	34.00	INSIDE EDGE OF ROAD
33	1555719.99	55049.76	16.00	TOE OF SLOPE	85	1555575.99	55088.88	27.00	APPROXIMATE LIMITS OF WASTE	137	1555577.02	55054.25	36.00	INSIDE EDGE OF ROAD
34	1555688.97	55072.15	16.97	TOE OF SLOPE	86	1555570.07	55114.23	22.00	APPROXIMATE LIMITS OF WASTE	138	1555579.42	55048.56	36.46	INSIDE EDGE OF ROAD
35	1555668.84	55086.81	17.60	TOE OF SLOPE	87	1555572.53	55118.70	21.27	APPROXIMATE LIMITS OF WASTE	139	1555616.70	55019.32	37.52	INSIDE EDGE OF ROAD
36	1555664.38	55089.40	17.74	TOE OF SLOPE	88	1555595.60	55142.77	21.38	APPROXIMATE LIMITS OF WASTE	140	1555649.93	54988.38	37.91	INSIDE EDGE OF ROAD
37	1555655.63	55092.80	18.00	TOE OF SLOPE	89	1555618.66	55166.83	21.48	APPROXIMATE LIMITS OF WASTE	141	1555675.74	54965.28	38.22	INSIDE EDGE OF ROAD
38	1555627.92	55102.76	18.82	TOE OF SLOPE	90	1555625.80	55177.15	21.52	APPROXIMATE LIMITS OF WASTE	142	1555704.96	54935.95	38.63	INSIDE EDGE OF ROAD
39	1555606.13	55105.12	19.44	TOE OF SLOPE	91	1555629.44	55187.29	21.56	APPROXIMATE LIMITS OF WASTE	143	1555728.71	54914.01	39.00	INSIDE EDGE OF ROAD
40	1555588.69	55105.07	19.92	TOE OF SLOPE	92	1555635.05	55217.02	21.65	APPROXIMATE LIMITS OF WASTE	144	1555790.57	54855.07	39.58	INSIDE EDGE OF ROAD
41	1555582.78	55110.03	20.11	TOE OF SLOPE	93	1555640.54	55246.06	21.75	APPROXIMATE LIMITS OF WASTE	145	1555813.98	54835.41	39.79	INSIDE EDGE OF ROAD
42	1555575.88	55113.45	20.32	TOE OF SLOPE	94	1555654.68	55267.72	21.80	APPROXIMATE LIMITS OF WASTE	146	1555844.35	54814.61	40.00	INSIDE EDGE OF ROAD
43	1555575.08	55116.83	20.36	TOE OF SLOPE	95	1555582.59	55052.01	36.48	TOP OF SLOPE	147	1555865.60	54799.82	40.13	INSIDE EDGE OF ROAD
44	1555590.38	55130.58	20.00	TOE OF SLOPE	96	1555598.91	55050.69	36.42	TOP OF SLOPE	148	1555877.72	54789.68	40.14	INSIDE EDGE OF ROAD
45	1555624.43	55161.30	19.20	TOE OF SLOPE	97	1555608.27	55047.80	36.80	TOP OF SLOPE	149	1555886.65	54781.28	40.15	INSIDE EDGE OF ROAD
46	1555633.87	55173.52	18.99	TOE OF SLOPE	98	1555628.82	55035.36	37.52	TOP OF SLOPE	150	1555908.41	54759.61	40.16	INSIDE EDGE OF ROAD
47	1555638.37	55185.00	18.92	TOE OF SLOPE	99	1555663.42	55003.15	37.91	TOP OF SLOPE	151	1555931.66	54737.69	40.42	INSIDE EDGE OF ROAD
48	1555644.91	55216.72	18.92	TOE OF SLOPE	100	1555689.50	54979.80	38.22	TOP OF SLOPE	152	1555953.70	54713.92	41.00	INSIDE EDGE OF ROAD
49	1555650.00	55242.29	18.87	TOE OF SLOPE	101	1555718.84	54950.36	38.63	TOP OF SLOPE	153	1556006.65	54682.23	42.00	INSIDE EDGE OF ROAD
50	1555659.59	55257.59	19.02	TOE OF SLOPE	102	1555742.46	54928.53	39.00	TOP OF SLOPE	154	1556038.55	54631.62	42.35	INSIDE EDGE OF ROAD
51	1555668.45	55288.54	21.84	APPROXIMATE LIMITS OF WASTE	103	1555804.54	54869.38	39.58	TOP OF SLOPE	155	1556078.13	54590.38	43.00	INSIDE EDGE OF ROAD
52	1555741.97	55219.45	22.50	APPROXIMATE LIMITS OF WASTE	104	1555852.57	54823.14	40.00	TOP OF SLOPE					

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**LEGEND**

	EXISTING TOPOGRAPHY
	PROPOSED GRADES
	PROPERTY LINE
	EXISTING LIMIT OF WASTE
	PROPOSED LIMIT OF CELL 2 WASTE
	APPROXIMATE LOCATION OF BURIED ANCHOR TRENCH OF PHASE II LANDFILL
	ACCESS ROAD
	GRADE BREAK
	NON-PERFORATED PIPE
	PERFORATED LEACHATE COLLECTION PIPE
	CLEANOUT RISER

- NOTES:**
- EXISTING GRADE IS BASED ON TOPOGRAPHIC MAP PREPARED BY MILLER CREEK AERIAL MAPPING, LLC, BURIEN, WASHINGTON. DATE OF FLIGHT: FEBRUARY 24, 2015. (CONTOURS ON TOP OF PHASE II ARE BASED ON AIR FRAME TOPOGRAPHIC MAP. DATE OF FLIGHT MAY 20 2017)
  - HORIZONTAL DATUM IS BASED ON NAD83 (1986), HAWAII ZONE 4. VERTICAL DATUM BASED ON LOCAL TIDAL AND SITE SURVEY BENCHMARKS (MSL)
  - GRADES SHOWN REPRESENT TOP OF FINAL 6 INCH FOUNDATION LAYER FOR GEOSYNTHETIC LINER CONSTRUCTION.
  - THE CLEANOUT PIPES ARE CONNECTED TO THE PERFORATED LEACHATE COLLECTION PIPES.
  - THE LEACHATE EXTRACTION RISER PIPES ARE THE 18 INCH SIDE SLOPE RISER PIPES FOR THE PUMPS. SEE DETAIL DRAWING NUMBERS C-14 AND C-15.

NO	REVISIONS	CHK	DATE

WENDY K. WRIGHT  
 LICENSED PROFESSIONAL ENGINEER  
 No. 16394-C  
 HAWAII, U.S.A.

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APP	NKW

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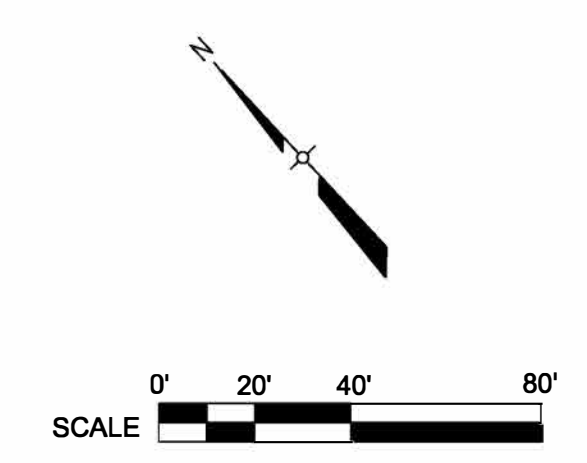
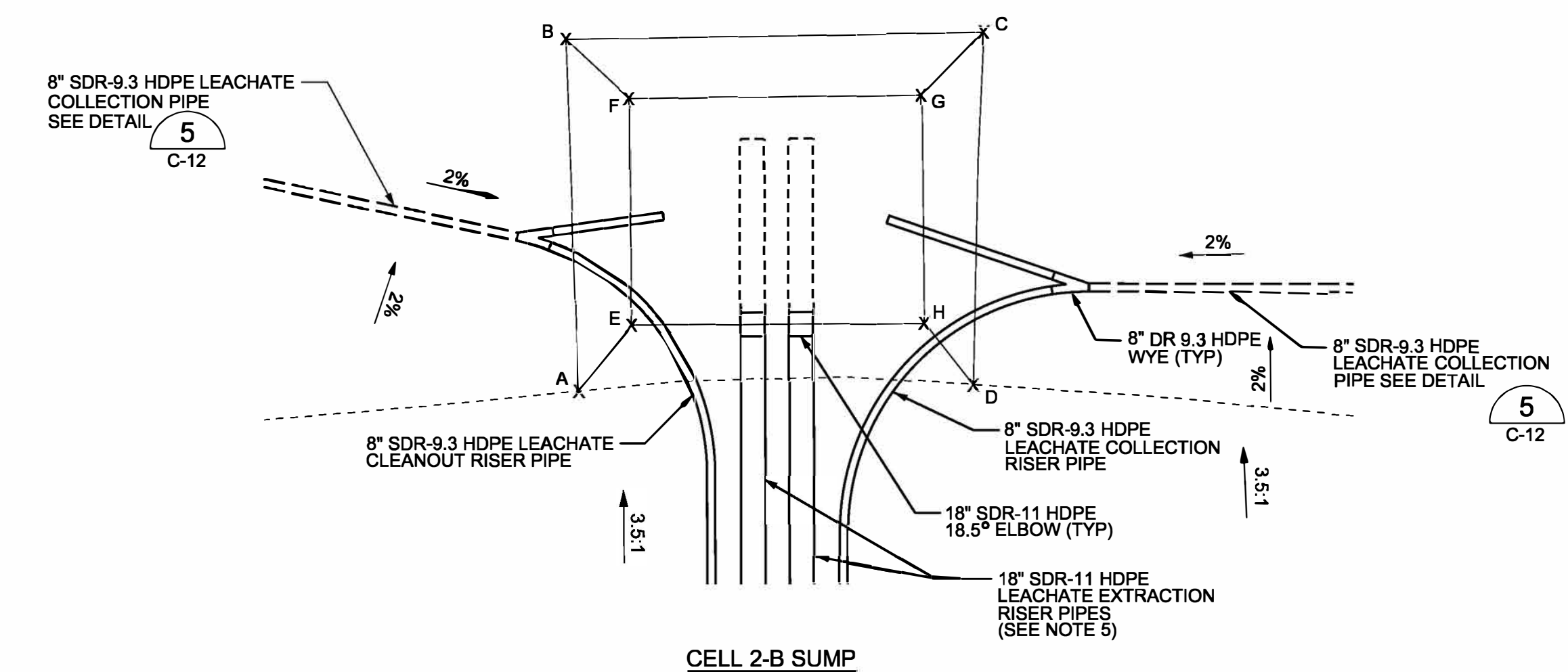
CELL 2 BASE LINER  
 CONSTRUCTION DRAWINGS  
 PHASE II LATERAL EXPANSION  
 KEKAHA SANITARY LANDFILL  
 KAUAI, HAWAII

**SUBCELL 2-B  
 LEACHATE MANAGEMENT SYSTEM**

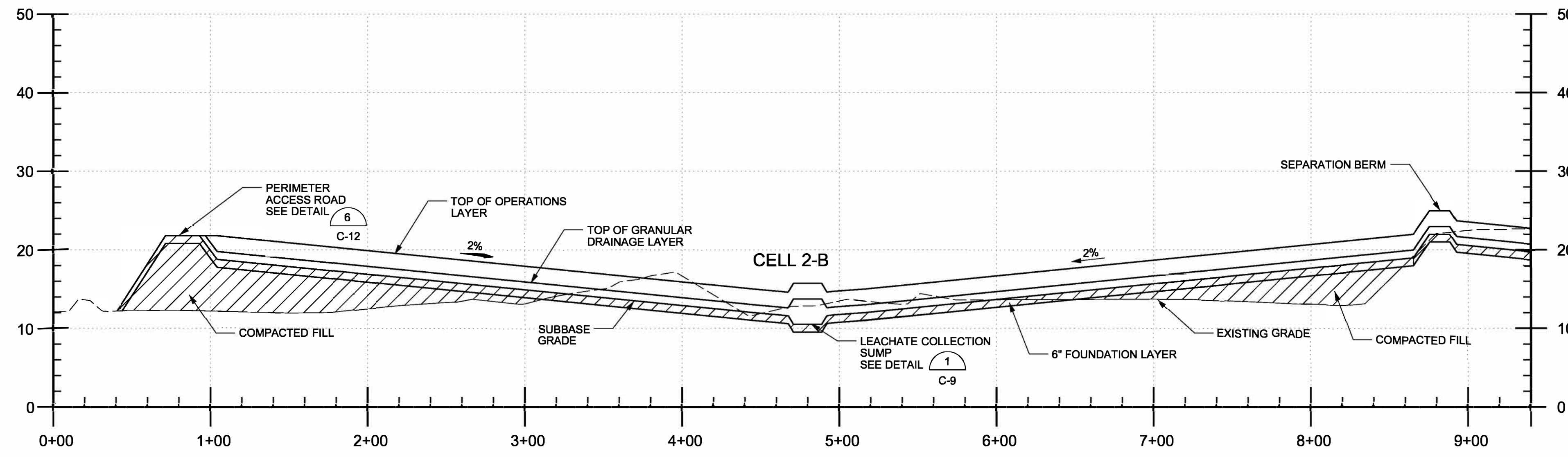
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PROJECT NO	6558519
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SHEET NO	
DRAWING NO	C-9

**CELL 2-B SUMP COLLECTION POINTS**

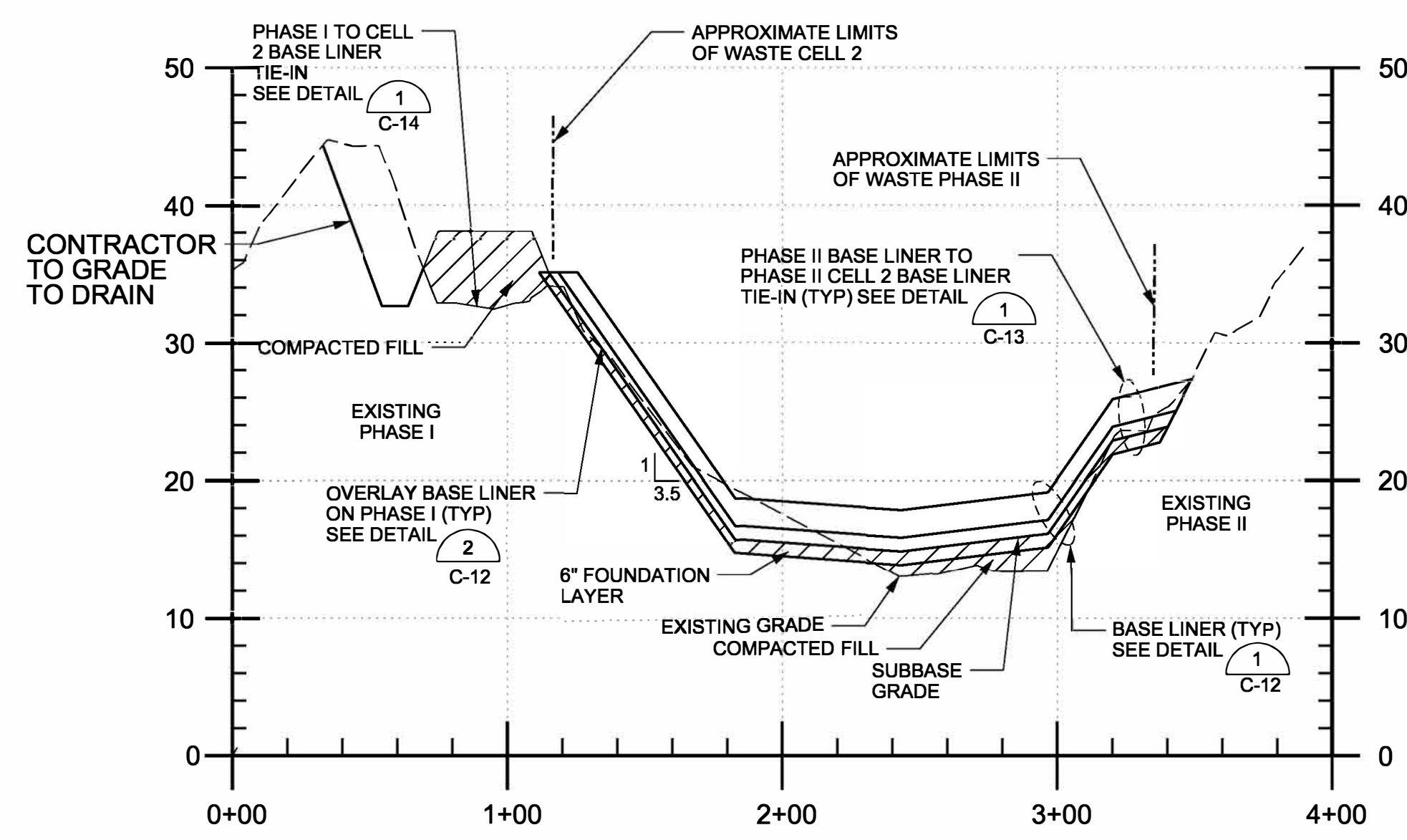
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B	1555872.77	54962.56	11.73
C	1555891.9	54945.35	11.79
D	1555876.59	54929.89	11.61
E	1555863.71	54946.89	10.50
F	1555873.15	54957.22	10.50
G	1555886.44	54945.09	10.50
H	1555877.00	54934.75	10.50



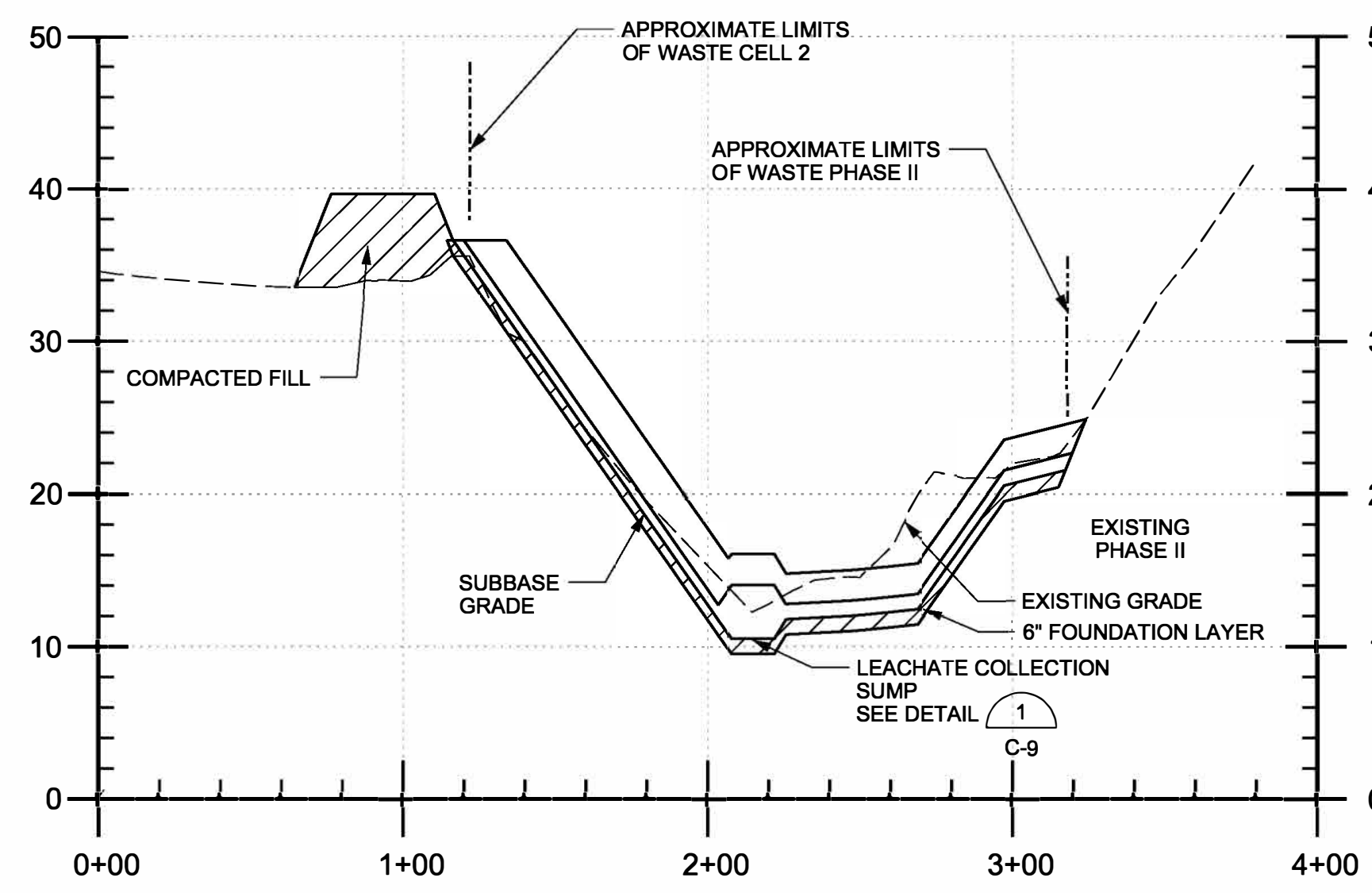
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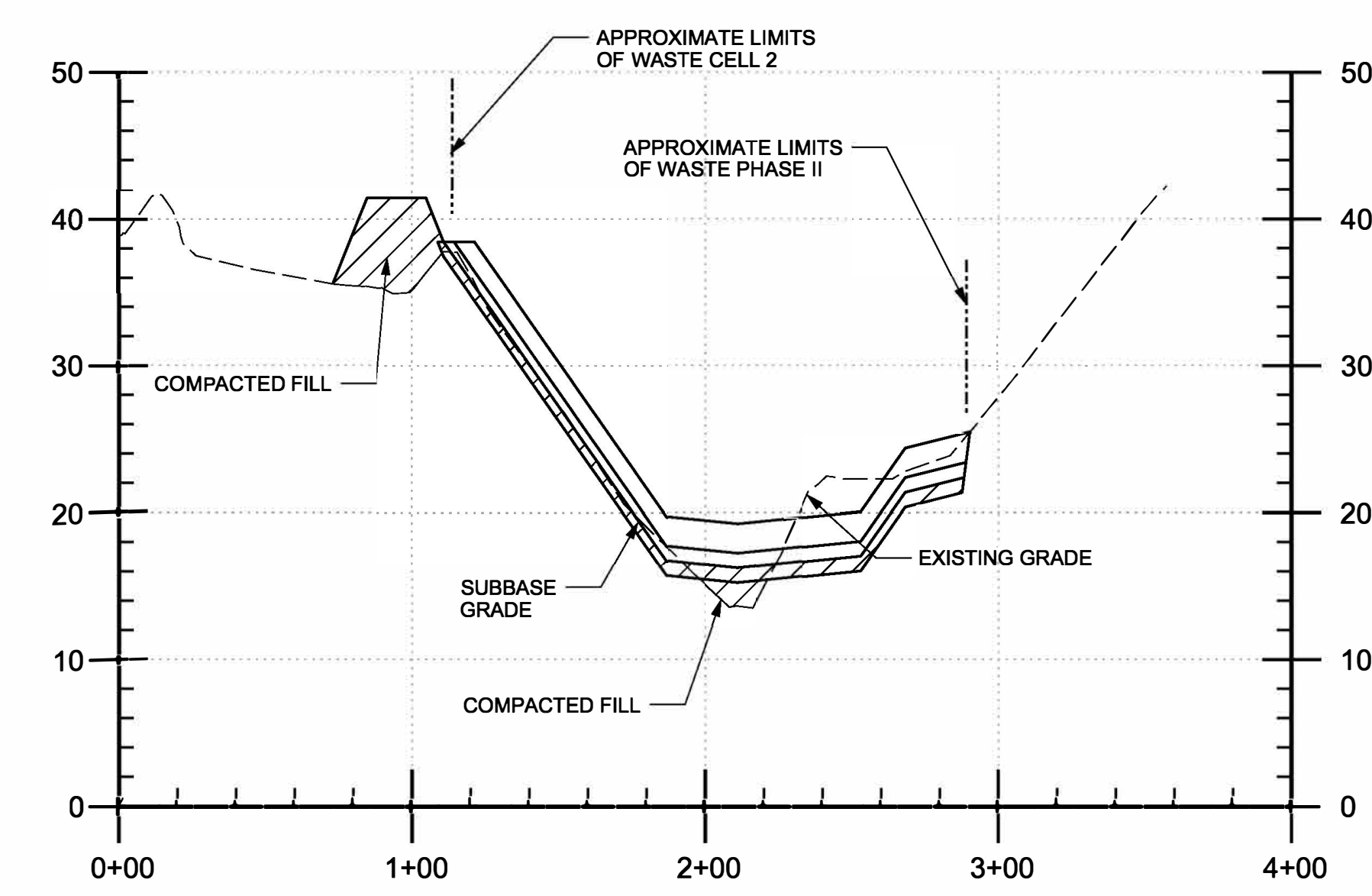
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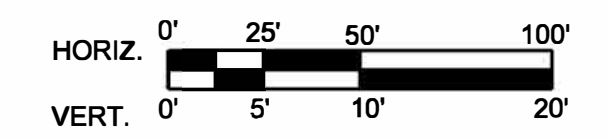
SECTION H-H



SECTION G-G



SECTION F-F



NO	REVISIONS	DRN	CHK	DATE



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APRIL 30, 2020  
EXPIRATION DATE OF THE LICENSE

DRN	CKF
DES	NKW
CHK	RB/MRH
APP	NKW

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**DRAFT**

CELL 2 BASE LINER  
CONSTRUCTION DRAWINGS  
PHASE II LATERAL EXPANSION  
KEKAHA SANITARY LANDFILL  
KAUAI, HAWAII  
SUBCELL 2-B  
CROSS SECTIONS

DATE OCTOBER 2018

PROJECT NO 6558519

FILENAME

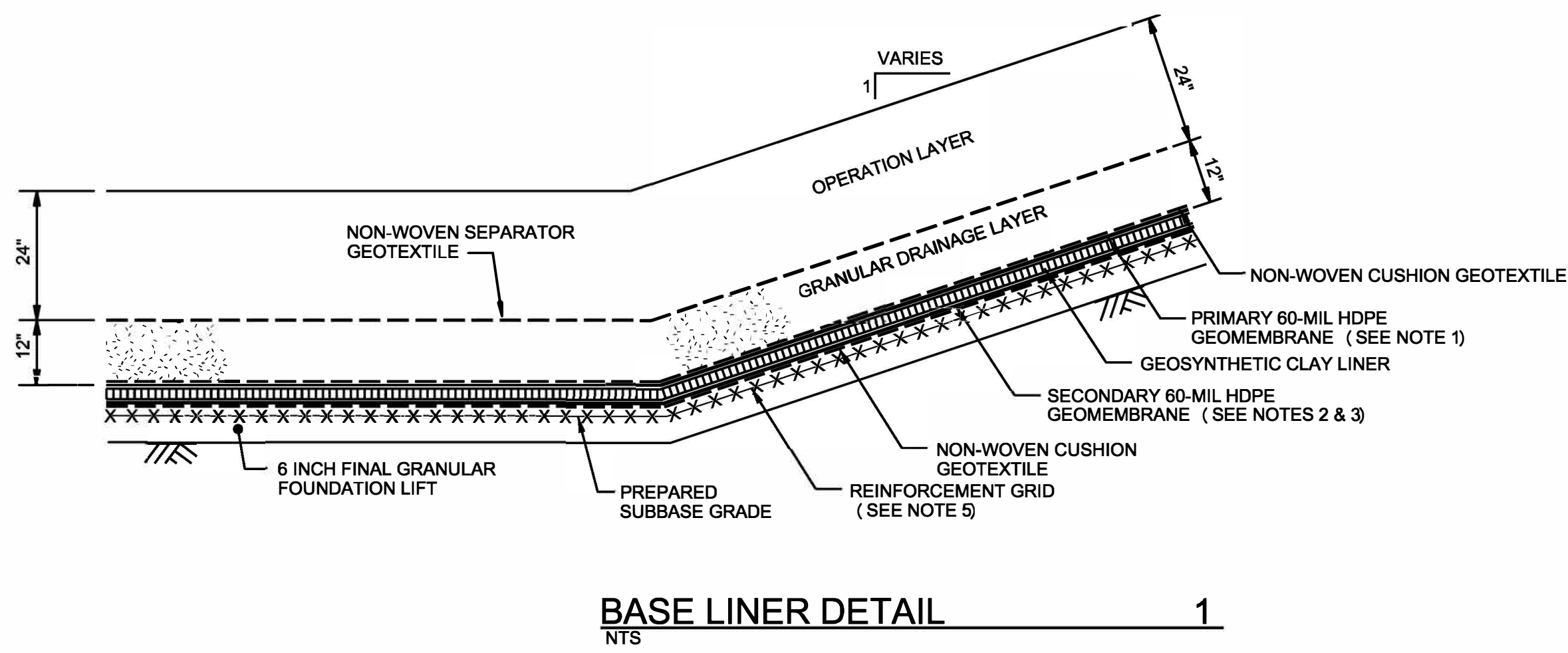
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C-10

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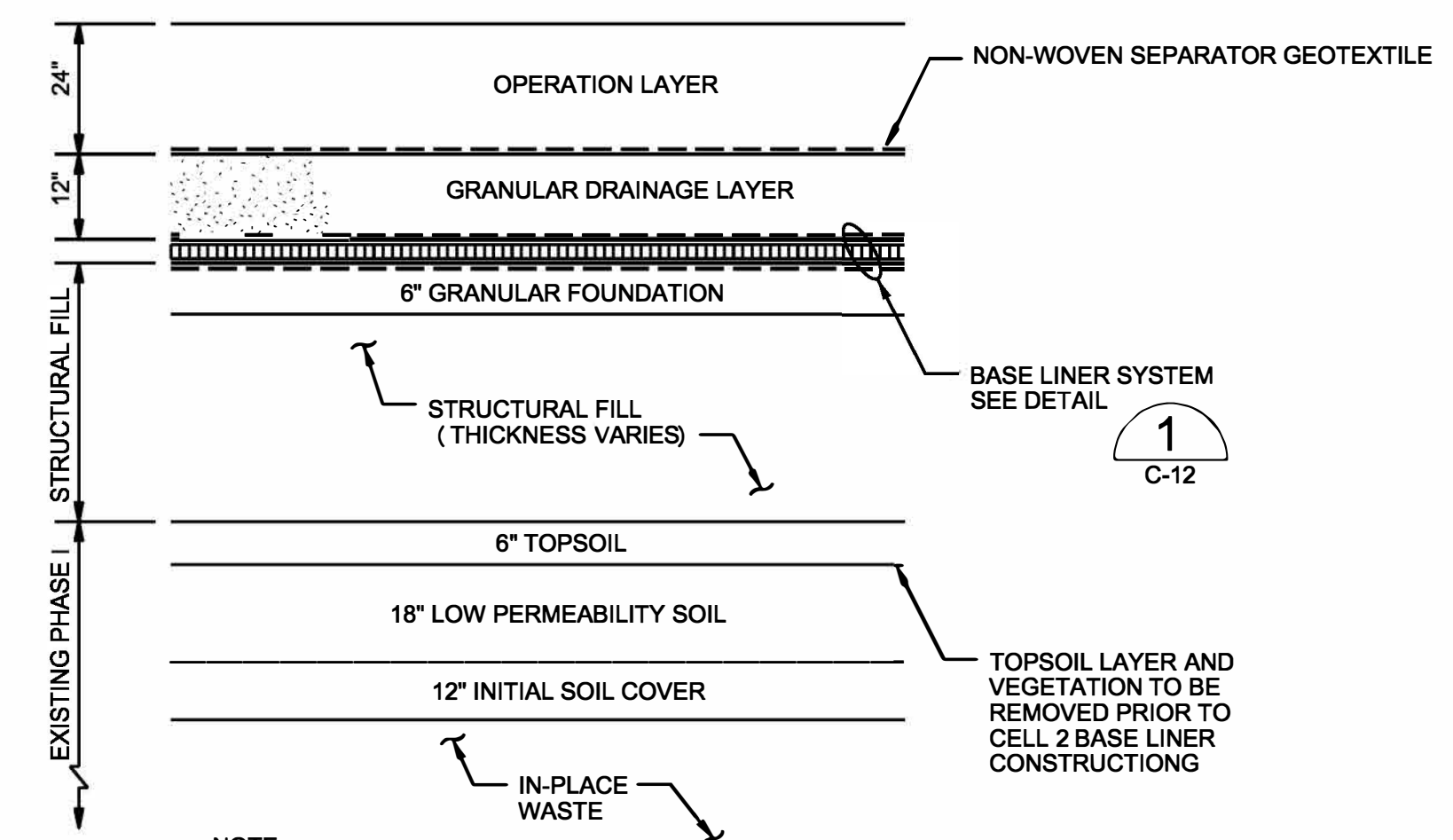




**BASE LINER DETAIL 1**  
NTS

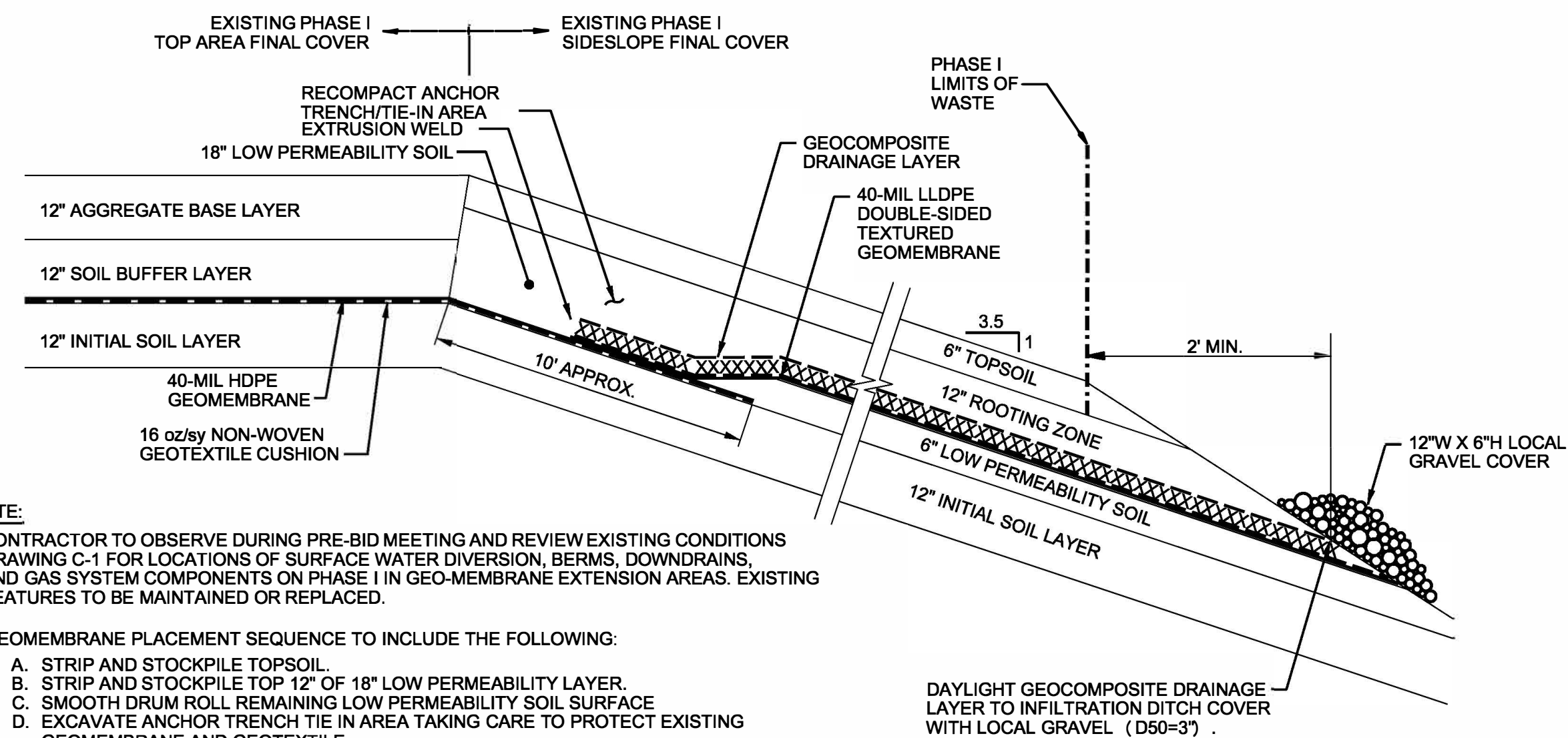
- NOTE:**
1. ALL CELL 2 PRIMARY 60-MIL HDPE GEOMEMBRANE DOUBLE-SIDED TEXTURED.
  2. SECONDARY 60-MIL HDPE GEOMEMBRANE OVER PHASE I SIDESLOPE IS SINGLE-SIDED TEXTURED. SMOOTH SIDE OF GEOMEMBRANE IS DOWN AND IN CONTACT WITH NON-WOVEN CUSHION GEOTEXTILE. EXTEND SECONDARY SINGLE-SIDED TEXTURED GEOMEMBRANE 5 FEET PAST TOE OF SLOPE WHERE EXTRUSION WELDED TO PRIMARY DOUBLE-SIDED TEXTURED GEOMEMBRANE.
  3. SECONDARY 60-MIL HDPE GEOMEMBRANE ON PHASE II SIDESLOPE AND CELL 2 BASE IS TEXTURED ON BOTH SIDES.
  4. PLACEMENT OF MATERIALS ON SIDESLOPES TO OCCUR FROM TOE OF SLOPE UP SIDESLOPE.
  5. REINFORCEMENT GRID TO BE INSTALLED ON PHASE I SIDESLOPES. SEE PLAN DRAWINGS C-4, C-5, AND C-8 FOR LOCATIONS.

- GENERAL NOTE:**
1. PURCHASE OF GEOSYNTHETIC PRODUCTS SHALL OCCUR AFTER SATISFACTORY INTERFACE FRICTION ANGLE TESTING AND OWNER APPROVAL. REFER TO PROJECT SPECIFICATIONS FOR TEST PARAMETERS.
  2. PLACEMENT OF GRANULAR DRAINAGE LAYER AND OPERATION LAYER TO BE COMPLETED BY LOW GROUND PRESSURE EQUIPMENT DEFINED IN PROJECT SPECIFICATIONS.
  3. ALL GEOTEXTILE SEAMS TO BE FIELD SEWN IN THEIR ENTIRETY.



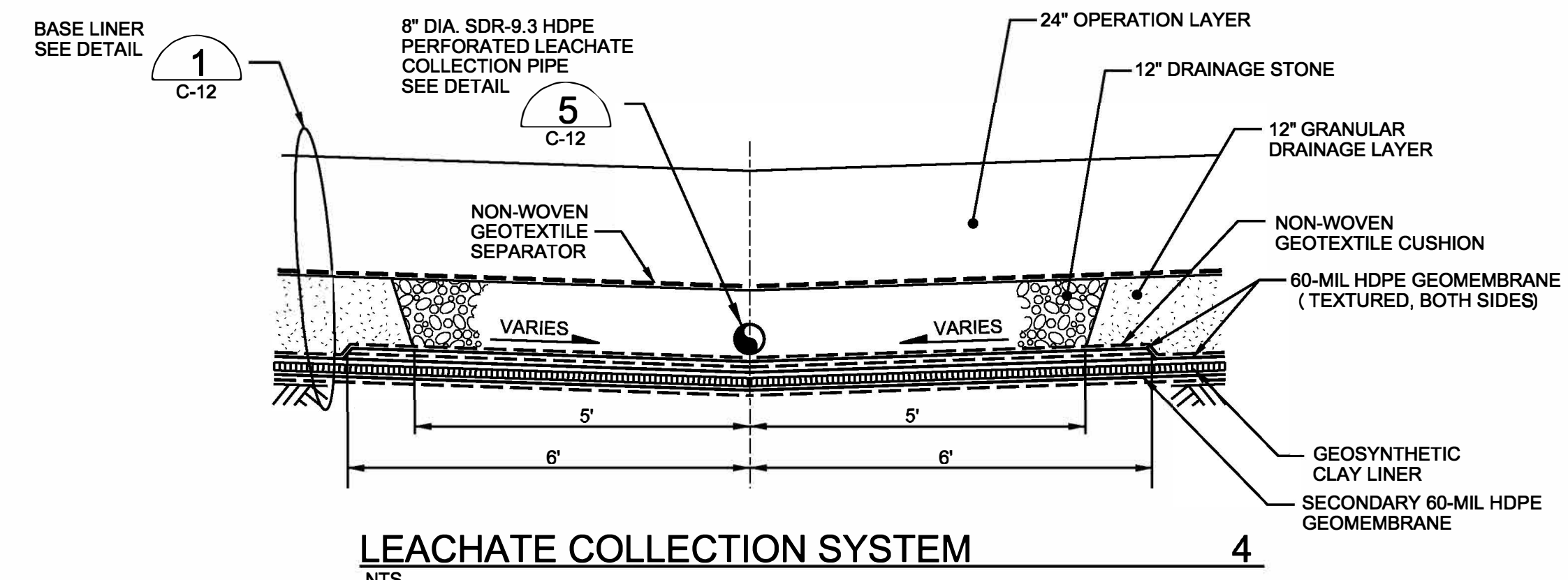
**OVERLAY BASE LINER DETAIL (ONTO PHASE I FINAL COVER) 2**  
NTS

- NOTE:**
1. EXISTING PHASE I SIDESLOPE FINAL COVER CONFIGURATION TAKEN FROM DRAWING C-10 "POST CONSTRUCTION REPORT, KEKAHA SANITARY LANDFILL, PHASE I CLOSURE, KEKAHA, KAUAI, HAWAII". DATED FEBRUARY 16, 1996 BY HARDING LAWSON ASSOCIATES.



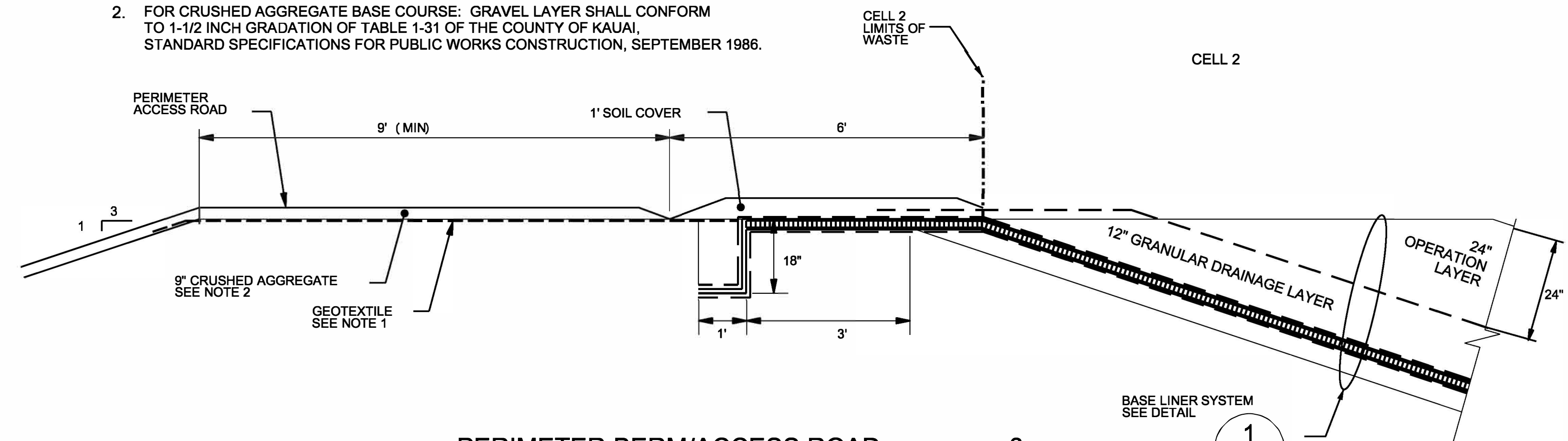
- NOTE:**
1. CONTRACTOR TO OBSERVE DURING PRE-BID MEETING AND REVIEW EXISTING CONDITIONS DRAWING C-1 FOR LOCATIONS OF SURFACE WATER DIVERSION, BERMS, DOWNDRAINS, AND GAS SYSTEM COMPONENTS ON PHASE I IN GEO-MEMBRANE EXTENSION AREAS. EXISTING FEATURES TO BE MAINTAINED OR REPLACED.
  2. GEOMEMBRANE PLACEMENT SEQUENCE TO INCLUDE THE FOLLOWING:
    - A. STRIP AND STOCKPILE TOPSOIL.
    - B. STRIP AND STOCKPILE TOP 12" OF 18" LOW PERMEABILITY LAYER.
    - C. SMOOTH DRUM ROLL REMAINING LOW PERMEABILITY SOIL SURFACE
    - D. EXCAVATE ANCHOR TRENCH TIE IN AREA TAKING CARE TO PROTECT EXISTING GEOMEMBRANE AND GEOTEXTILE.
    - E. REMOVE ROCKS AND OTHER DELETERIOUS MATERIAL LARGER THAN 1 INCH IN DIAMETER FROM EXISTING LOW PERMEABILITY SOIL SURFACE AND TOPSOIL.
    - F. PLACE GEOMEMBRANE AND WELD TO EXISTING GEOMEMBRANE.
    - G. PLACE NEW GEOCOMPOSITE DRAINAGE LAYER.
    - H. PLACE 12" ROOTING ZONE USING LOW GROUND PRESSURE EQUIPMENT.
    - I. REPLACE TOPSOIL USING LOW GROUND PRESSURE EQUIPMENT.
  3. WHEN DEPLOYING GEOCOMPOSITE DRAINAGE LAYER OVER TEXTURED GEOMEMBRANE, A RUBSHEET SHALL BE USED BETWEEN THE TWO MATERIALS AND REMOVED AFTER FINAL MATERIAL POSITIONING.
  4. LIMITS OF EXISTING GEOMEMBRANE TO BE FIELD LOCATED AND VERIFIED.
  5. PLACEMENT SEQUENCE, LIMITS, AND CONFIGURATION MAY BE MODIFIED AT TIME OF CONSTRUCTION BASED ON FIELD CONDITIONS AND ENGINEER'S APPROVAL.

**PHASE I GEOMEMBRANE EXTENSION OF EXISTING 3**  
NTS

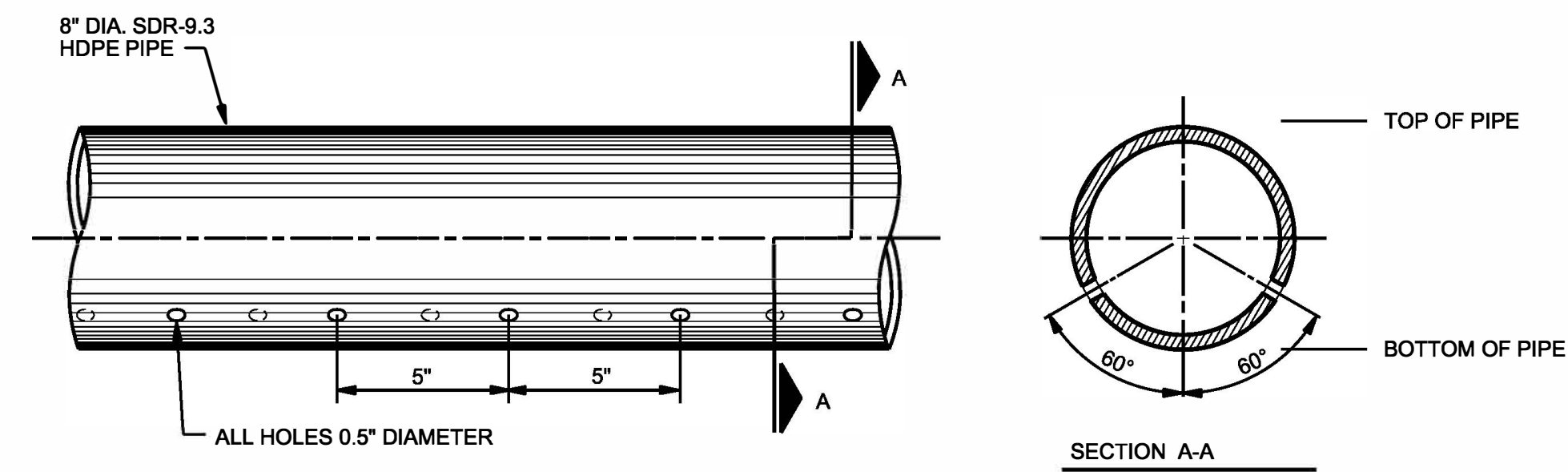


**LEACHATE COLLECTION SYSTEM 4**  
NTS

- NOTES:**
1. GEOTEXTILE ROAD SEPARATOR SHALL CONFORM TO STATE OF HAWAII DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005, TABLE 716.02-1.
  2. FOR CRUSHED AGGREGATE BASE COURSE: GRAVEL LAYER SHALL CONFORM TO 1-1/2 INCH GRADATION OF TABLE 1-31 OF THE COUNTY OF KAUAI, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986.



**PERIMETER BERM/ACCESS ROAD 6**  
NTS



- NOTE:**
1. ALL HOLES TO BE ALTERNATELY STAGGERED.

**PERFORATED LEACHATE COLLECTION PIPE 5**  
NTS

NO.	REVISIONS	CHK.	DATE



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APRIL 30, 2020  
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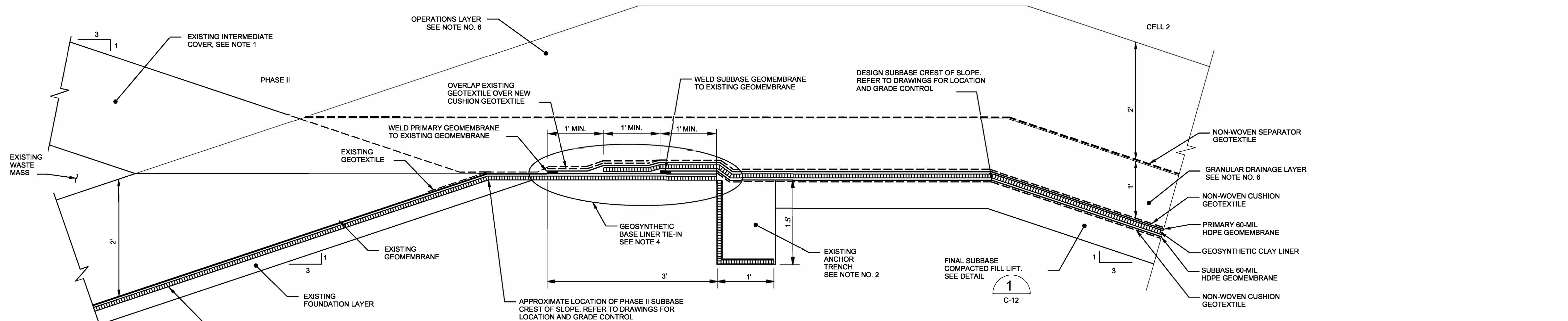
DRN	TPB
DES	NKW
CHK	MRH
APP	NKW

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PREPARED BY  
**DRAFT**  
CELL 2 BASE LINER CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII  
BASE LINER DETAILS

DATE	OCTOBER 2018
PROJECT NO	60558519
FILENAME	
SHEET NO	
DRAWING NO	C-12



**NOTES:**

1. CONTRACTOR TO EXPOSE EXISTING ANCHOR TRENCH, GEOSYNTHETIC BASE LINER AND DRAINAGE LAYER OF PHASE II. COORDINATE WITH OWNER ACCESS TO TIE-IN AREA TO AVOID CONFLICT WITH SITE OPERATION. EXPOSURE ACTIVITIES WILL INCLUDE AT A MINIMUM REMOVAL OF EXISTING INTERMEDIATE COVER, EXISTING SOILS OVERLYING THE ANCHOR TRENCH AND BERM. CARE IS TO BE TAKEN DURING REMOVAL OF SOILS DIRECTLY IN CONTACT WITH GEOSYNTHETICS. EXPOSURE ACTIVITIES TO BE CONSTANTLY MONITORED BY QUALITY ASSURANCE CONSULTANT AND DOCUMENTED. TO REPAIR ANY DAMAGE CAUSED FROM EXPOSING TIE-IN AREA WILL BE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR TO MAINTAIN SURFACE WATER CONTROL AND KEEP SURFACE WATER OUT OF TIE-IN AREA.
2. CUT GEOSYNTHETICS ENTERING ANCHORING TRENCH AT ANCHOR TRENCH EDGE. PROTECT EXPOSED EDGE FROM DRYING AND MOISTURE. REMOVE ALL REMAINING PORTIONS OF GEOSYNTHETICS FROM ANCHOR TRENCH. BACKFILL ANCHOR TRENCH WITH STRUCTURAL FILL AND COMPACT PER PROJECT SPECIFICATIONS.
3. EXISTING GEOSYNTHETIC CLAY LINER (GCL) OF PHASE II IS COMPRISED OF A BENTONITE LAYER WITH A GEOMEMBRANE CARRIER. THE GEOMEMBRANE IS IN DIRECT CONTACT WITH THE SUBBASE. CARE TO BE TAKEN NOT TO PULL GCL FROM OVERLYING GEOMEMBRANE DURING TIE-IN CONSTRUCTION.
4. CONSTRUCT GEOSYNTHETIC BASE LINER TIE-IN IN THE FOLLOWING ORDER:
  - A. INSTALL NEW SUBBASE GEOMEMBRANE AND WELD TO EXISTING GEOMEMBRANE WITH A MINIMUM 1-FOOT OVERLAP.
  - B. INSTALL NEW GEOSYNTHETIC CLAY LINER (GCL) ON TOP OF SUBBASE GEOMEMBRANE WITH MINIMUM 2-FOOT OVERLAP ONTO EXISTING GEOMEMBRANE.
  - C. INSTALL NEW PRIMARY GEOMEMBRANE OVER NEW GCL AND WELD TO EXISTING GEOMEMBRANE MINIMUM 1-FOOT PAST NEW GCL OVERLAP.
5. WHEN DEPLOYING GCL OR GEOTEXTILES OVER TEXTURED GEOMEMBRANE OR WHEN DEPLOYING TEXTURED GEOMEMBRANE OVER GCL OR GEOTEXTILES, A RUBSHEET SHALL BE USED BETWEEN THE TWO MATERIALS AND REMOVED AFTER FINAL MATERIAL POSITIONING.
6. INSTALL GRANULAR DRAINAGE LAYER AND OPERATIONS LAYER OVER TIE-IN AREA TO EXTENT POSSIBLE PRIOR TO PLACEMENT OF MATERIALS ON SIDESLOPES. PLACEMENT OF MATERIALS ON SIDESLOPES TO OCCUR FROM TOE OF SLOPE UP SIDESLOPE.
7. ALL NEW GEOMEMBRANE IS TEXTURED ON BOTH SIDES.
- D. INSTALL NEW NON-WOVEN CUSHION GEOTEXTILE OVER PRIMARY GEOMEMBRANE. OVERLAP EXISTING GEOTEXTILE ON NEW NON-WOVEN GEOTEXTILE A MINIMUM OF 2 FEET AND HEAT BURNISH FIELD OVERLAP SEAM. REPAIR THINNED OR TORN PORTIONS OF THE EXISTING GEOTEXTILE WITH NEW NON-WOVEN GEOTEXTILE AS NEEDED.
- E. INSTALL GRANULAR DRAINAGE LAYER.
- F. INSTALL NEW NON-WOVEN SEPARATOR GEOTEXTILE.
- G. INSTALL OPERATIONS LAYER.

**PHASE II TO CELL 2 BASE LINER TIE-IN DETAIL** 1

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DES	NKW
CHK	MRH
APP	NKW

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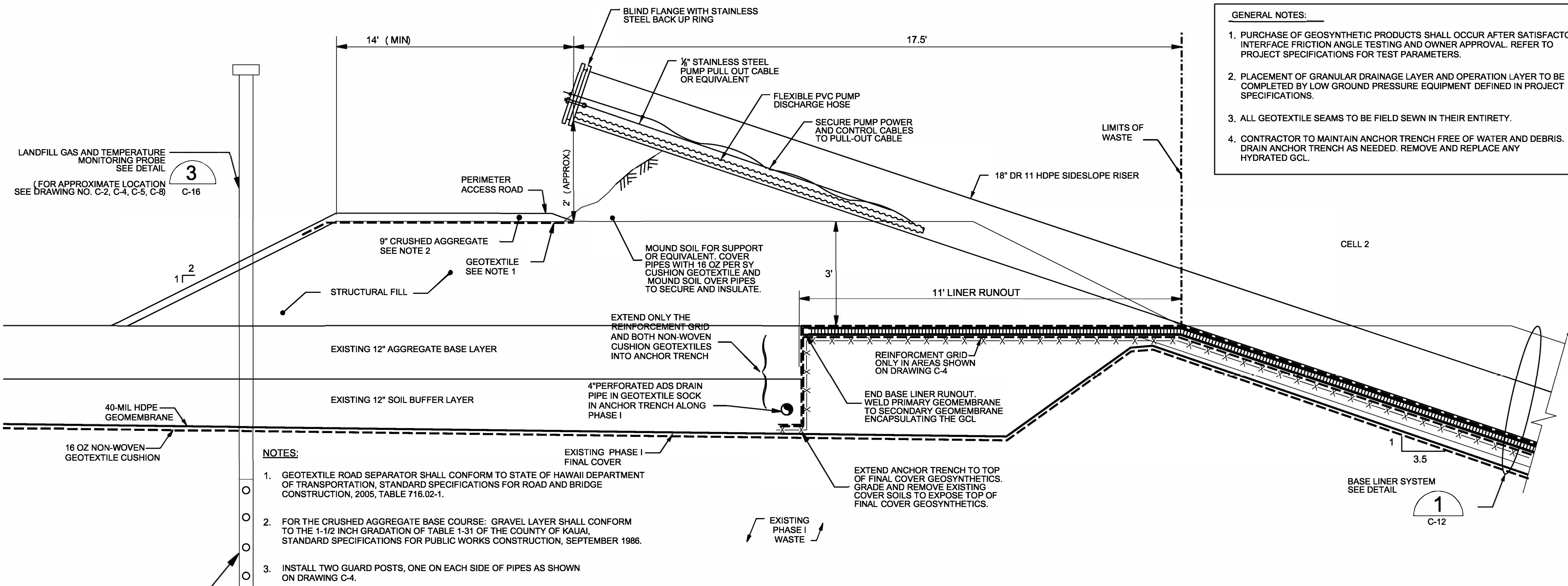
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CELL 2 BASE LINER CONSTRUCTION DRAWINGS  
 PHASE II LATERAL EXPANSION  
 KEKAHA SANITARY LANDFILL  
 KAUAI, HAWAII

DRAFT

BASE LINER DETAILS

DATE	OCTOBER 2018
PROJECT NO	60558519
FILENAME	
SHEET NO	
DRAWING NO	C-13



**GENERAL NOTES:**

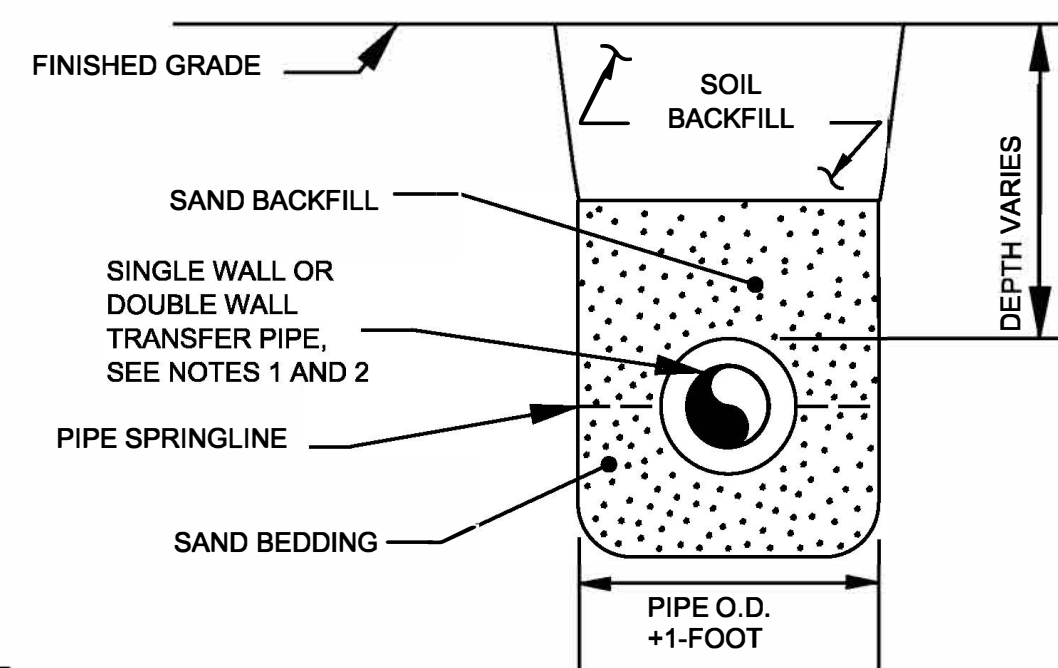
1. PURCHASE OF GEOSYNTHETIC PRODUCTS SHALL OCCUR AFTER SATISFACTORY INTERFACE FRICTION ANGLE TESTING AND OWNER APPROVAL. REFER TO PROJECT SPECIFICATIONS FOR TEST PARAMETERS.
2. PLACEMENT OF GRANULAR DRAINAGE LAYER AND OPERATION LAYER TO BE COMPLETED BY LOW GROUND PRESSURE EQUIPMENT DEFINED IN PROJECT SPECIFICATIONS.
3. ALL GEOTEXTILE SEAMS TO BE FIELD SEWN IN THEIR ENTIRETY.
4. CONTRACTOR TO MAINTAIN ANCHOR TRENCH FREE OF WATER AND DEBRIS. DRAIN ANCHOR TRENCH AS NEEDED. REMOVE AND REPLACE ANY HYDRATED GCL.

**NOTES:**

1. GEOTEXTILE ROAD SEPARATOR SHALL CONFORM TO STATE OF HAWAII DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005, TABLE 716.02-1.
2. FOR THE CRUSHED AGGREGATE BASE COURSE: GRAVEL LAYER SHALL CONFORM TO THE 1-1/2 INCH GRADATION OF TABLE 1-31 OF THE COUNTY OF KAUAI, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1988.
3. INSTALL TWO GUARD POSTS, ONE ON EACH SIDE OF PIPES AS SHOWN ON DRAWING C-4.

**OVERLAY BASE LINER TERMINATION ON PHASE I ( THROUGH EXTRACTION RISER)** 1

NTS

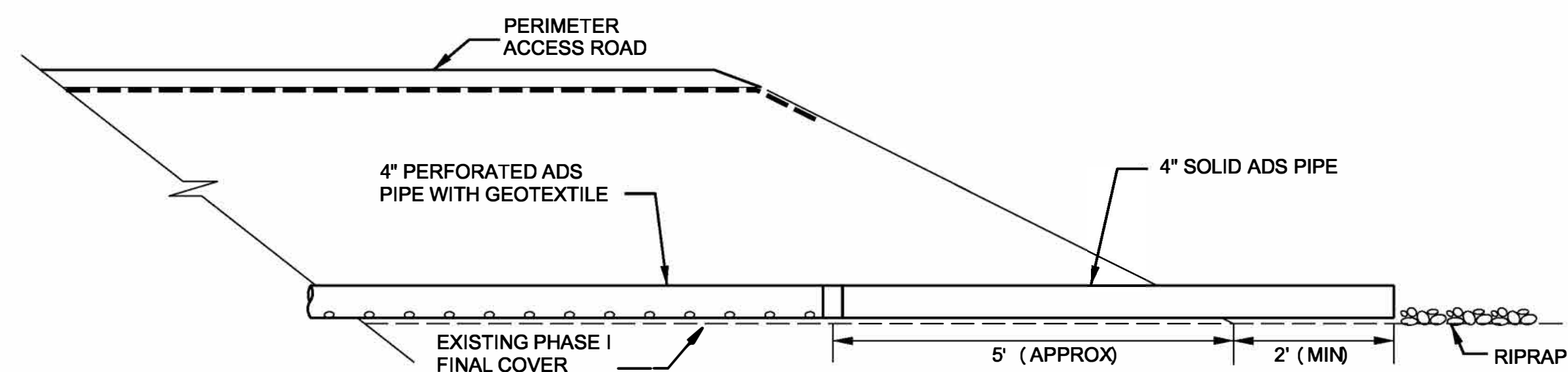


**NOTE:**

1. TRANSFER PIPE TO BE DOUBLE-WALL PIPE OUTSIDE PHASE I LIMITS OF WASTE. 6\"/>
2. TRANSFER PIPE TO BE SINGLE WALL PIPE WITHIN PHASE I LIMITS OF WASTE. PIPE SIZES SHOWN ON DRAWING C-11, LEACHATE TRANSFER PIPING PLAN AND PROFILE.

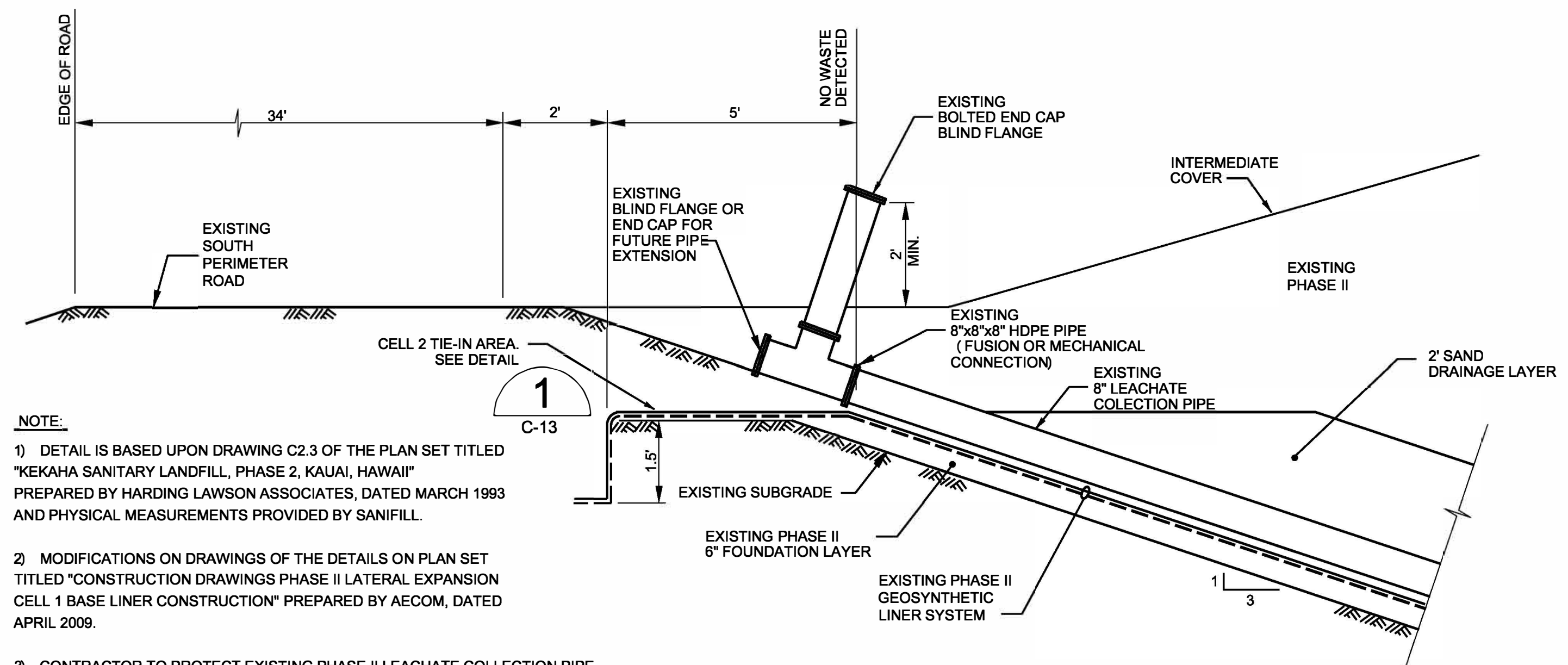
**FORCEMAIN LEACHATE TRANSFER PIPE (TYP)** 2

NTS



**ANCHOR TRENCH DRAIN PIPE OUTLET** 3

NTS



**NOTE:**

1. DETAIL IS BASED UPON DRAWING C2.3 OF THE PLAN SET TITLED "KEKAHA SANITARY LANDFILL, PHASE 2, KAUAI, HAWAII" PREPARED BY HARDING LAWSON ASSOCIATES, DATED MARCH 1993 AND PHYSICAL MEASUREMENTS PROVIDED BY SANIFILL.
2. MODIFICATIONS ON DRAWINGS OF THE DETAILS ON PLAN SET TITLED "CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION CELL 1 BASE LINER CONSTRUCTION" PREPARED BY AECOM, DATED APRIL 2009.
3. CONTRACTOR TO PROTECT EXISTING PHASE II LEACHATE COLLECTION PIPE CLEANOUTS. OPERATOR TO EXTEND PIPE WHEN WASTE FILLING IN CELL 2.

**EXISTING PHASE II LEACHATE COLLECTION PIPE CLEANOUT** 4

NTS

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APRIL 30, 2020  
EXPIRATION DATE OF THE LICENSE

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DES	NKW
CHK	MRH
APP	NKW

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**AECOM**

CELL 2 BASE LINER CONSTRUCTION DRAWINGS PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII

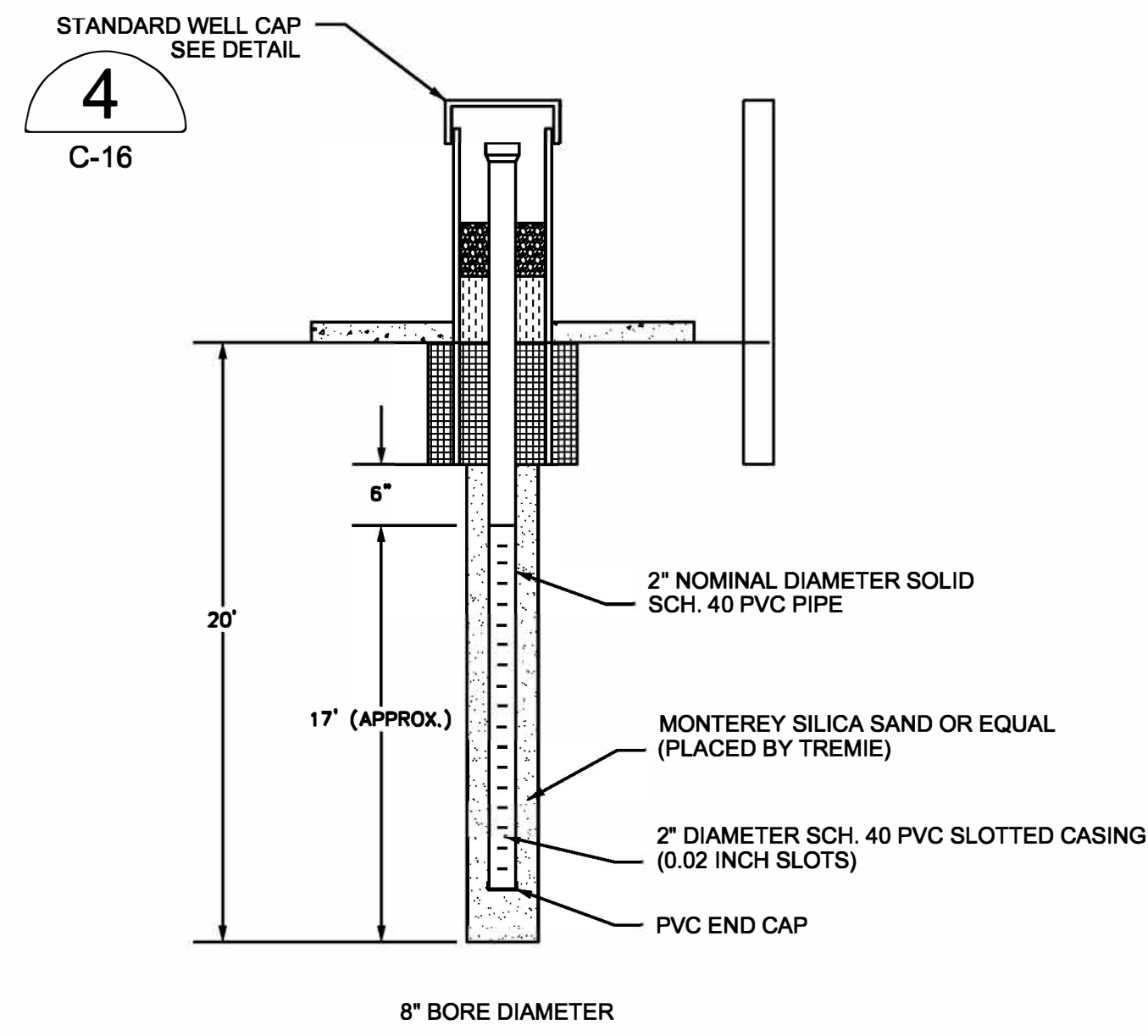
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LEACHATE COLLECTION DETAILS

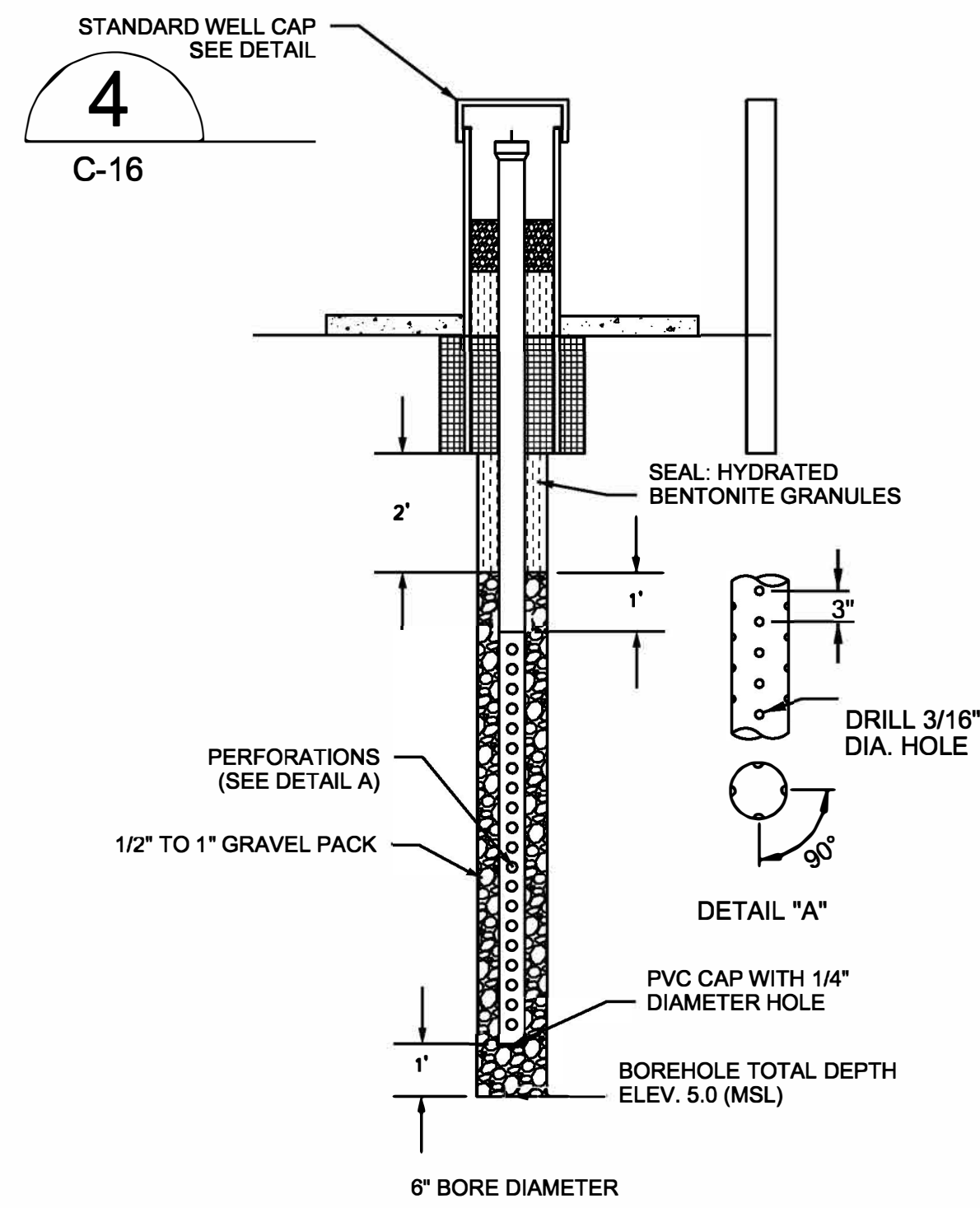
DATE	OCTOBER 2018
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FILENAME	
SHEET NO	
DRAWING NO	C-14

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P:WAL:R  
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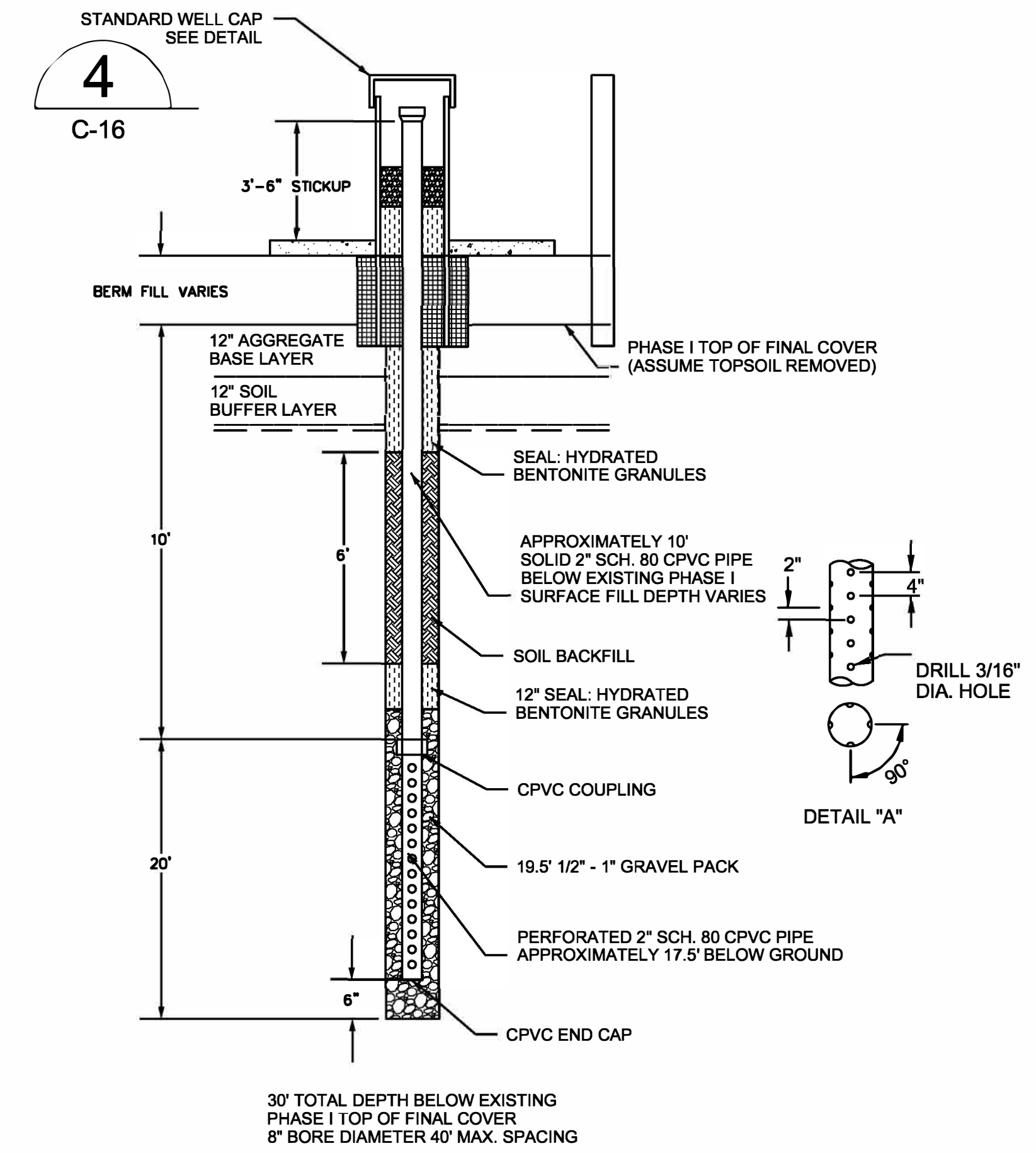




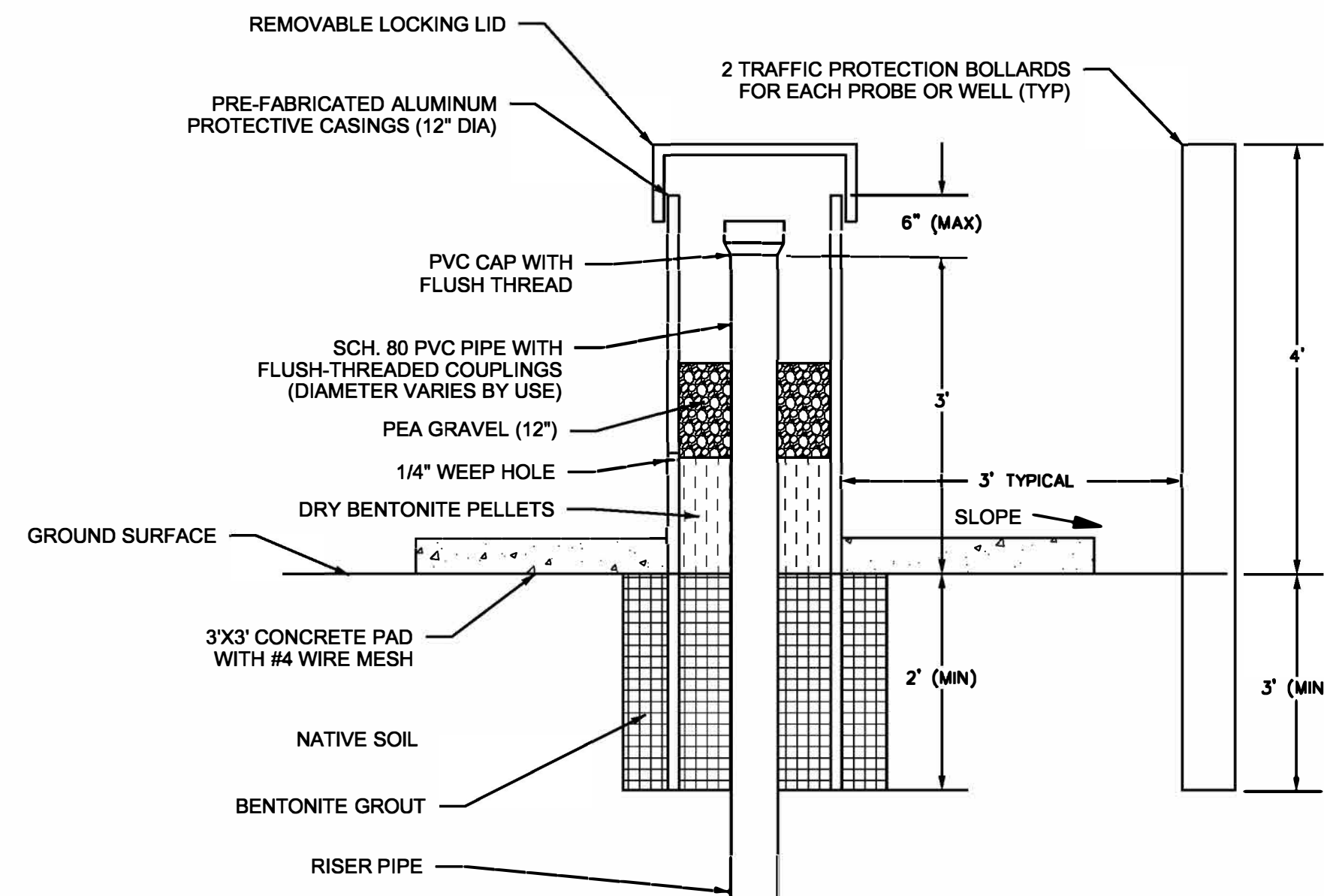
**TYPICAL GROUNDWATER MONITORING WELL** 1  
NTS



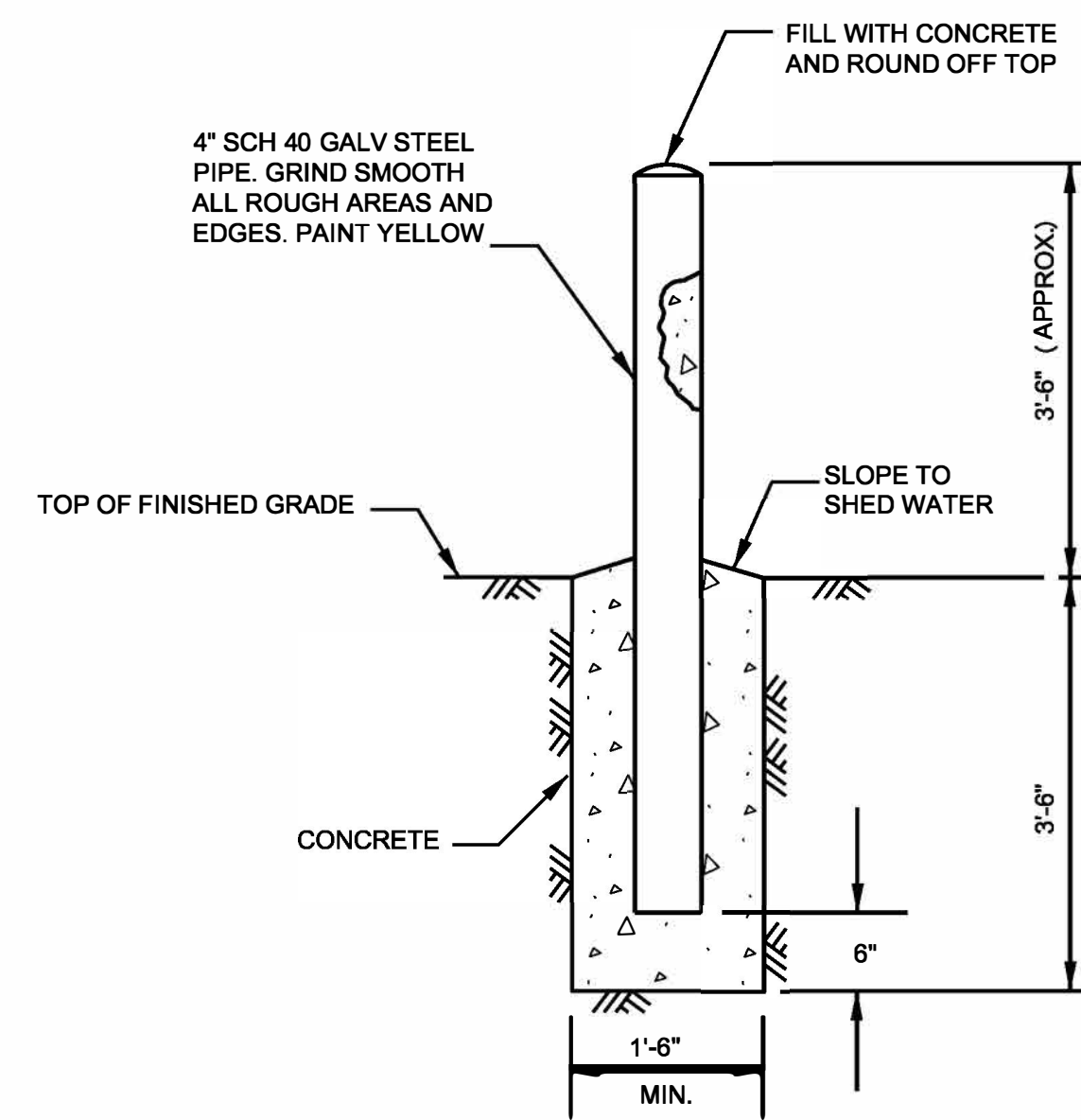
**GAS MONITORING PROBE** 2  
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**LANDFILL GAS AND TEMPERATURE PROBE** 3  
NTS



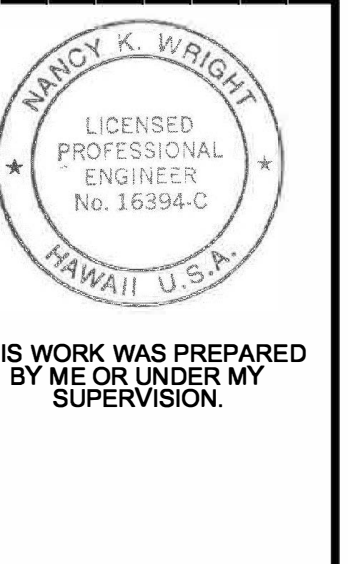
**STANDARD PROBE/WELL CAP DETAIL** 4  
NTS



**GUARD POST DETAIL** 5  
NTS

- NOTES:**
- FOLLOWING DRILLING ACTIVITIES CONTRACTOR SHALL PREPARE BOREHOLE LOGS AND WELL CONSTRUCTION INFORMATION FOR EACH GROUNDWATER MONITORING WELL AND GAS PROBE. A LETTER REPORT SHALL BE PREPARED TO DOCUMENT INSTALLATION ACTIVITIES AND SHALL INCLUDE PHOTO LOGS, BOREHOLE LOGS, AND CONSTRUCTION LOGS.
  - INSTALL BOLLARDS, IF REQUIRED BY QAC, PER DETAIL 4.

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CELL 2 BASE LINER  
CONSTRUCTION DRAWINGS  
PHASE II LATERAL EXPANSION  
KEKAHA SANITARY LANDFILL  
KAUAI, HAWAII

**DRAFT**

**DETAILS**

DATE	OCTOBER 2018
PROJECT NO	60558519
FILENAME	
SHEET NO	
DRAWING NO	C-16