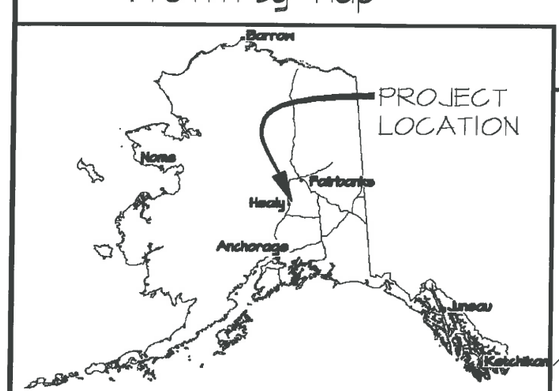
STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS AND OUTDOOR RECREATION

HYDRAULIC PIT RECLAMATION

PROJECT NO. 13948-3

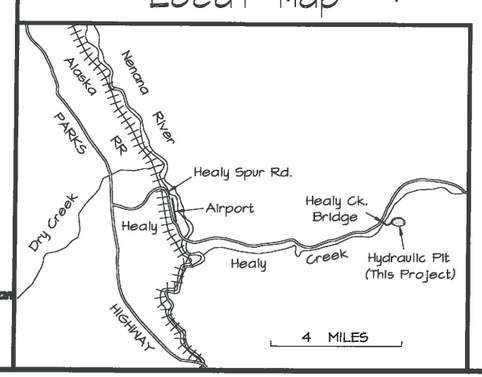
IN COOPERATION WITH THE AK DNR DIVISION OF ML&W

Vicinity Map



Sec. 21, T12S, R6W, Fbx. Meridian

Local Map



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17. DETENTION POND
18. FINAL STABILIZATION

The following D.O.T. (Highways) standard drawings apply to this project: None

STATE OF ALASKA
Department of Natural Resources
Division of Mining, Land, & Water

Recommended:

Scott Pexton — 8-11-14
Scott Pexton, Chief, Mining Section — Date

Approved:

8 AUG 2014
Brent Goodrum, Director, Division Mining, Land, & Water — Date

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
201 (3A)	CLEARING & GRUBBING	ACRE	13.2
203 (3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	764,554
605 (10)	UNDERDRAIN -- 6 INCH N12 PERFORATED HDPE PIPE	LINEAR FOOT	681
605 (11)	UNDERDRAIN -- 8 INCH SDR-9 SPECIALLY PERFORATED HDPE PIPE	LINEAR FOOT	412
610 (1)	DITCH LINING	CUBIC YARD	1,120
618 (1)	SEEDING	ACRE	36.26
619 (1)	MULCHING--FGM	SQUARE YARD	175,605
619 (3)	SOIL STABILIZATION MATERIAL	SQUARE YARD	175,605
620 (1)	TOPSOIL	SQUARE YARD	175,605
640 (1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQ'D
641 (1)	EROSION, SEDIMENT, AND POLLUTION CONTROL ADMINISTRATION	LUMP SUM	ALL REQ'D
641 (2)	TEMPORARY EROSION, SEDIMENT, AND POLLUTION CONTROL	LUMP SUM	ALL REQ'D
641 (6)	SWPPP PRICE ADJUSTMENT	C.S.	ALL REQ'D
642 (1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQ'D
646 (1)	CPM SCHEDULING	LUMP SUM	ALL REQ'D
647 (2)	WIDE PAD DOZER, 65 HP MINIMUM	HOUR	10
647 (6)	HYDRAULIC EXCAVATOR, 1 CY, 100 HP, MINIMUM	HOUR	5

SUBSIDIARY MATERIAL QUANTITIES

605 (5)	POROUS BACKFILL MATERIAL	CUBIC YARD	500
605 (10,11)	EXCAVATION FOR UNDERDRAINS	CUBIC YARD	66
611 (2)	RIPRAP, CLASS 1	TON	1,850
630 (1)	GEOTEXTILE FOR EMBANKMENT SEPARATION AND STABILIZATION	SQUARE YARD	300
630 (3)	EPDM POND LINER	SQUARE YARD	300
631 (1A)	GEOTEXTILE FOR SUBSURFACE DRAINAGE	SQUARE YARD	4,400
650 (5)	DETENTION POND EXCAVATION	CUBIC YARD	2,971

STATE OF ALASKA 49TH
Jacob S. Gondek
CE - 12818
8/12/14
Registered Professional Engineer

REQUIRED PIPE & FITTINGS

PIPE TYPE	FITTING	QUANTITY
HDPE 6"X20' PERF	LENGTHS	1,220 FEET
HDPE 6"X20' PERF	END CAPS	8
HDPE 6"X20' PERF	IN-LINE COUPLINGS	46
HDPE 6"X20' PERF	11.25° ANGLE	15
HDPE 6"X20' PERF	22.5° ANGLE	2
N12 6" / 8" REDUCERS	ADAPTER COUPLINGS	5
8" FERNCO COUPLINGS	ADAPTER COUPLINGS	5
8" SDR 9 PERF	LENGTHS	930 FEET
8" SDR 9 PERF	END CAPS	3
8" SDR 9 PERF	IN-LINE JOINS	37
8" SDR 9 PERF	11.25° ANGLE	3
8" SDR 9 PERF	22.5° ANGLE	5
8" SDR 9 PERF	30° ANGLE	10

KEY -- LINETYPES AND ABBREVIATIONS

COMMONLY USED LINETYPES

EXISTING TOPOGRAPHY
DESIGN CUT
DESIGN FILL
ROAD
TRAIL
EXISTING STREAM
DESIGN CHANNEL
VEGETATION EDGE
DISTURBANCE LIMITS
PROJECT LIMITS
GRAVEL/SS CONTACT
BRUSH CLEARING LIMITS
STAGING AREA

OTHER LINETYPES AND HATCH PATTERNS WITH SPECIFIC APPLICATIONS ARE LABELED IN THE DRAWINGS.

COMMONLY USED ABBREVIATIONS AND TERMS

O.G. -- ORIGINAL GROUND, EXISTING TOPOGRAPHY
F.G. -- FINAL GRADE
TYP. -- TYPICAL
FT. -- FEET
CL -- CENTERLINE
PT. -- POINT
DP16 -- DETENTION POND CONTROL POINT #16 (TYP.)

COMMONLY USED ABBREVIATIONS AND TERMS

GPS -- GLOBAL POSITIONING SYSTEM
N, S, E, W -- NORTH, SOUTH, EAST WEST
NAD83 -- NORTH AMERICAN DATUM, 1983
S.P. -- STATE PLANE COORDINATE SYSTEM
Φ -- DIAMETER
Q -- FLOW RATE, EXPRESSED IN VOLUME PER UNIT TIME
GPM -- GALLONS PER MINUTE
CFS -- CUBIC FEET PER SECOND
L.S. -- LUMP SUM
SQ. FT. -- SQUARE FEET
SQ. YD. -- SQUARE YARDS
CU. YD. -- CUBIC YARDS
BMP -- BEST MANAGEMENT PRACTICES
BFM -- BONDED FIBER MATRIX
FGM -- FLEXIBLE GROWTH MEDIA
ECB -- EROSION CONTROL BLANKET
TRM -- TURF REINFORCEMENT MATTE
PERF -- PERFORATED
HDPE -- HIGH DENSITY POLYETHYLENE
SDR -- STANDARD DIMENSIONLESS RATIO, OF A PIPE'S OUTER DIAMETER TO ITS WALL THICKNESS
N12 -- DOUBLE-WALL CORRUGATED PERF HDPE PIPE DESIGNATION
HDPE -- HIGH DENSITY POLYETHYLENE
L1, R2 -- DESIGN CHANNEL DESIGNATORS; LEFT OR RIGHT TRIBUTARIES TO THE MAIN CHANNEL NUMBERED IN SEQUENCE FROM HEAD TO MOUTH.
2:1, 4:1 -- SLOPE RATIOS, IN HORIZONTAL TO VERTICAL UNITS

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

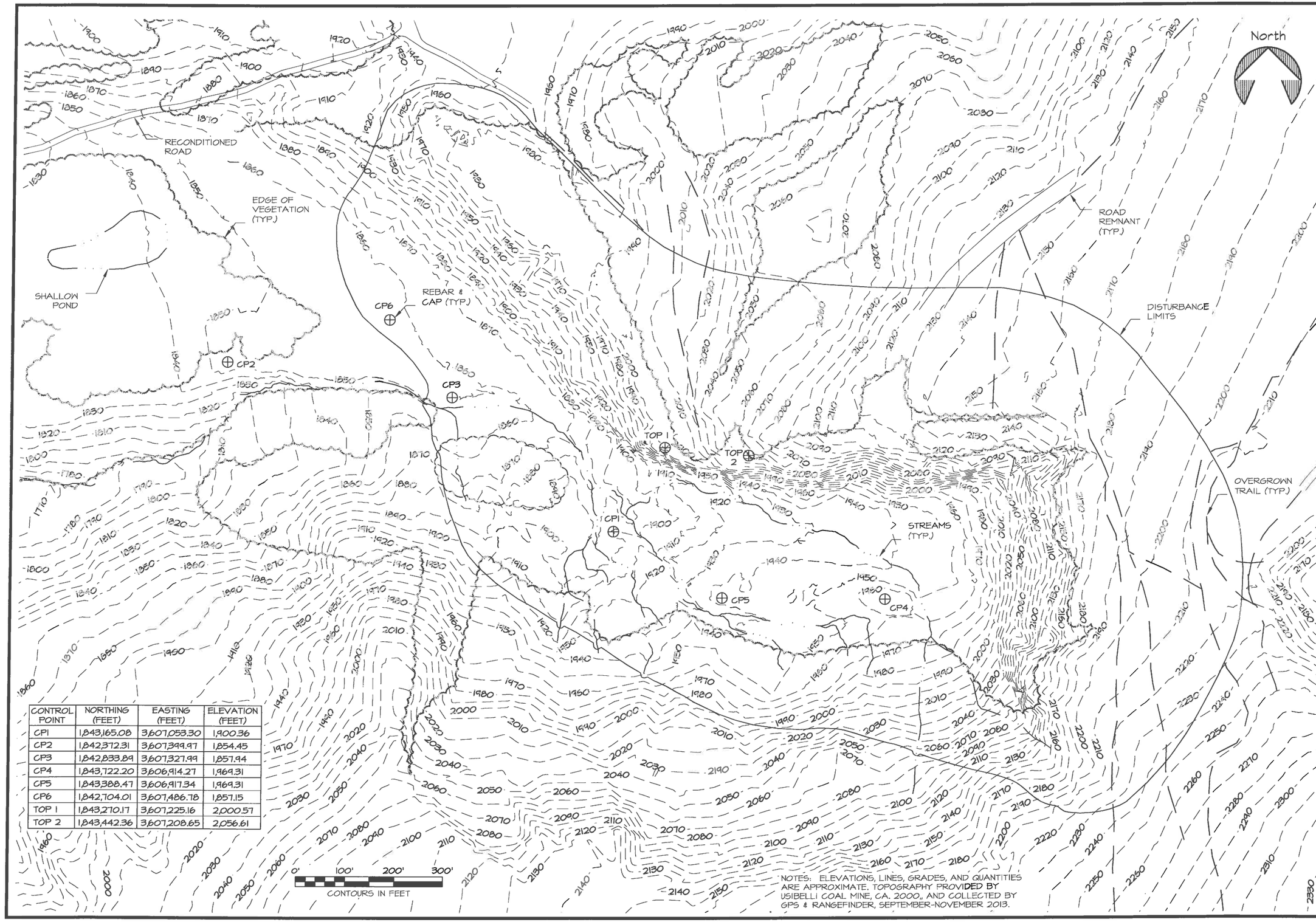
ESTIMATE OF QUANTITIES & LEGEND

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/08/2014

SHEET 02 OF 18 SHEETS



CONTROL POINT	NORTHING (FEET)	EASTING (FEET)	ELEVATION (FEET)
CP1	1,843,165.08	3,607,053.30	1,900.36
CP2	1,842,372.31	3,607,399.97	1,854.45
CP3	1,842,833.89	3,607,327.99	1,857.94
CP4	1,843,722.20	3,606,914.27	1,969.31
CP5	1,843,388.47	3,606,917.34	1,969.31
CP6	1,842,704.01	3,607,486.78	1,857.15
TOP 1	1,843,270.17	3,607,225.16	2,000.57
TOP 2	1,843,442.36	3,607,208.65	2,056.61

NOTES: ELEVATIONS, LINES, GRADES, AND QUANTITIES ARE APPROXIMATE. TOPOGRAPHY PROVIDED BY USIBELLI COAL MINE, CA. 2000,, AND COLLECTED BY GPS & RANGEFINDER, SEPTEMBER-NOVEMBER 2013.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

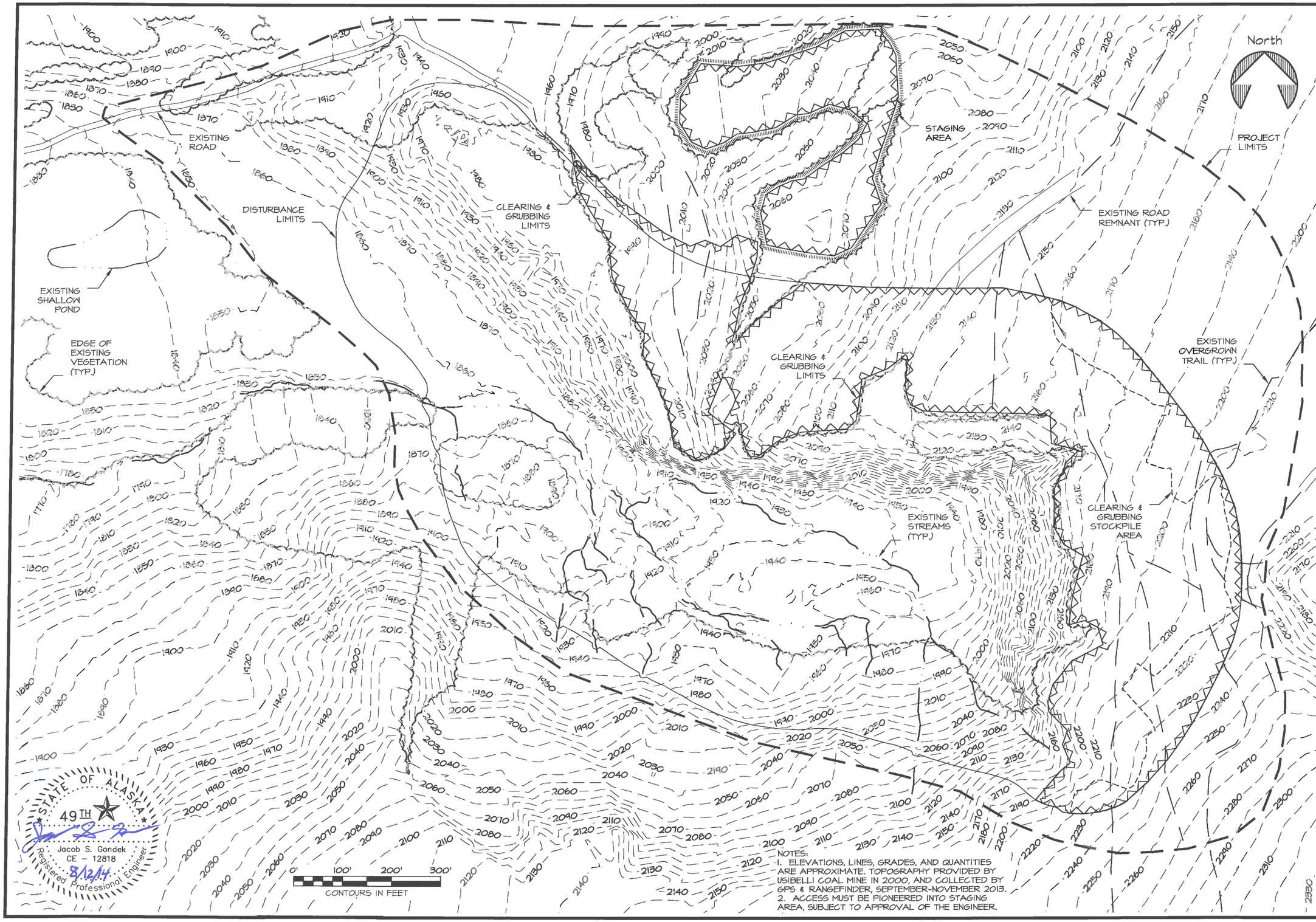
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

EXISTING SITE CONDITIONS

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 03 **OF** 18 **SHEETS**



STATE OF ALASKA
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NOTES:
1. ELEVATIONS, LINES, GRADES, AND QUANTITIES ARE APPROXIMATE. TOPOGRAPHY PROVIDED BY USIBELLI COAL MINE IN 2000, AND COLLECTED BY GPS & RANGEFINDER, SEPTEMBER-NOVEMBER 2013.
2. ACCESS MUST BE PIONEERED INTO STAGING AREA, SUBJECT TO APPROVAL OF THE ENGINEER.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

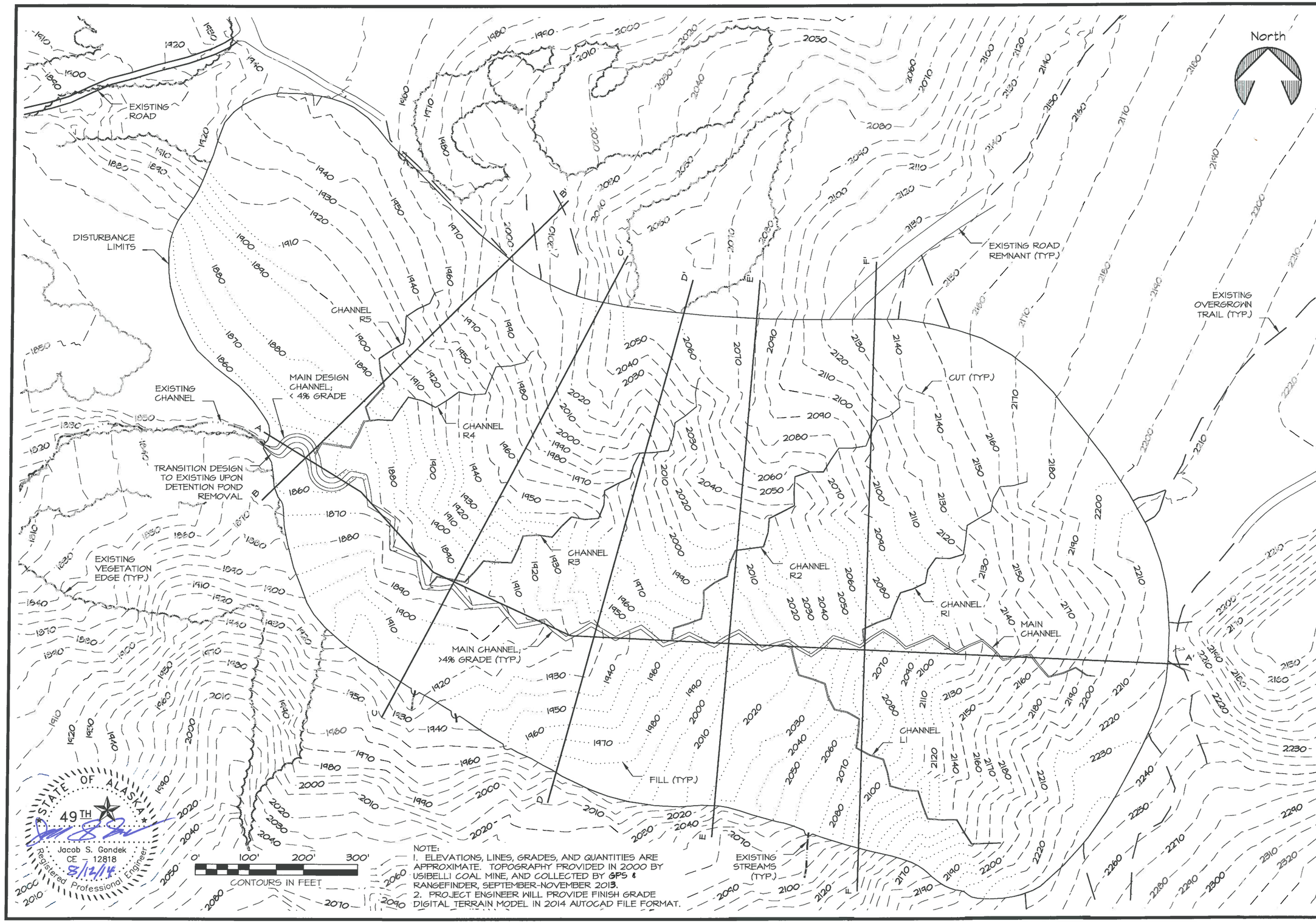
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

CLEARING & GRUBBING PLAN

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 04 OF 18 SHEETS



NOTE:
1. ELEVATIONS, LINES, GRADES, AND QUANTITIES ARE APPROXIMATE. TOPOGRAPHY PROVIDED IN 2000 BY USIBELLI COAL MINE, AND COLLECTED BY GPS & RANGEFINDER, SEPTEMBER-NOVEMBER 2013.
2. PROJECT ENGINEER WILL PROVIDE FINISH GRADE DIGITAL TERRAIN MODEL IN 2014 AUTOCAD FILE FORMAT.

STATE OF ALASKA 49TH
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STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

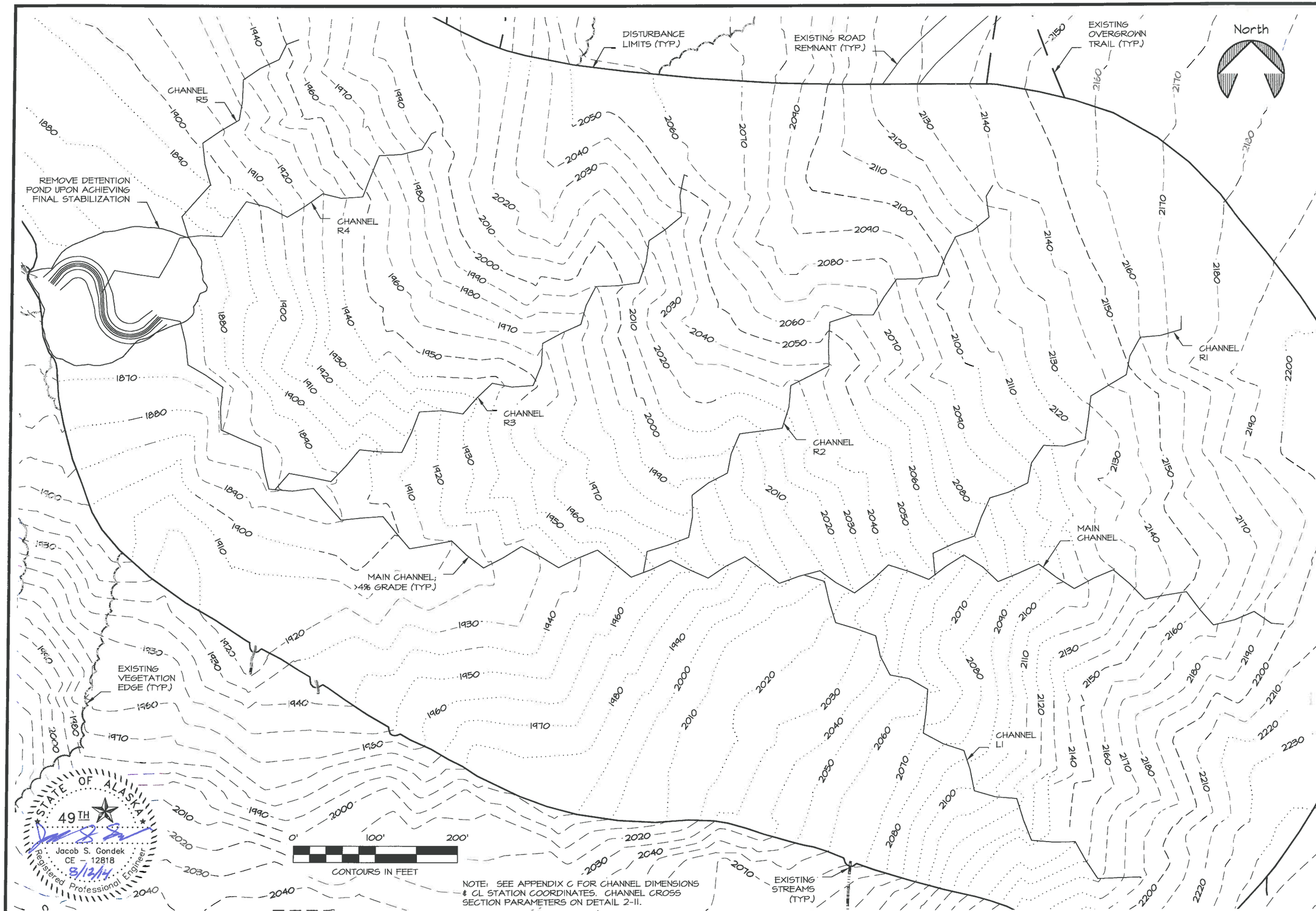
DESIGN CUT/FILL, CHANNELS, PROFILE ALIGNMENTS

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 05 OF 18 SHEETS



STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

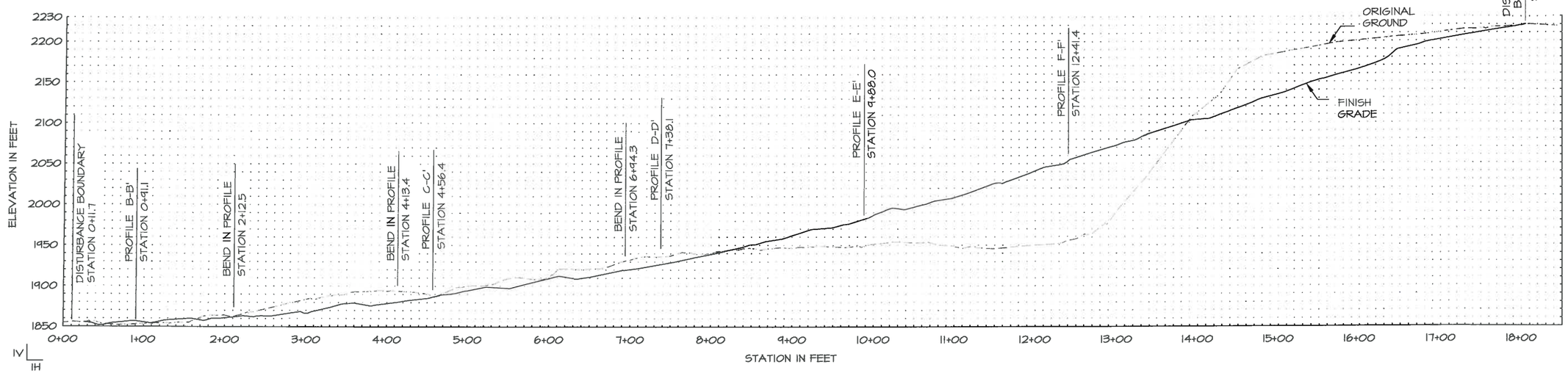
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

DRAINAGE CHANNEL OVERVIEW

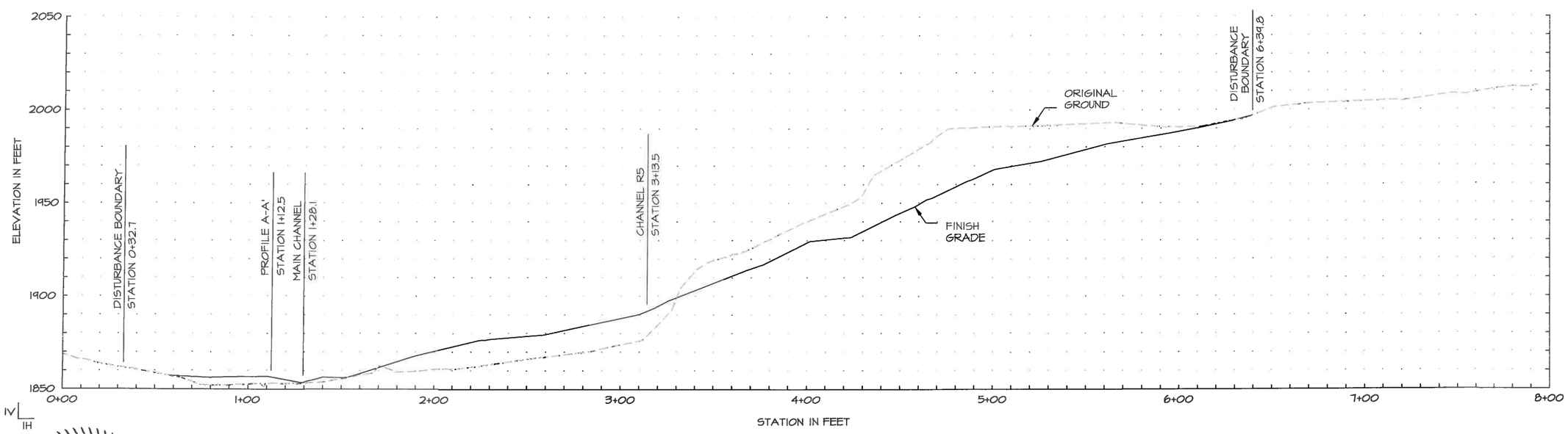
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 06 OF 18 SHEETS

PROFILE A - A'



PROFILE B - B'



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NOTE: PROJECT ENGINEER WILL PROVIDE FINISH GRADE DIGITAL TERRAIN MODEL IN 2014 AUTOCAD FILE FORMAT.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

PROFILES A-A' & B-B'

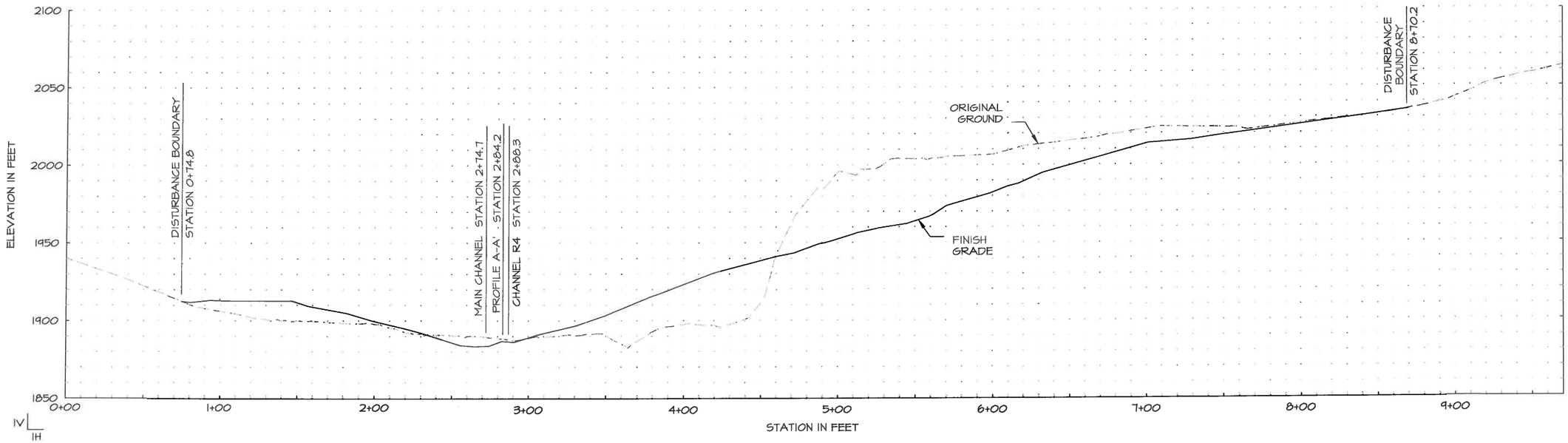
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

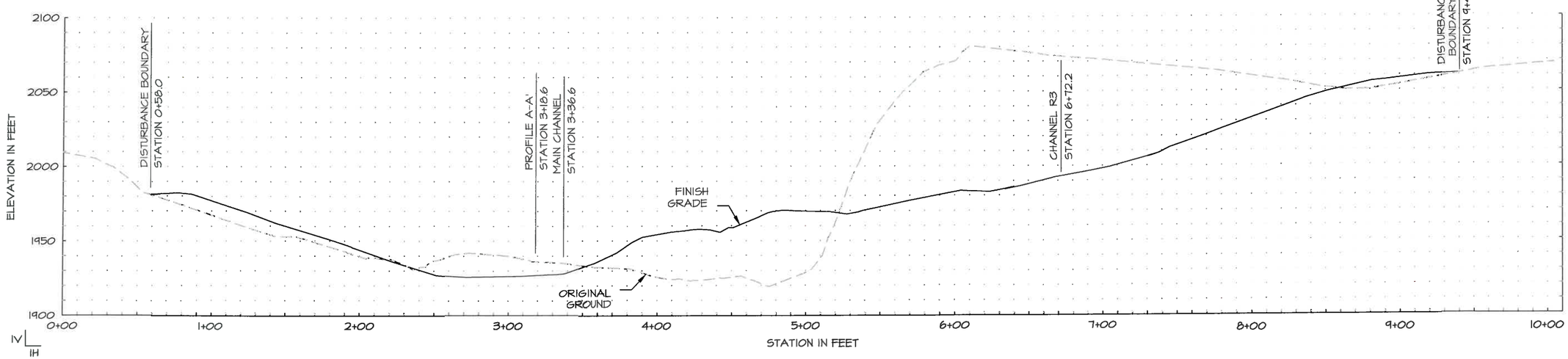
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 07 OF 18 SHEETS

PROFILE C - C'



PROFILE D - D'



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STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

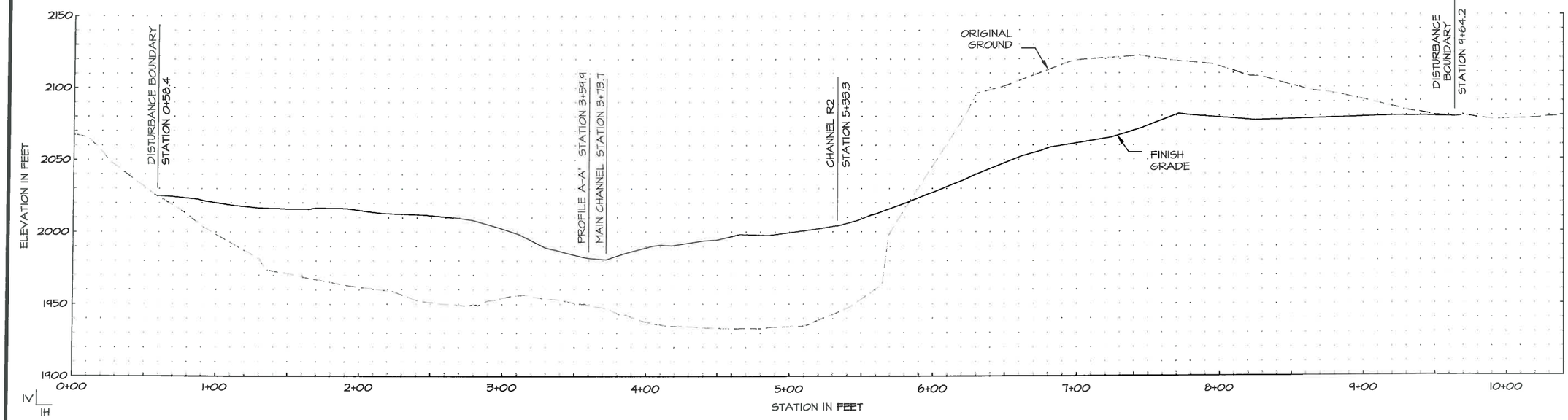
PROFILES C-C' & D-D'

ALASKA STATE PARKS

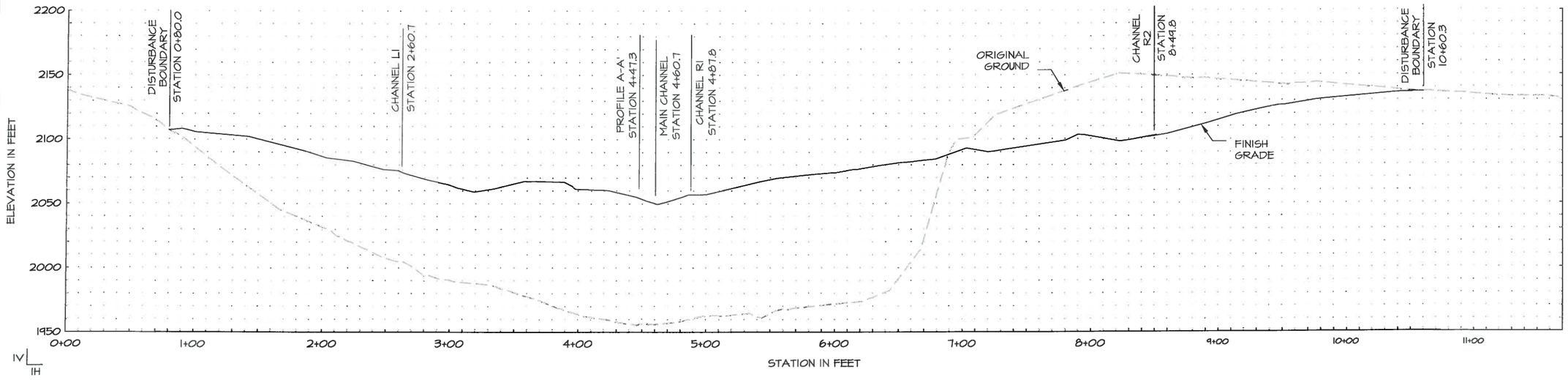
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 08 **OF** 18 **SHEETS**

PROFILE E -E'



PROFILE F -F'



STATE OF ALASKA
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STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

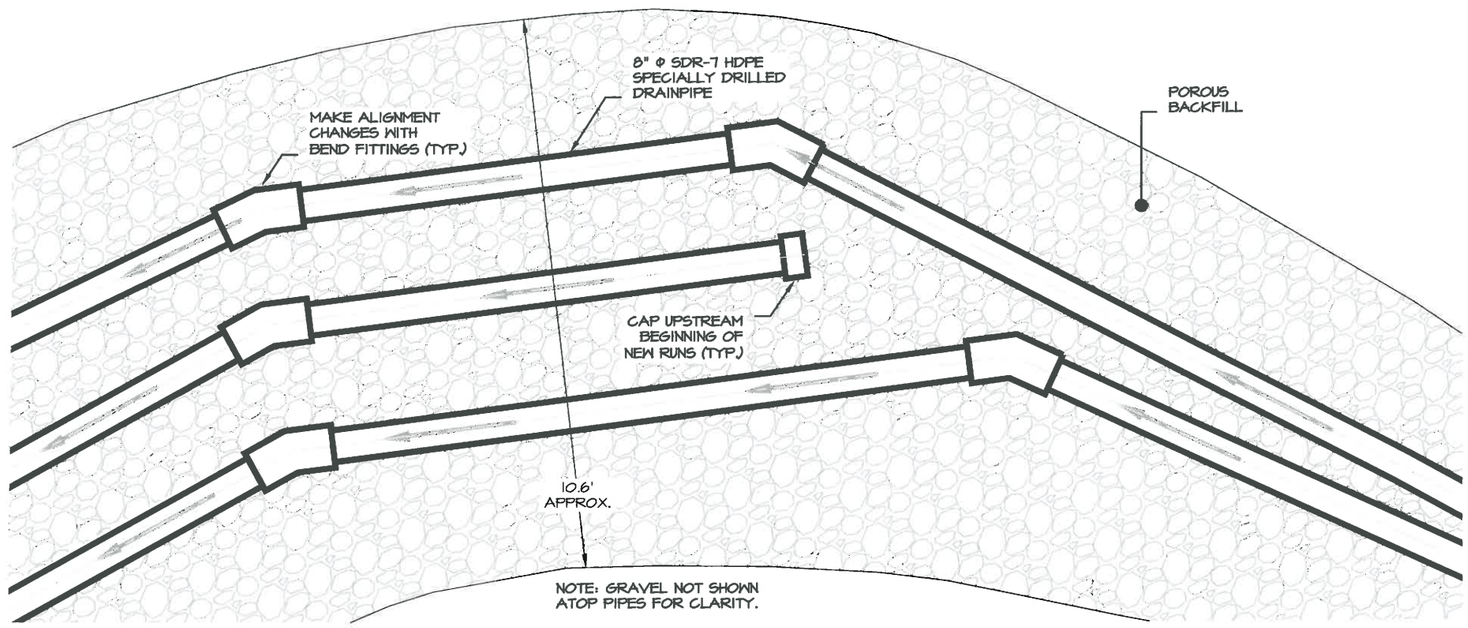
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

PROFILES E-E' & F-F'

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

SHEET 09 OF 18 SHEETS



1/10 EAST SUBDRAIN LEGS 2, 3 JUNCTION
PLAN VIEW

STATE OF ALASKA
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NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.
2. COMPACT SUBDRAIN POROUS BACKFILL TO 90% MINIMUM
3. DIMENSIONS ARE APPROXIMATE--SEE CROSS-SECTIONS IN SUBDRAIN DETAILS FOR CONSTRUCTION DIMENSIONS.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

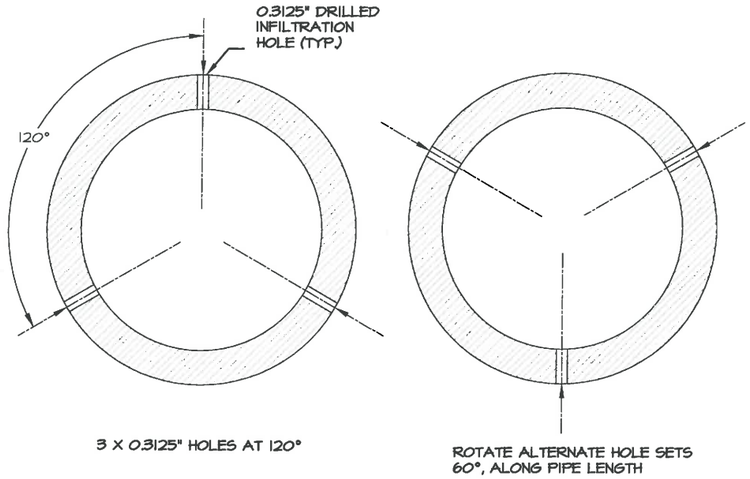
SUBDRAIN PLAN & DETAILS

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

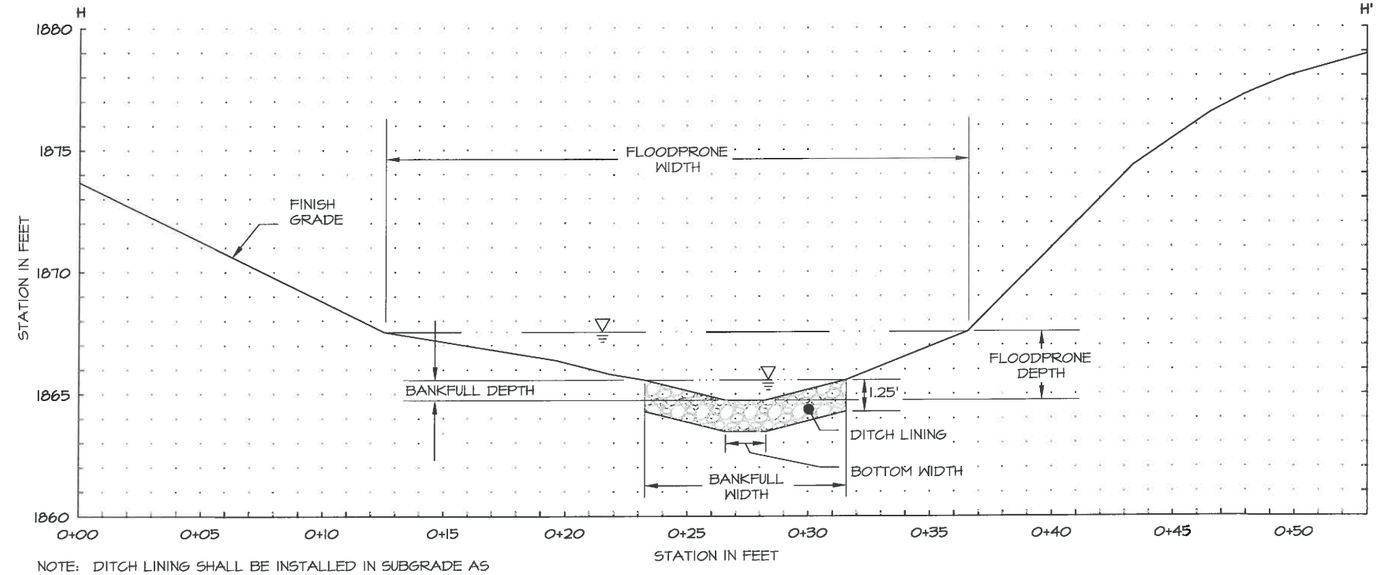
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/30/2014

SHEET 10 OF 18 SHEETS



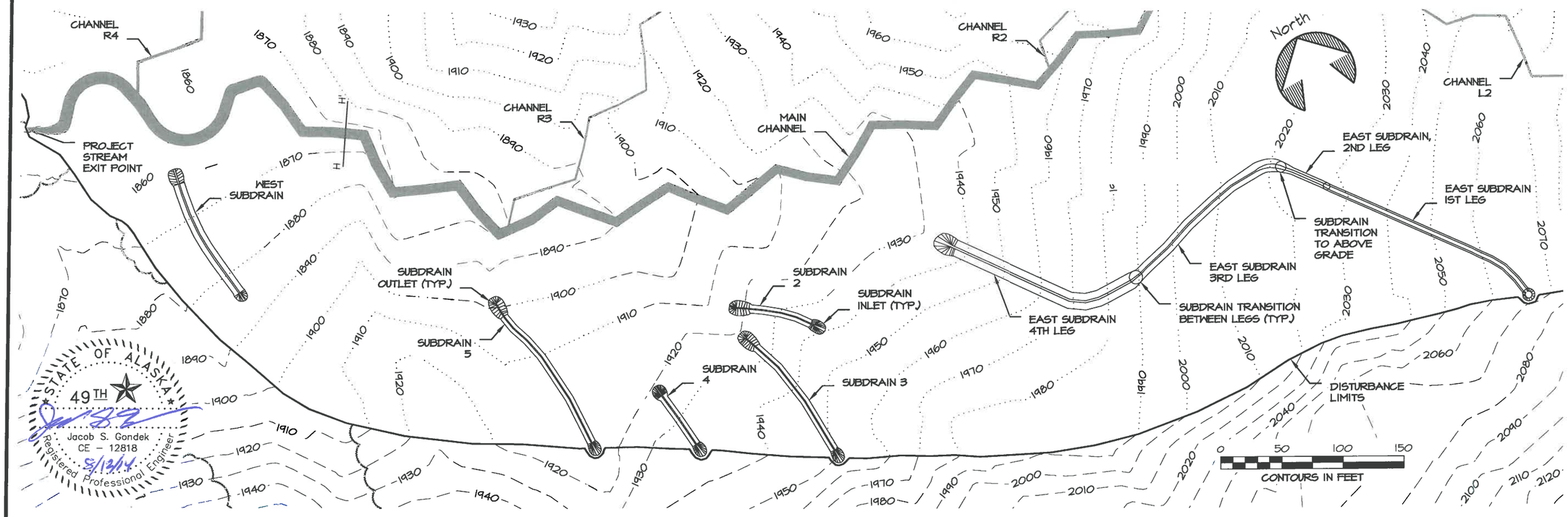
NOTES
1. LOCATE TOTAL 9 INFILTRATION HOLES PER FOOT. EVENLY SPACE 3.3125" HOLES 120° AROUND THE CIRCUMFERENCE, EVERY 4" ALONG THE LENGTH OF THE PIPE. ROTATE EVERY OTHER SET 60°. WATER INLET AREA SHALL BE A MINIMUM 0.945 IN^2/FT OF PIPE LENGTH. SLOTS MAY BE SUBSTITUTED PER ENGINEER APPROVAL. MAY BE MANUFACTURED OR FIELD DRILLED.
2. PIPE DIMENSIONS: 8.625" O.D., 6.593" I.D., WEIGHT ~10 LB/FT.

1/11 SDR 9 HDPE DRILL PATTERN
DRAINPIPE CROSS SECTION



NOTE: DITCH LINING SHALL BE INSTALLED IN SUBGRADE AS SHOWN, AT STATIONS CALLED OUT ON MAIN, R1, AND L1 CHANNELS IN APPENDIX E.

2/11 TYPICAL CHANNEL PARMETERS, SECTION H-H'
MAIN CHANNEL, APPROX. STATION 16+70



NOTES: SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.

3/11 SUBDRAIN DESIGN
PLAN VIEW

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

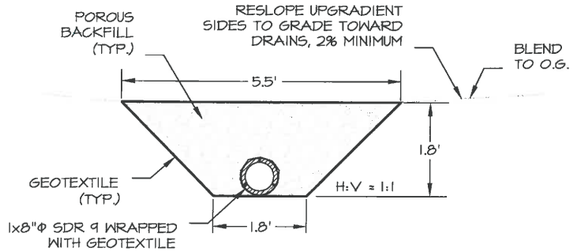
SUBDRAIN DESIGN PLAN, DETAILS, & CHANNEL SECTION

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

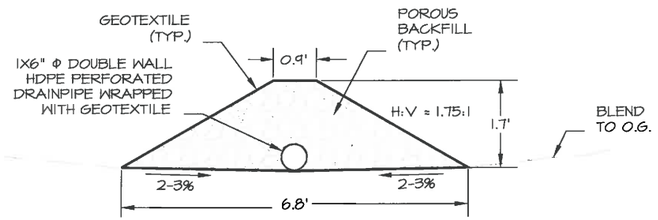
ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 07/31/2014

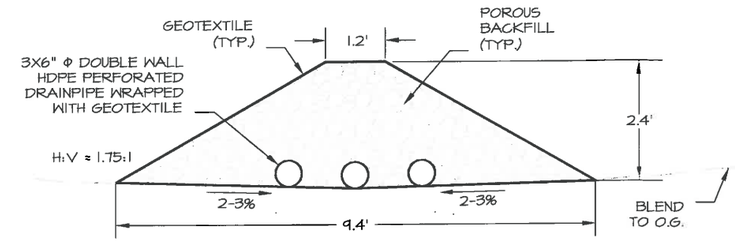
SHEET
OF 18 SHEETS



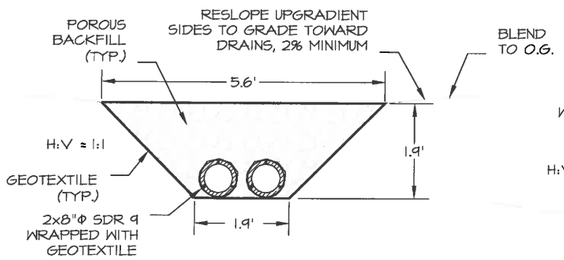
1/12 EAST SUBDRAIN, 1ST LEG
SECTION VIEW



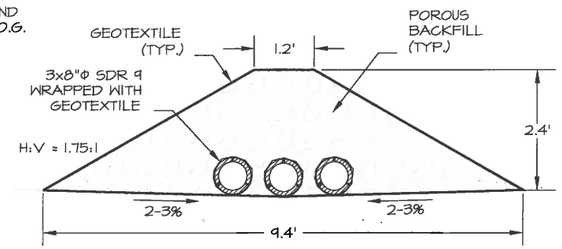
2/12 SUBDRAINS 2, 3, 4, & 5
SECTION VIEW



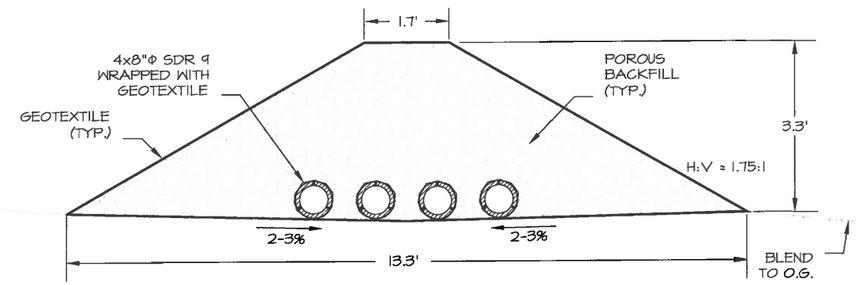
3/12 WEST SUBDRAIN
SECTION VIEW



4/12 EAST SUBDRAIN, 2ND LEG
SECTION VIEW

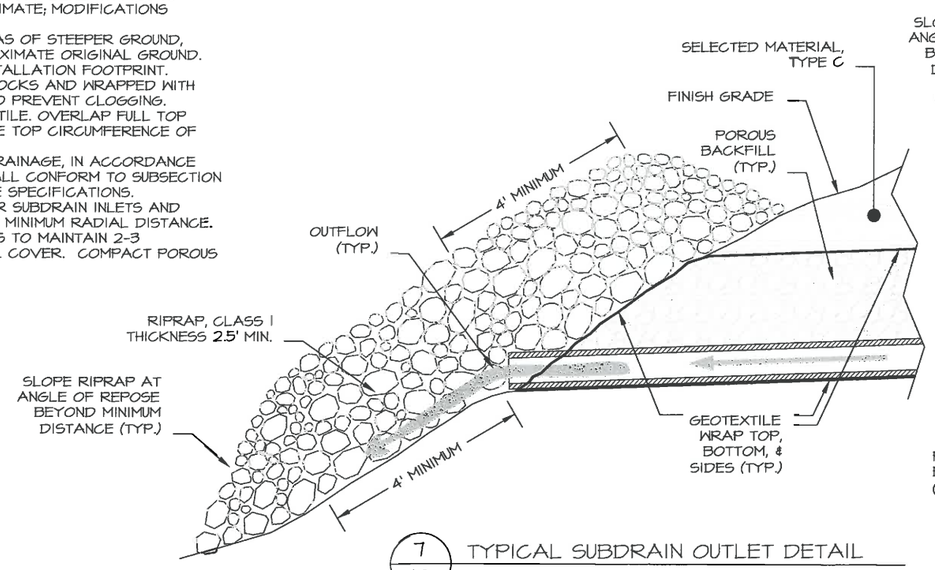


5/12 EAST DRAIN LEG 3
SECTION VIEW

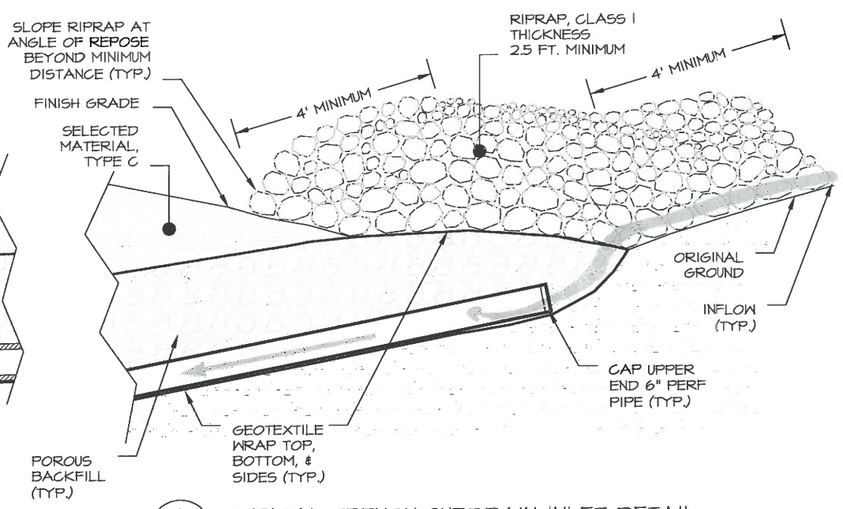


6/12 EAST DRAIN LEG 4
SECTION VIEW

NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT DISTURBANCE BOUNDARY OR POINT OF ORIGIN BENEATH FILL, AND CONVEY FLOW BENEATH FILL TO DISCHARGE POINTS. LOCATIONS ARE APPROXIMATE; MODIFICATIONS REQUIRE APPROVAL OF PROJECT ENGINEER.
2. TRENCH INSTALLATION IS ALLOWED IN AREAS OF STEEPER GROUND, WHERE DESIGN GRADE AND ELEVATION APPROXIMATE ORIGINAL GROUND. REMOVE ALL SURFACE VEGETATION FROM INSTALLATION FOOTPRINT.
3. DRAINAGE PIPES SHALL BE ENCLOSED IN SOCKS AND WRAPPED WITH GEOTEXTILE. CAP UPGRADE ENDS OF PIPES TO PREVENT CLOGGING.
4. WRAP UNDERDRAIN AGGREGATE IN GEOTEXTILE. OVERLAP FULL TOP WIDTH OF TRENCH DRAINS. OVERLAP HALF THE TOP CIRCUMFERENCE OF MOUNDED DRAINS.
5. GEOTEXTILE SHALL BE FOR SUBSURFACE DRAINAGE, IN ACCORDANCE WITH SPECIFICATIONS. DRAIN AGGREGATE SHALL CONFORM TO SUBSECTION 703-2.10, POROUS BACKFILL MATERIAL, OF THE SPECIFICATIONS.
6. CONTRUCT DAYLIGHT RIPRAP COVERS OVER SUBDRAIN INLETS AND OUTLETS, TO MAINTAIN MINIMUM THICKNESS FOR MINIMUM RADIAL DISTANCE.
7. SPACE PIPES BENEATH MOUNDED SUBDRAINS TO MAINTAIN 2-3 DIAMETERS OF COMPACTED POROUS BACKFILL COVER. COMPACT POROUS BACKFILL ACCORDING TO SPECIFICATION.



7/12 TYPICAL SUBDRAIN OUTLET DETAIL



8/12 TYPICAL TRENCH SUBDRAIN INLET DETAIL

STATE OF ALASKA 49TH
Jacob S. Gondek
CE – 12818
8/12/14
Registered Professional Engineer

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

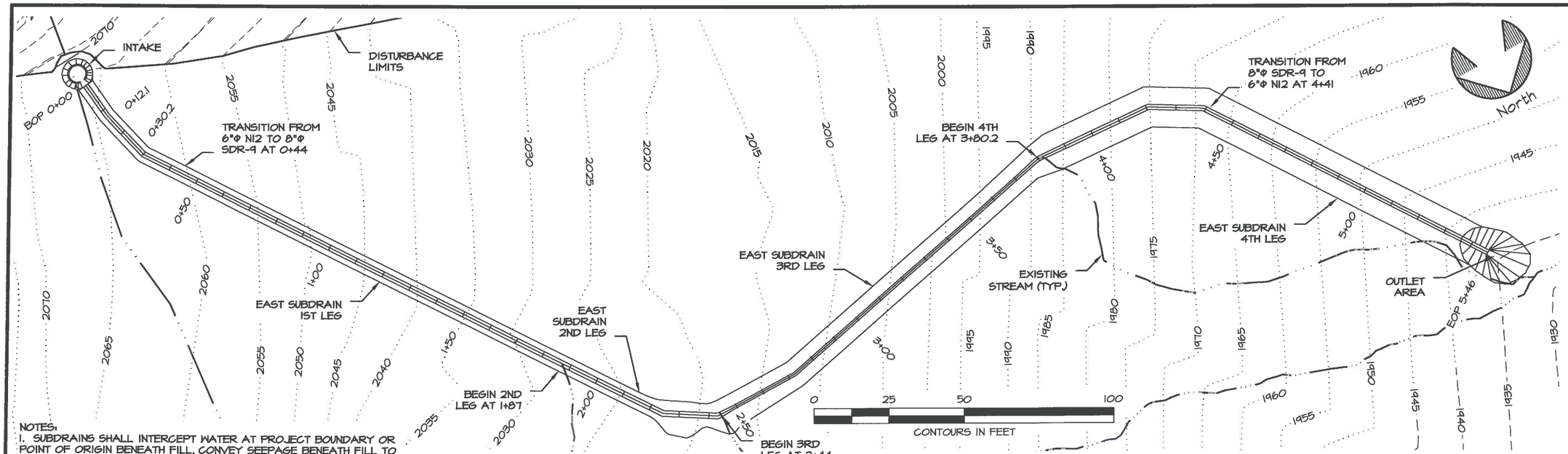
SUBDRAIN DETAILS

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

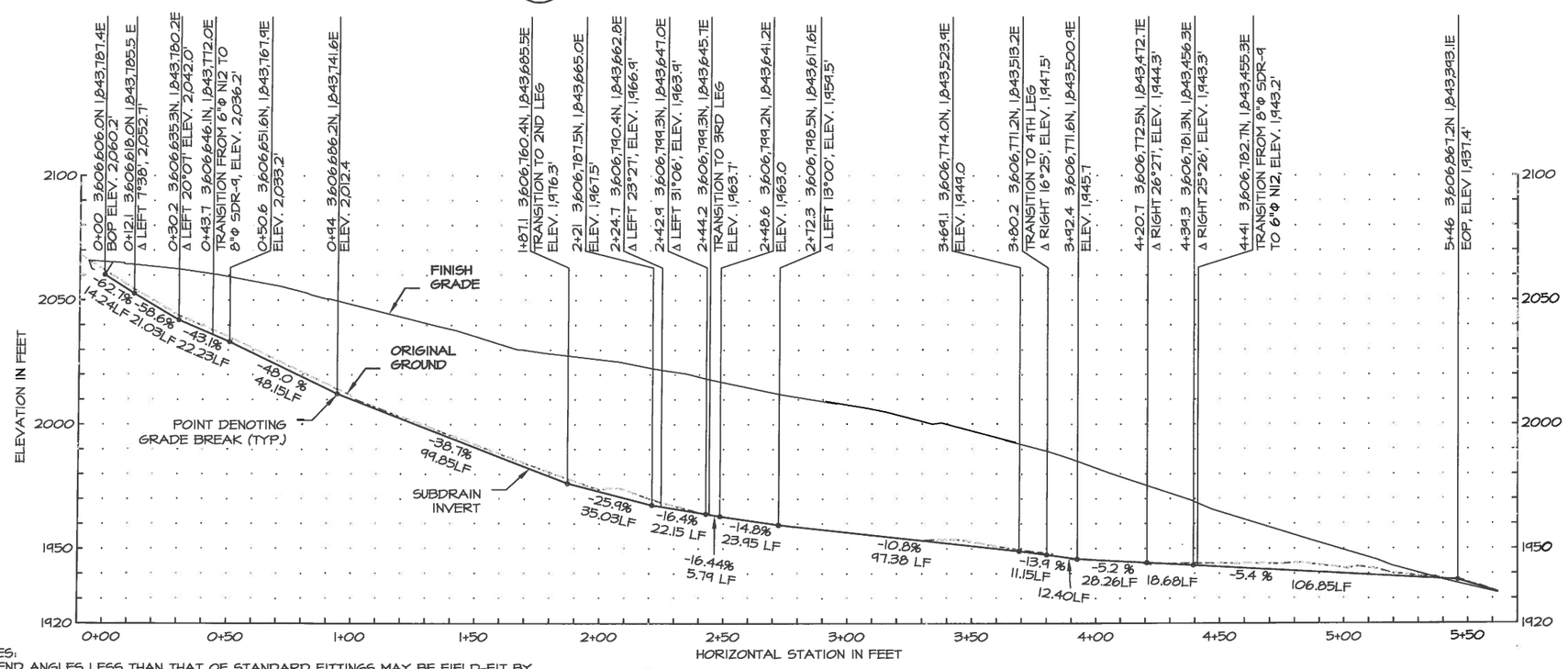
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/08/2014

SHEET 12 OF 18 SHEETS



NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.
2. STATIONS ARE SHOWN IN PLAN DISTANCE

1/13 EAST SUBDRAIN DESIGN
PLAN VIEW



NOTES:
1. BEND ANGLES LESS THAN THAT OF STANDARD FITTINGS MAY BE FIELD-FIT BY ROTATING A FITTING. SDR-9 PIPE ALIGNMENT DEFLECTION IS ALLOWED AS SUBSTITUTION, TO A MINIMUM RADIUS LIMIT OF 20X THE PIPE O.D. MAXIMUM ALLOWABLE N12 HDPE PIPE DEFLECTION IS 7%.
2. PROFILE CALLOUTS SHOW HORIZONTAL BENDS, VERTICAL GRADE BREAKS, AND PIPE TRANSITIONS.

2/13 EAST SUBDRAIN DESIGN
PROFILE VIEW

STATE OF ALASKA 49TH
Jacob S. Gondek
CE – 12818
8/12/14
Registered Professional Engineer

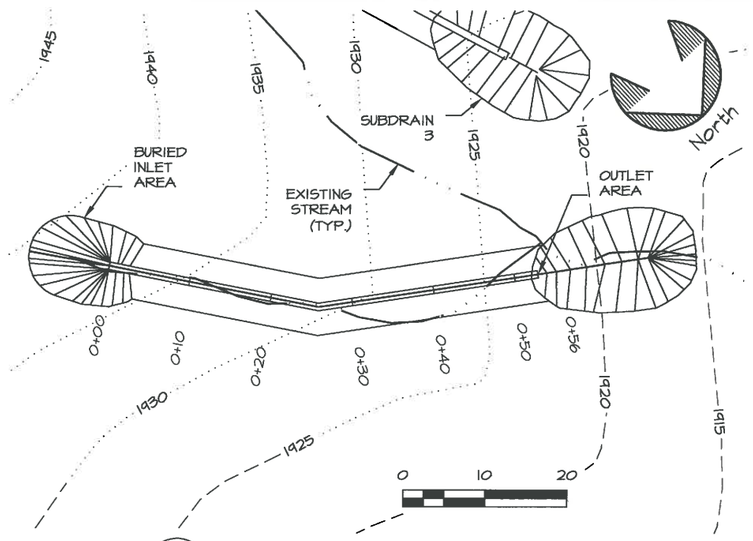
STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

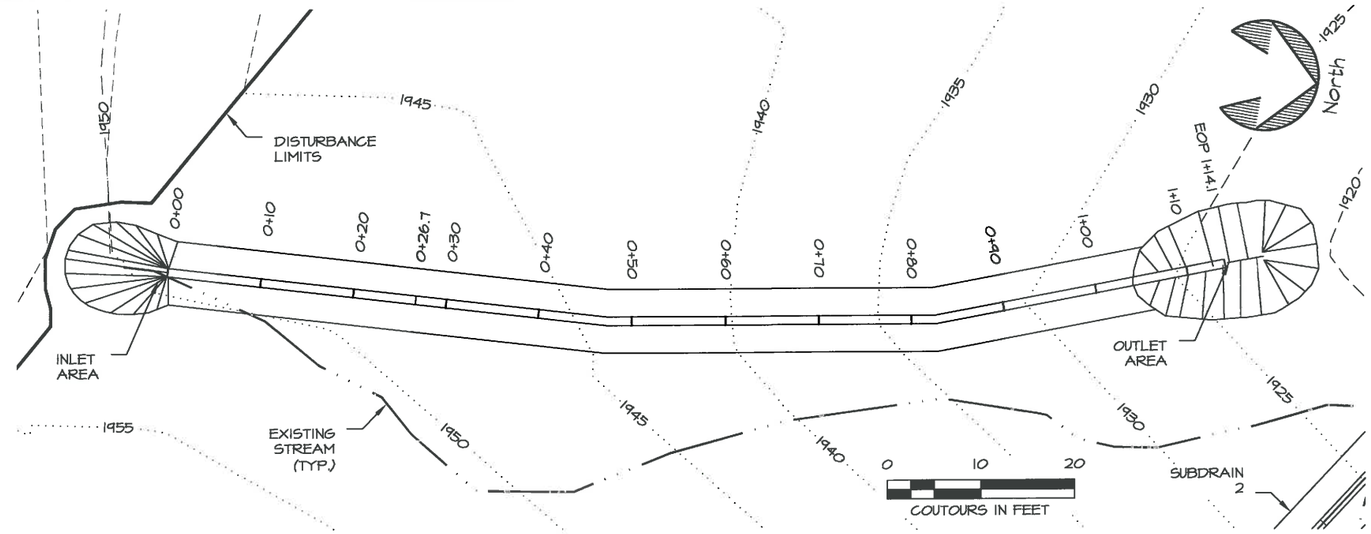
EAST SUBDRAIN
PLAN AND PROFILE

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/08/2014

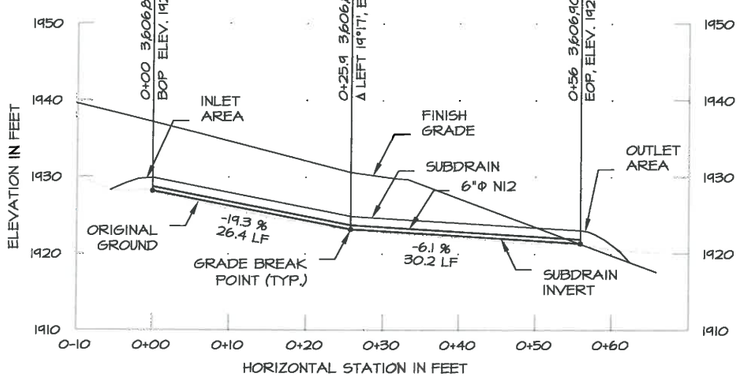
SHEET 13 OF 18 SHEETS



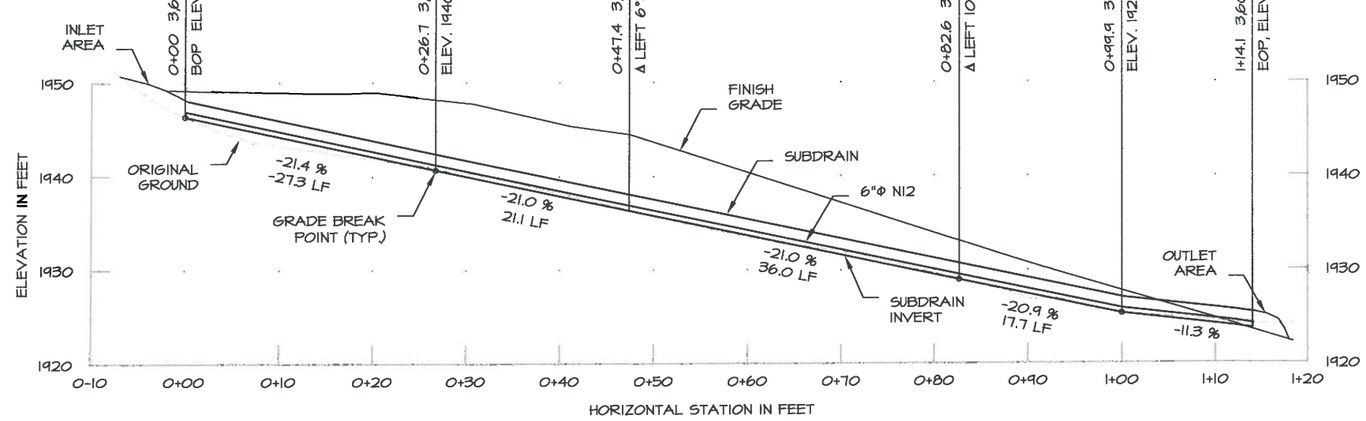
1/14 SUBDRAIN 2 DESIGN
PLAN VIEW



2/14 SUBDRAIN 3 DESIGN
PLAN VIEW



3/14 SUBDRAIN 2 DESIGN
PROFILE VIEW



4/14 SUBDRAIN 3 DESIGN
PROFILE VIEW

STATE OF ALASKA
49TH
Jacob S. Gondek
CE - 12818
8/12/14
Registered Professional Engineer

NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.
2. STATIONS ARE GIVEN IN PLAN DISTANCE
3. BEND ANGLES LESS THAN THAT OF STANDARD FITTINGS MAY BE FIELD-FIT BY ROTATING A FITTING. MAXIMUM ALLOWABLE N12 HDPE PIPE DEFLECTION IS 7%.
4. PROFILE CALLOUTS SHOW HORIZONTAL BENDS AND VERTICAL GRADE BREAKS.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

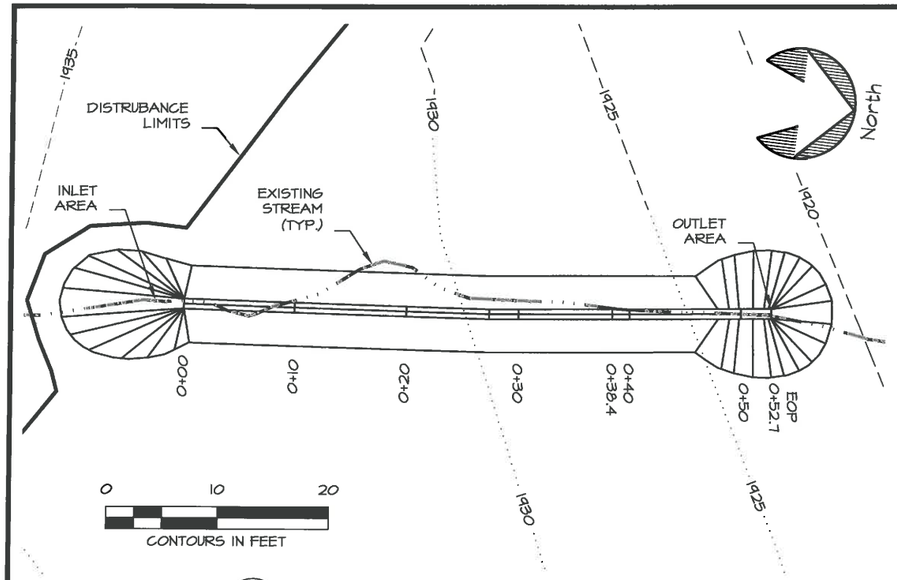
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

SUBDRAINS 2 & 3
PLAN AND PROFILE

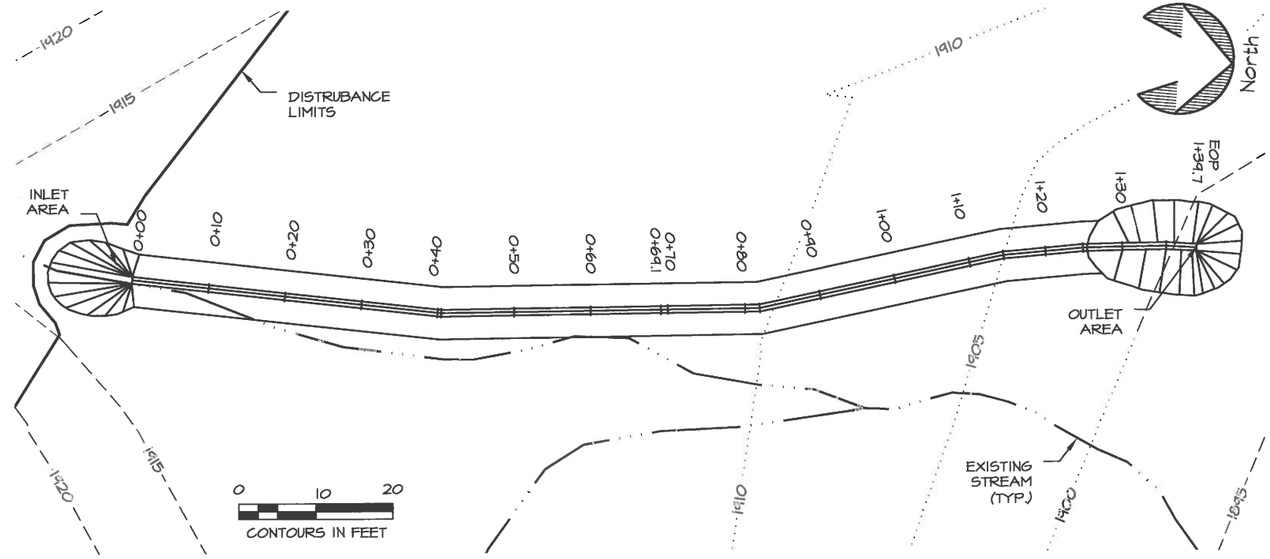
ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/01/2014

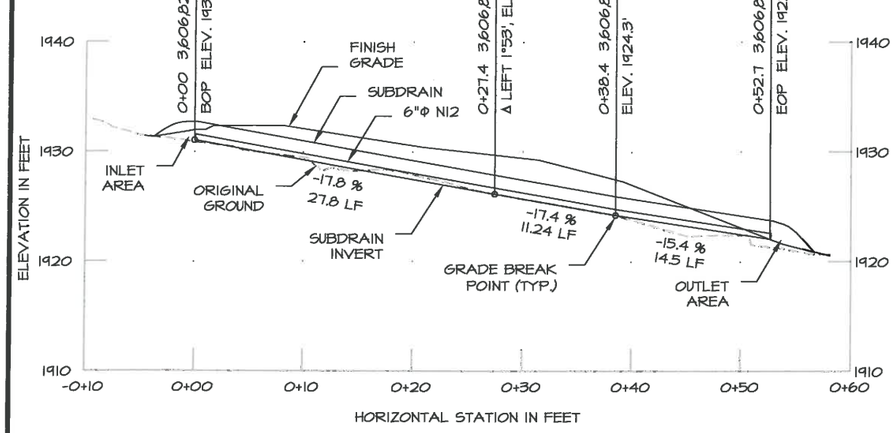
SHEET 14 OF 18 SHEETS



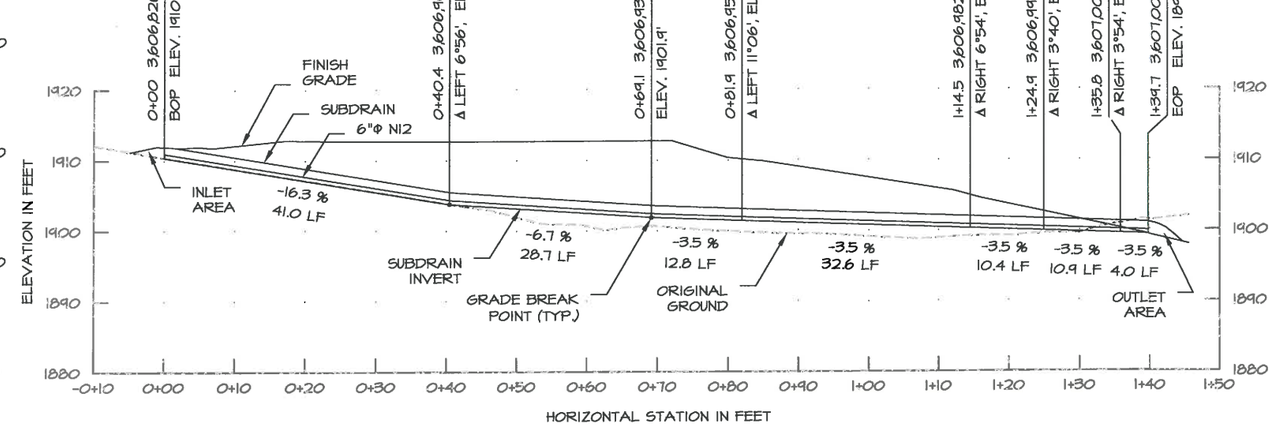
1/15 SUBDRAIN 4 DESIGN
PLAN VIEW



2/15 SUBDRAIN 5 DESIGN
PLAN VIEW



3/15 SUBDRAIN 4 DESIGN
PROFILE VIEW



4/15 SUBDRAIN 5 DESIGN
PROFILE VIEW

STATE OF ALASKA
49TH
Jacob S. Gondek
CE - 12818
8/12/14
Registered Professional Engineer

NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.
2. STATIONS ARE GIVEN IN PLAN DISTANCE.
3. BEND ANGLES LESS THAN THAT OF STANDARD FITTINGS MAY BE FIELD-FIT BY ROTATING A FITTING. MAXIMUM ALLOWABLE N12 HDPE PIPE DEFLECTION IS 7%.
4. PROFILE CALLOUTS SHOW HORIZONTAL BENDS AND VERTICAL GRADE BREAKS.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

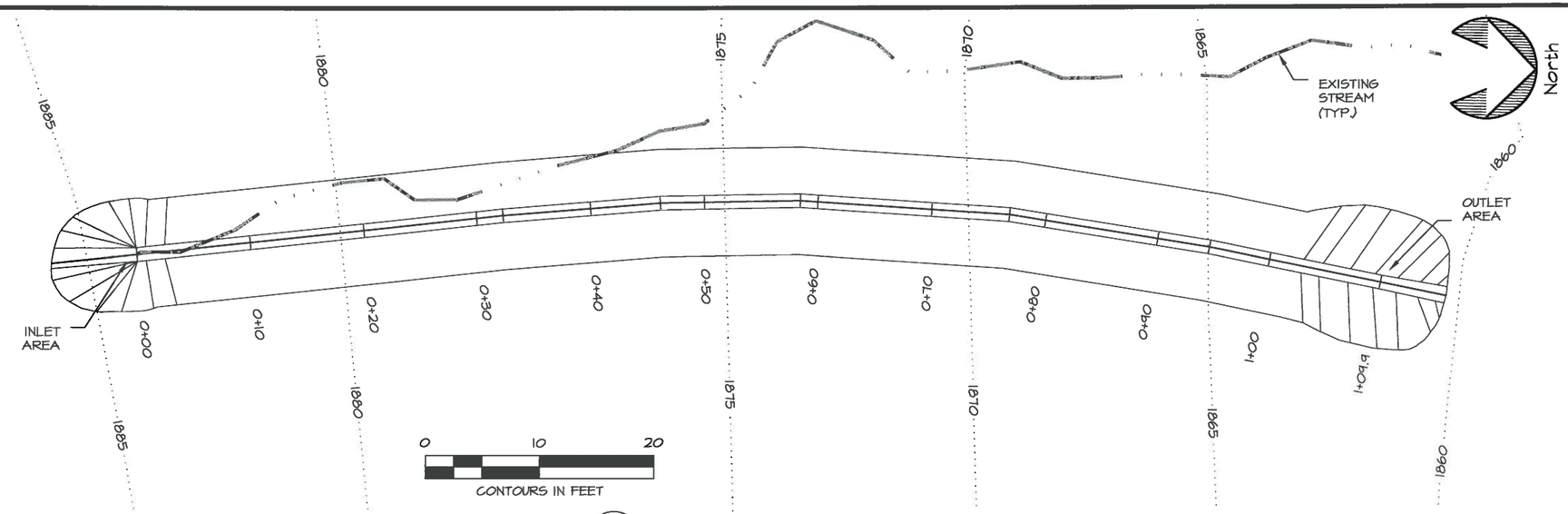
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

SUBDRAINS 4 & 5
PLAN AND PROFILE

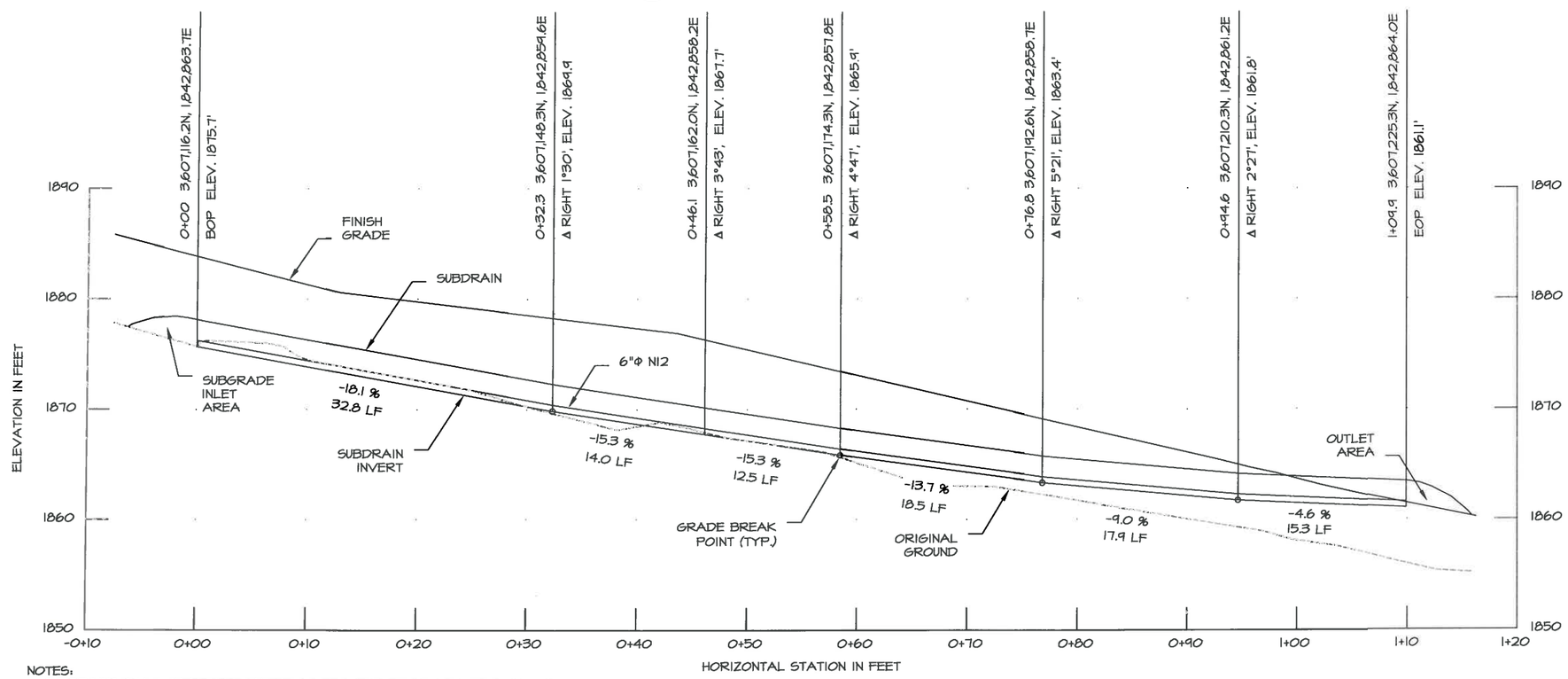
ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/01/2014

SHEET 15 OF 18 SHEETS



1/16 WEST SUBDRAIN DESIGN
PLAN VIEW



2/16 WEST SUBDRAIN DESIGN
PROFILE VIEW

NOTES:
1. SUBDRAINS SHALL INTERCEPT WATER AT PROJECT BOUNDARY OR POINT OF ORIGIN BENEATH FILL, CONVEY SEEPAGE BENEATH FILL TO DISCHARGE POINTS INTO DESIGN CHANNELS OR SUBWATERSHED VALLEYS.
2. STATIONS ARE GIVEN IN PLAN DISTANCE2014-7-23.
3. BEND ANGLES LESS THAN THAT OF STANDARD FITTINGS MAY BE FIELD-FIT BY ROTATING A FITTING. MAXIMUM ALLOWABLE N12 HDPE PIPE DEFLECTION IS 7%.
4. PROFILE CALLOUTS SHOW HORIZONTAL BENDS AND VERTICAL GRADE BREAKS.

STATE OF ALASKA
49TH
Jacob S. Gondek
CE – 12818
8/12/14
Registered Professional Engineer

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

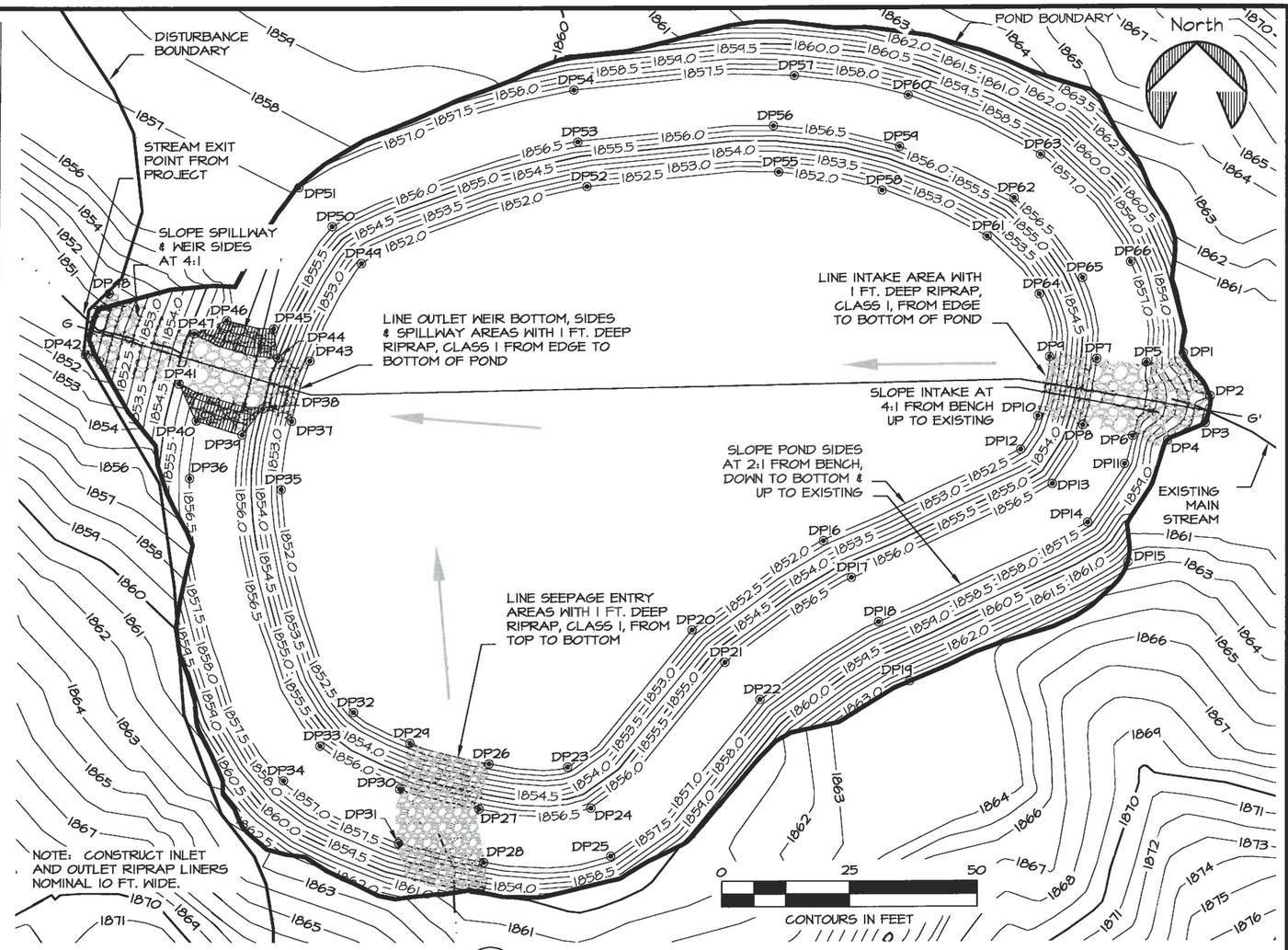
WEST SUBDRAIN
PLAN AND PROFILE

ALASKA STATE PARKS

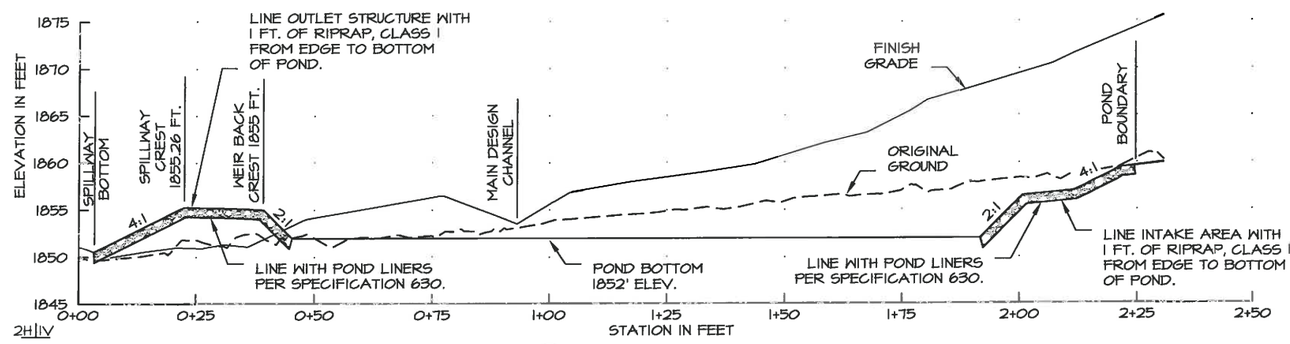
PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/01/2014

SHEET 16 OF 18 SHEETS

POINT TABLE				
POINT	ELEVATION	EASTING	NORTHING	REMARKS
DP1	1,854.8	1,842,988.8	3,607,311.6	TOP INTAKE, N END
DP2	1,854.5	1,842,994.0	3,607,303.2	TOP INTAKE
DP3	1,854.6	1,842,993.1	3,607,298.0	TOP INTAKE
DP4	1,854.3	1,842,985.7	3,607,294.6	TOP INTAKE, S END
DP5	1,857.0	1,842,985.7	3,607,309.7	INTAKE, BACK OF BENCH
DP6	1,857.0	1,842,978.8	3,607,295.4	INTAKE, BACK OF BENCH
DP7	1,856.5	1,842,971.7	3,607,310.5	INTAKE, FRONT OF BENCH
DP8	1,856.5	1,842,968.9	3,607,297.6	INTAKE, FRONT OF BENCH
DP9	1,852.0	1,842,962.4	3,607,310.9	INTAKE, POND BOTTOM
DP10	1,852.0	1,842,960.1	3,607,299.4	INTAKE, POND BOTTOM
DP11	1,857.0	1,842,977.2	3,607,290.0	BACK OF BENCH
DP12	1,852.1	1,842,956.8	3,607,292.9	POND BOTTOM
DP13	1,856.5	1,842,963.0	3,607,286.2	FRONT OF BENCH
DP14	1,857.0	1,842,969.9	3,607,278.7	BACK OF BENCH
DP15	1,862.6	1,842,977.9	3,607,270.9	TOP, MATCH TO EXISTING
DP16	1,852.1	1,842,918.2	3,607,275.2	POND BOTTOM
DP17	1,856.5	1,842,923.7	3,607,268.1	FRONT OF BENCH
DP18	1,857.0	1,842,929.0	3,607,259.5	BACK OF BENCH
DP19	1,863.5	1,842,935.2	3,607,247.9	TOP, MATCH TO EXISTING
DP20	1,852.0	1,842,842.5	3,607,258.0	POND BOTTOM
DP21	1,856.5	1,842,848.9	3,607,251.6	FRONT OF BENCH
DP22	1,857.0	1,842,905.8	3,607,244.4	BACK OF BENCH
DP23	1,852.0	1,842,868.3	3,607,231.3	POND BOTTOM
DP24	1,856.5	1,842,872.9	3,607,223.3	FRONT OF BENCH
DP25	1,857.0	1,842,876.8	3,607,214.0	BACK OF BENCH
DP26	1,852.0	1,842,852.9	3,607,232.0	POND BOTTOM, E. EDGE SEEPAGE INTAKE
DP27	1,856.5	1,842,851.0	3,607,223.2	FRONT OF BENCH, E. EDGE SEEPAGE INTAKE
DP28	1,857.0	1,842,852.0	3,607,212.8	BACK OF BENCH, E. EDGE SEEPAGE INTAKE
DP29	1,852.0	1,842,837.4	3,607,236.0	POND BOTTOM, W. EDGE SEEPAGE INTAKE
DP30	1,856.5	1,842,835.4	3,607,227.1	FRONT OF BENCH, W. EDGE SEEPAGE INTAKE
DP31	1,857.0	1,842,835.3	3,607,216.6	BACK OF BENCH, W. EDGE SEEPAGE INTAKE
DP32	1,852.0	1,842,826.4	3,607,242.0	POND BOTTOM
DP33	1,856.5	1,842,819.9	3,607,235.5	FRONT OF BENCH
DP34	1,857.0	1,842,812.9	3,607,228.8	BACK OF BENCH
DP35	1,852.1	1,842,812.2	3,607,285.5	POND BOTTOM
DP36	1,856.5	1,842,794.3	3,607,287.6	BACK OF BENCH
DP37	1,852.0	1,842,814.1	3,607,298.8	POND BOTTOM, S. EDGE OUTLET
DP38	1,855.0	1,842,808.5	3,607,301.2	WEIR BACK CREST, S. EDGE OUTLET
DP39	1,856.5	1,842,804.5	3,607,296.1	WEIR FRONT OF BENCH, S. EDGE OUTLET
DP40	1,856.5	1,842,795.6	3,607,298.8	WEIR BACK OF BENCH, S. EDGE OUTLET
DP41	1,855.2	1,842,792.1	3,607,306.0	WEIR CREST, S. EDGE OUTLET
DP42	1,851.1	1,842,773.7	3,607,311.7	SPILLWAY BOTTOM, S. EDGE OUTLET
DP43	1,852.0	1,842,817.6	3,607,310.5	POND BOTTOM, N. EDGE OUTLET
DP44	1,855.0	1,842,811.4	3,607,311.1	WEIR BACK CREST, N. EDGE OUTLET
DP45	1,856.5	1,842,810.5	3,607,316.8	WEIR FRONT OF BENCH, N. EDGE OUTLET
DP46	1,856.5	1,842,801.4	3,607,318.4	WEIR BACK OF BENCH, N. EDGE OUTLET
DP47	1,855.3	1,842,795.1	3,607,315.8	WEIR CREST, N. EDGE OUTLET
DP48	1,851.5	1,842,778.3	3,607,323.7	SPILLWAY BOTTOM, N. EDGE OUTLET
DP49	1,852.0	1,842,827.5	3,607,324.5	POND BOTTOM
DP50	1,856.5	1,842,821.8	3,607,336.7	FRONT OF BENCH
DP51	1,857.0	1,842,815.3	3,607,344.3	BACK OF BENCH
DP52	1,852.0	1,842,871.8	3,607,344.4	POND BOTTOM
DP53	1,856.4	1,842,869.9	3,607,353.1	FRONT OF BENCH
DP54	1,857.0	1,842,869.1	3,607,363.2	BACK OF BENCH
DP55	1,852.0	1,842,909.2	3,607,347.1	POND BOTTOM
DP56	1,856.5	1,842,908.2	3,607,356.2	FRONT OF BENCH
DP57	1,857.0	1,842,912.3	3,607,365.9	BACK OF BENCH
DP58	1,852.0	1,842,929.6	3,607,343.5	POND BOTTOM
DP59	1,856.5	1,842,933.0	3,607,352.1	FRONT OF BENCH
DP60	1,857.0	1,842,934.7	3,607,362.1	BACK OF BENCH
DP61	1,852.0	1,842,950.2	3,607,334.5	POND BOTTOM
DP62	1,856.5	1,842,955.5	3,607,341.9	FRONT OF BENCH
DP63	1,857.0	1,842,960.6	3,607,350.4	BACK OF BENCH
DP64	1,852.0	1,842,960.4	3,607,323.1	POND BOTTOM
DP65	1,856.5	1,842,968.9	3,607,326.3	FRONT OF BENCH
DP66	1,857.0	1,842,978.4	3,607,329.3	BACK OF BENCH



1/17 DETENTION POND GRADING
PLAN VIEW



2/17 DETENTION POND
PROFILE G-G'

STATE OF ALASKA 49TH
Jacob S. Gondek
CE – 12818
8/12/14
Registered Professional Engineer

NOTES:
1. ELEVATIONS, LINES, GRADES, AND QUANTITIES ARE APPROXIMATE. TOPOGRAPHY PROVIDED BY USIBELLI COAL MINE, AND COLLECTED BY GPS & RANGEFINDER.
2. POND SHALL BE FILLED TO FINISH GRADE ONCE PROJECT AREA ACHIEVES FINAL STABILIZATION

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

DETENTION POND

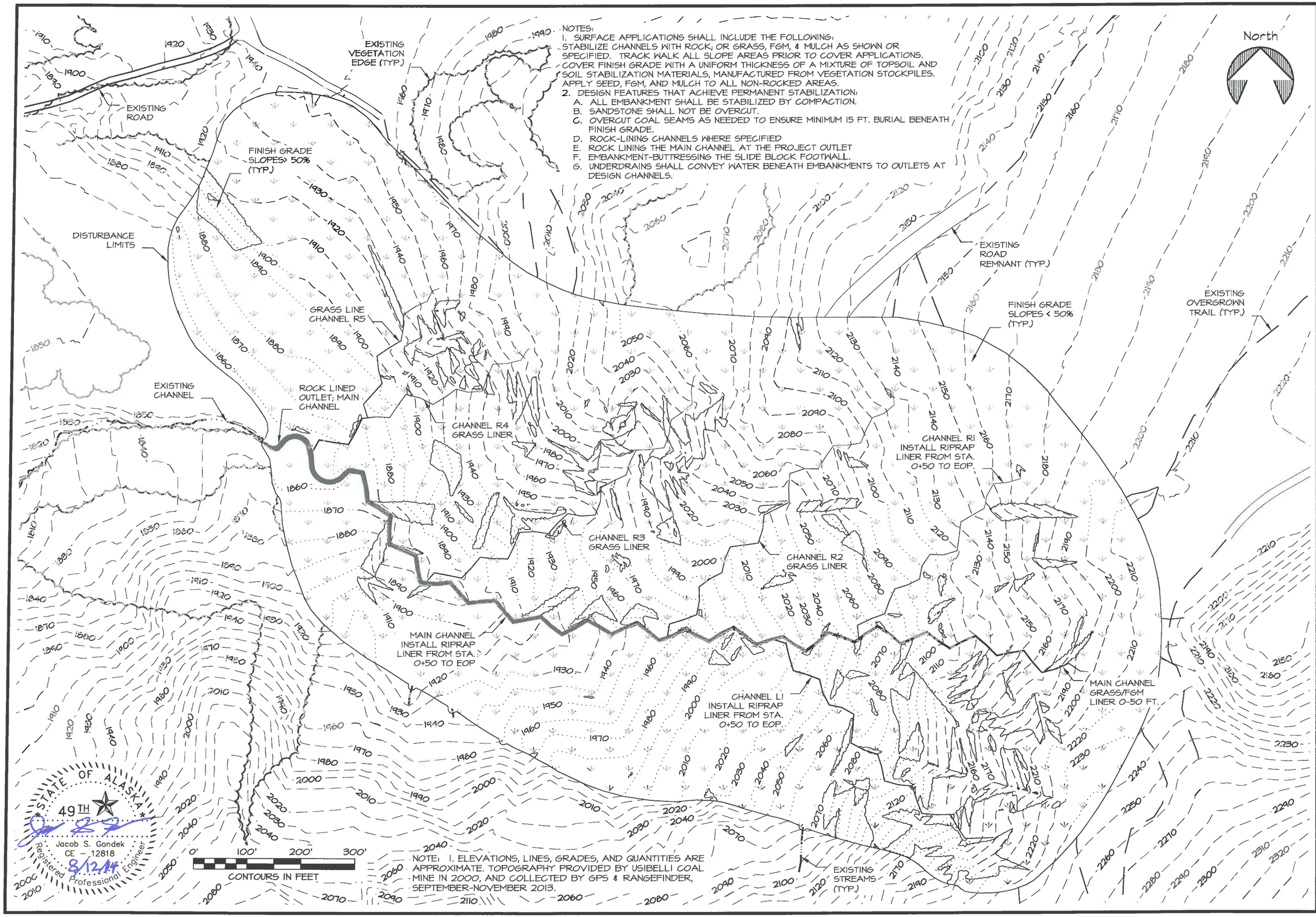
HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/01/2014

SHEET 17 OF 18 SHEETS

NOTES:
1. SURFACE APPLICATIONS SHALL INCLUDE THE FOLLOWING: STABILIZE CHANNELS WITH ROCK; OR GRASS, FGM, & MULCH AS SHOWN OR SPECIFIED. TRACK WALK ALL SLOPE AREAS PRIOR TO COVER APPLICATIONS. COVER FINISH GRADE WITH A UNIFORM THICKNESS OF A MIXTURE OF TOPSOIL AND SOIL STABILIZATION MATERIALS, MANUFACTURED FROM VEGETATION STOCKPILES. APPLY SEED, FGM, AND MULCH TO ALL NON-ROCKED AREAS.
2. DESIGN FEATURES THAT ACHIEVE PERMANENT STABILIZATION:
   A. ALL EMBANKMENT SHALL BE STABILIZED BY COMPACTION.
   B. SANDSTONE SHALL NOT BE OVERCUT.
   C. OVERCUT COAL SEAMS AS NEEDED TO ENSURE MINIMUM 15 FT. BURIAL BENEATH FINISH GRADE.
   D. ROCK-LINING CHANNELS WHERE SPECIFIED
   E. ROCK LINING THE MAIN CHANNEL AT THE PROJECT OUTLET
   F. EMBANKMENT-BUTTRESSING THE SLIDE BLOCK FOOTWALL.
   G. UNDERDRAINS SHALL CONVEY WATER BENEATH EMBANKMENTS TO OUTLETS AT DESIGN CHANNELS.



NOTE: 1. ELEVATIONS, LINES, GRADES, AND QUANTITIES ARE APPROXIMATE. TOPOGRAPHY PROVIDED BY USIBELLI COAL MINE IN 2000, AND COLLECTED BY GPS & RANGEFINDER, SEPTEMBER-NOVEMBER 2013.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

HYDRAULIC PIT RECLAMATION
PROJECT No. 13948-3

FINAL STABILIZATION

ALASKA STATE PARKS

PREPARED: RDA
DRAWN: RDA
REVIEWED: JSG
DATE: 08/11/2014

SHEET 8 OF 18 SHEETS