SITE RESTORATION PLAN

WRANGELL JUNKYARD SITE
WRANGELL, ALASKA

ADEC File # 1529.38.006
SEPTEMBER 7, 2018

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADOT	Alaska Department of Transportation
CBW	City and Borough of Wrangell
DRO	Diesel Range Organics
E&E	Ecology & Environment
EPA	Environmental Protection Agency
FSG	Field Sampling Guidance (ADEC)
mg/Kg	Milligrams per kilogram
NRC	NRC Alaska LLC
PAH	Polycyclic Aromatic Hydrocarbon(s)
QA/QC	Quality Assurance and Quality Control
RCRA	Resource Conservation and Recovery Act
ROW	Right of Way
SAP	Sampling and Analysis Plan
SPLP	Synthetic Precipitation Leaching Procedure
START	Superfund Technical Assessment and Response Team
SRP	Site Restoration Plan
TCLP	Toxicity Characteristic Leaching Procedure
tvoc	Total Volatile Organic Compounds
µg/L	Microgram per Liter

1.0 EXECUTIVE SUMMARY

The Wrangell Junkyard (Site) is owned by the City and Borough of Wrangell (CBW) and has been the subject of ongoing environmental assessment and remedial investigations since 2001.

In 2016, the Alaska Department of Environmental Conservation (ADEC) contracted NRC Alaska to conduct an emergency cleanup action at the Site. The Remedial Action had two primary objectives; the removal of all remaining solid waste debris from the Site and the removal of all contaminated soil from the Site to residential cleanup limits. Approximately 18,350 cubic yards of lead contaminated soil was excavated from the Site. This soil material was treated with ECOBOND®, and stockpiled in engineered containment cells at the Site.

In 2018, NRC Alaska was awarded a contract to remove the stockpiled soil material from the Site. This material is being removed from the existing stockpile, loaded into containers and is being transported off-site to an approved TSDF in the lower 48.

Per ADEC request, the NRC Alaska Project Team is providing this Site Restoration Plan. This plan describes the general layout and conditions that will remain at the Site upon completion of the stockpile soil removal effort, and the activities that will be conducted to attain and document the final Site restoration.

2.0 BACKGROUND

2.1 Site Location and Description

The Wrangell Junkyard property (Site) is located at 4 Mile Zimovia Highway, Wrangell, Alaska 99929 (Figure 1). Situated north of the highway, the property is located approximately 150 feet from Zimovia Strait (Figure 2). The parcel number of the property is 03-006-303, Lot Y2, Tract Y, United States Survey (USS) 2321, and is recorded as covering 2.51 acres. The property is located in Township 63 South; Range 38 East; Section 7; Copper River Meridian. The Site latitude is 56.4227º N and longitude 132.3563º W.

The property is currently undeveloped with no permanent structures.

2.1.1 Soils

Surface soils at the Wrangell Junkyard Site were previously stripped to a blue-gray silt soil horizon approximately three to five feet beneath the former ground surface. The silt horizon is of glacial origin, contains numerous large granitic boulders, is highly compacted and impermeable. For the purposes of this report, this glacial till soil is herein referred to as blue clay. Prior to removal, native Site soils generally consisted of organic silty loam overlying the silt hardpan. Past disturbances to the native soils at the Site resulted in the introduction of various fill materials including sand, gravel, shot rock, boulders and coarse woody organics mixed into the matrix. Bedrock was not encountered at the Junkyard Site.

2.1.2 Groundwater

Specific groundwater data for Wrangell and for the Site specifically is limited. Groundwater in this area is usually shallow with variable depths due to the presence of the glacial till that controls groundwater flow. Although ground water exists within surficial sediments and bedrock surrounding Wrangell, there is no known substantial ground water supply capable of sustaining the entire community of Wrangell (Cederstrom 1952). However, domestic wells supplied drinking water to residences near the site prior to the City of Wrangell providing municipal water to this area. Presently, these wells are no longer in use.

2.1.3 Surface Water

The nearest surface water body to the Site is Zimovia Strait which is located approximately 150 feet to the west of the Site. Two intermittent surface water drainages exist north and east of the Site. These channels were constructed to collect surface water run-off originating from the forested hillside to the north and east of the Site and divert this water around the property. For the purposes of this document, these drainages are herein referred to as the northeast drainage and the northwest drainage. Both of the drainages convey water to the roadside ditches along Zimovia Highway where this water then flows beneath the highway via culverts and into Zimovia Strait.

2.2 Site History

Site use prior to the 1960s is unknown. Between the early 1960 through 1994 the property was used as a salvage yard under the name Byford Salvage. The salvage yard accepted most solid waste, including automobiles, tires, car and boat batteries, boats, drums and other scrap metal. and Mr. Byford operated a lead foundry in one of main shop buildings located at the Site. In 1994, the property was sold to Mr. Curtis Gibb who conducted limited salvage of the materials

remaining at the Site. In 2008, the City and Borough of Wrangell (CBW) foreclosed on the property due to unpaid property taxes.

2.3 Previous Environmental Investigations

In March 2016, NRC Alaska LLC (NRC Alaska) conducted a Remedial Action at the Wrangell Junkyard Site. Approximately 18,350 cubic yards of lead contaminated soil was excavated from the Site, treated and stabilized with ECOBOND®, and placed in engineered containment cells on the northwestern portion of the property. In June, 2018, NRC Alaska began the removal of the stockpiled material from the Site. The removed soil is being containerized and transported off-site to a treatment, storage and disposal facility in Eastern Oregon. The removal effort is expected to be completed by mid-October of 2018. Post-removal sampling will be conducted after completion of the removal effort and prior to completion of the final Site restoration activities.

3.0 SITE RESTORATION

This Site Restoration Plan (SRP) provides a description of the final surface condition of the Site at the completion of this stockpile removal effort. The SRP includes a generalized depiction of the final topographic layout of the Site after final grading, shows the locations of existing and proposed surface and sub-surface drainages, and provides the location of any remaining access roads, working pads and/or other surface improvement features which will remain at the Site.

3.1 Site Access

Primary Site access to the Site is from Zimovia Highway located southwest of the Site. Currently, two driveways access the Site, the middle driveway and the western driveway (Figure 2). The middle driveway has been the primary access for equipment and vehicles involved in the stockpile removal effort. This driveway access will be closed off by placing numerous large rocks along the southern property boundary upon completion of the project. The western driveway will become the primary access point to the Site.

At present, the western driveway is approximately twelve feet in width. This driveway will be widened to approximately 30 feet in width as shown on Figure 4. Widening of this driveway will necessitate the removal of an existing utility pole in the Zimovia Highway right-of-way (ROW) and the installation of a new utility pole to the east. The utility pole re-location will be completed by the City and Borough of Wrangell (CBW). Furthermore, the driveway access widening will also require the installation of a new culvert connecting the road side ditches in the ROW, and the partial filling of one of these road side ditches.

The grade of this access road will follow the existing topography of the Site. The driveway will be surfaced with a layer of D1 crushed rock which will be graded and compacted to attain a smooth and even driving surface.

This access driveway will connect to the existing road surfaces and work area pads that were constructed during the stockpile removal effort. The loop roads and working pads are presently capped with D1 rock that was graded and compacted and will remain at the Site at completion of the project.

3.2 Site Drainage

Wrangell receives approximately 82 inches of annual precipitation, the majority of which falls as rain. Much of this incoming precipitation drains from the forested highlands towards Zimovia Straits through numerous small creeks and streams, many of which are intermittent. Some of the incoming precipitation infiltrates into the soil where this water generally drains down-slope towards Zimovia Strait.

Figure 4 shows the existing drainages, surface and sub-surface, at the Site and on the immediately surrounding properties. The map also shows the general direction of surface and sub-surface water flow.

3.2.1 Surface Drainages

There are two primary surface water drainages on, and/or immediately adjoining the Site. The northeast drainage exists along the northern property boundary. The drainage is mostly located on adjoining off-site properties with the exception of a short segment of the drainage which crosses the northeastern most property corner.

This drainage was constructed early on in the development of the Wrangell Junkyard Site history. A retention pond was created to capture and store runoff from the forested hillside to the north for use at the Junkyard Site. Water exits this retention pond via an outlet at the east end and flows through a narrow and shallow drainage to the east-southeast along the northern property boundary. This drainage then turns south and flows to a roadside ditch along Zimovia Highway and from here is conveyed via a culvert beneath the highway to discharge into Zimovia Strait.

The northwest drainage swale was constructed to convey surface water around the perimeter of the Site property in 2016 during the contaminated soil removal effort. The swale intercepts several small intermittent streams and seeps originating from the forested hill side north of the Site near the northwestern most property corner.

Prior to the 2016 excavation effort, a water conveyance previously existed in this same area along the northwestern property boundary. This former water conveyance was comprised primarily of large rocks which directed the surface runoff to the sub-surface environment. The conveyance was excavated to remove the large rocks, stumps and improved by lining the underlying surface soil with a geotextile fabric. A base course of fine crushed rock was placed on the fabric and then covered with a layer of six-inch rock approximately 1.5 to 2 feet in thickness. The crushed rock material was then graded and shaped to form the swale which currently exists at the Site. This drainage swale terminates at the property boundary where the water flows into an off-site forested area and disappears to the subsurface.

A surface drainage swale was also constructed on the southeastern portion of the Site, up-slope from the Goodwin property. This surface swale was constructed to prevent potential sheet-flow from the Site from entering onto the adjoining Goodwin property situated immediately down slope from the Site. This surface swale is underlain by a subsurface drainage which was cut into the blue clay hardpan and directs the sub-surface water runoff from this portion of the Site toward the center of the Site and away from the Goodwin property.

The northeast drainage, the northwest drainage swale and the southeastern drainage swale will remain at the Site without further modification.

Precipitation which falls directly upon the Site property primarily infiltrates through the rock material that was used to backfill the excavated areas during the 2016 contaminated soil excavation activities. However, it should be noted that the stockpiled soil material which remained at the Site was covered with an impermeable fabric. The covered stockpile encompassed approximately 0.88 acres in area which and directed a large volume of precipitation as sheet-flow into the northwest drainage swale. The removal of the stockpile and this large impervious surface will decrease the volume of water currently being directed into the northwest drainage.

3.2.2 Sub-surface Drainages

Sub-surface drainage at the Site is controlled by the impermeable blue clay soil underlying the Site. The slope and direction of the blue clay dictates the direction of sub-surface water flow. In general, the blue clay layer slopes from the top of the Site, at the northern property line, down towards Zimovia Strait.

During the 2016 excavation effort, native soils were removed within the excavation area (Shown on Figures 2 through 5) down to this blue clay layer. The excavated areas were backfilled with imported crushed rock and large oversized cobbles and boulders removed during the excavation effort. These fill materials are highly permeable and drain water rapidly to the underlying blue clay surface.

Several sub-surface water diversion features were excavated into the blue clay to control the direction of the sub-surface water flow during the 2016 Site excavatiuon efforts. A shallow trench, approximately three feet wide and about 12 to 18 inches in depth was excavated into the blue clay along the western margin of the stockpile area. The trench was filled with crushed rock and was installed to direct sub-surface water from flowing directly beneath the stockpile liner.

A similar sub-surface drainage feature was installed to the east of the Byford garage and residence to direct sub-surface water flow away from the Byford house. As previously mentioned, a third sub-surface drainage feature was installed to the north of the Goodwin residence.

After completing the removal of the stockpiled soil material, a new sub-surface drainage diversion will be excavated beneath a portion of the stockpile footprint. This drainage would start along the western edge of the stockpile area and tie into the existing sub-surface drainage that exists there. The drainage will be excavated to the south to the approximate middle of the Site. The intent is to shunt sub-surface water draining over the blue clay surface towards the central portion of the Site and away from the off-site properties immediately to the southwest.

3.3 Site Grading

Final Site grading will be accomplished using heavy equipment which may include excavators, loaders, bulldozers and rolling compactors. Figure 2 shows the pre-existing Site prior to initiating the stockpile removal effort. Figure 4 provides a generalized graphic description of the Site as it will be left after completion of the removal effort and final Site grading. Figures 5 and 6 show the lines of section and generalized cross-sectional diagrams of the anticipated final grade of the Site at the completion of the restoration effort.

During the 2018 stockpile removal effort, several vehicle loop roads were constructed at the Site. Also, a working area pad was constructed on the northern portion of the Site. These features were constructed by placing D1 crushed rock which was then compacted to provide an driving surface for equipment and vehicles used during the stockpile removal effort. These features will remain in place without further modification at the completion of the project.

After completing the removal of all stockpiled material, the existing containment cells will be decommissioned. The rock material comprising the containment berms (primarily 6-inch crushed rock) will be re-distributed across the northwestern portion of the Site and the former stockpile footprint. Although the configuration of the final stockpile pad surface has not been determined yet, to the extent practicable, the material will be graded to create a relatively flat pad surface from west to east, with a slight dip from north to south. Finish grading will be conducted such that the perimeter edges of the pad maintain a minimum slope of 2:1.

The finished Site surface is expected to be generally similar to that shown on Figure 4. The existing loop road surfaces upper working pad will remain in place without further modification. The stockpile containment berms will be used to create a pad surface as described above. Upon completion, the entire Site will be covered with rock at a minimum thickness of one foot or greater.

The finished grade is expected to be relatively even without significant changes in elevation from east to west. Any areas with breaks in elevation will be graded such that an even transition is maintained between the areas of differing elevations.

The natural slope of the property is from the northeast to the southwest with an approximate elevation changes of 65 vertical feet over approximately 450 linear feet (14% grade). The final slope of the Site will not exceed 16% grade in any area(s) and is generally expected to be significantly less than this across the majority of the Site.

Upon completion of the final Site grading, ***NORTECH*** will complete field mapping of the Site to document final Site conditions including the locations of all remaining Site features and the relative percent grade of the Site.

4.0 PROJECT TIMELINE

NORTECH will conduct the Site mapping and documentation of the final Site layout and conditions upon completion of the removal of the stockpiled soil material and upon ADEC approval of this SRP. The following is an anticipated schedule for the activities proposed within this SRP:

Project Milestone	Anticipated Date
Submit Site Restoration Plan	September 2018
Complete Stockpile Removal	Early-October 2018
Post-Removal Closure Sampling	Early-October- 2018
Site Restoration Activities and Field Mapping	Early to Mid October
Demobilization and Site Restoration Report	November 2018

5.0 REPORTING

All project related field activities will be recorded in field notes. Photographic documentation will also be conducted during field activities. Field notes will include an explanatory narrative of the work completed during field activities. ***NORTECH*** will also provide a Site Restoration report which will include a narrative description of the field activities and provide graphic diagrams showing the final Site grade and locations of remaining Site features.

6.0 LIMITATIONS

While ***NORTECH*** believes that the activities and methods described in this work plan are appropriate, reasonable alternative field procedures may be used to perform the activities necessary under this contract. Alternative procedures may be necessary based on changes that have occurred on the site, unforeseen site conditions, and/or changes in ADEC requirements. If necessary, alternative methodology implemented by ***NORTECH*** will be appropriate, safe, within industry standards, and approved by ADEC as necessary.

7.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Ronald J. Pratt is a Senior Environmental Scientist for ***NORTECH.*** Mr. Pratt is a Qualified Environmental Professional as defined in 18 AAC 75.390(b), with more than 20 year of professional environmental consulting experience in California, Washington, and Alaska.

Jason Ginter, PMP, Principal and Juneau Technical Manager for ***NORTECH,*** is a Qualified Environmental Professional as defined in 18 AAC 75.390(b), and has extensive experience conducting hazardous materials investigations, property assessments, and other environmental fieldwork throughout Alaska.

Primary Author Signature

Ronald J. Pratt
Senior Environmental Professional

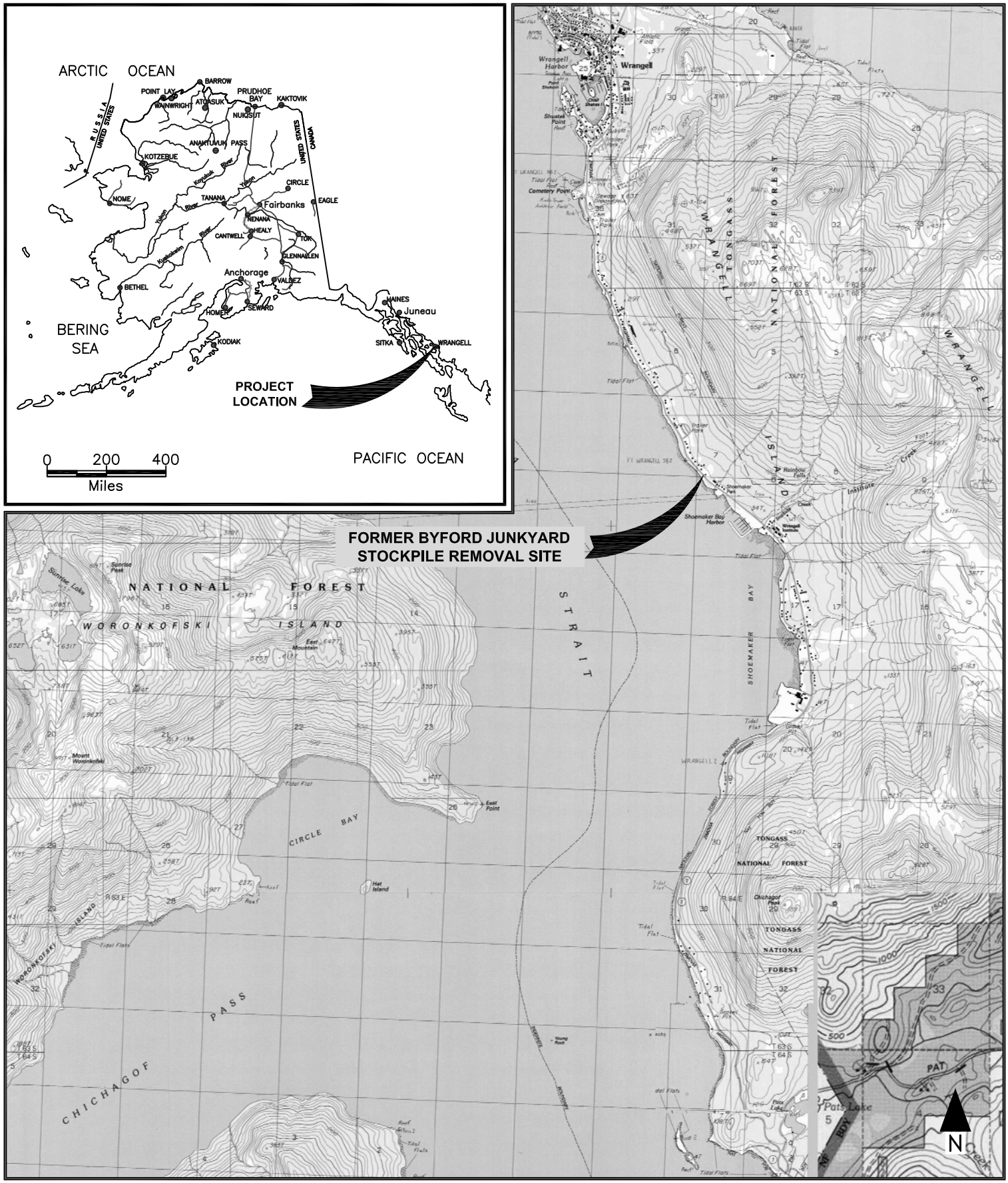
Principal Reviewer

Jason Ginter, PMP
Principal, Juneau Technical Manager

S. Daniel Strucher
Sr. Project Manager
NRC Alaska, LLC

APPENDIX A

FIGURES



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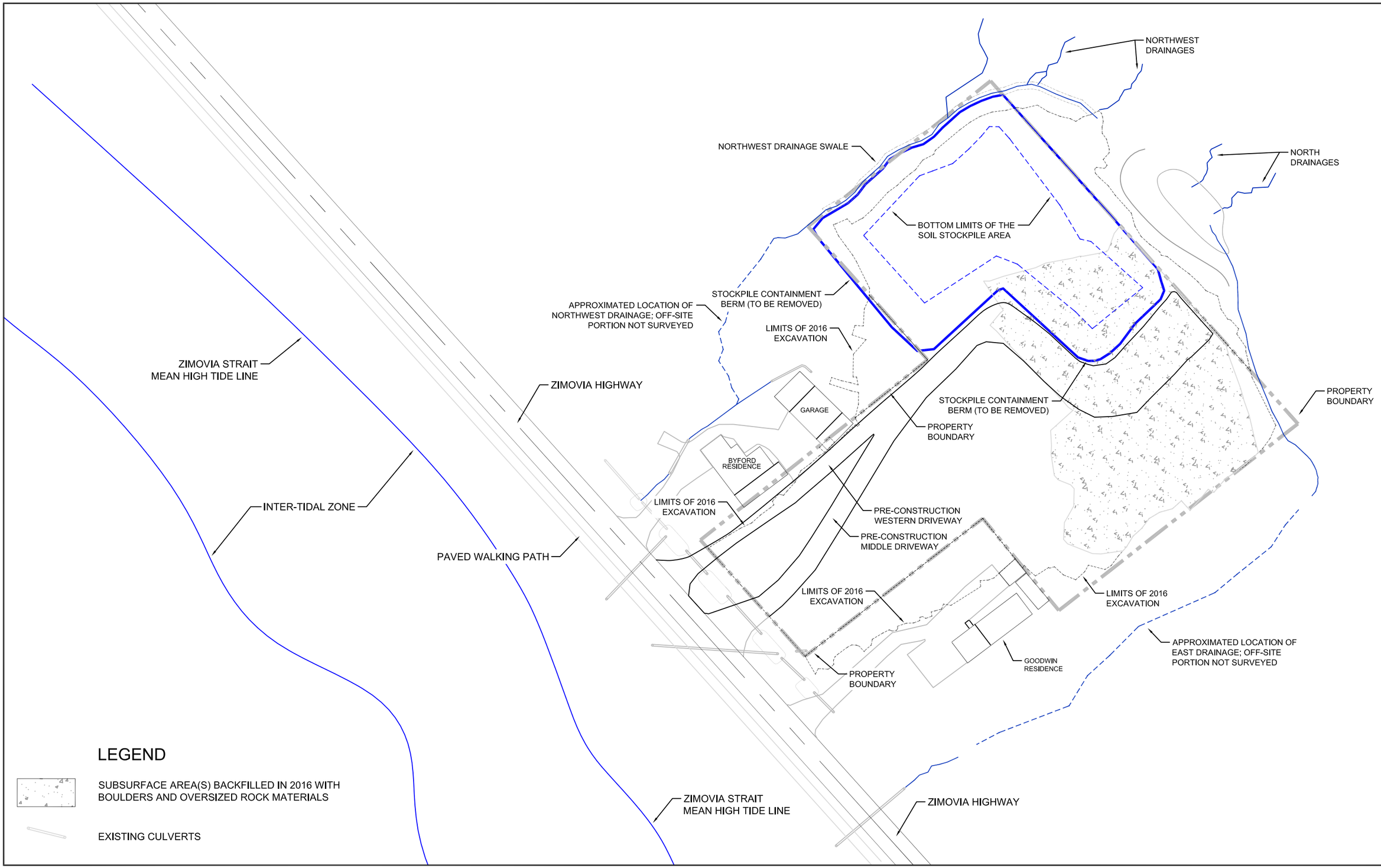
Site Location Map

Former Byford Junkyard – Site Restoration Plan

4 Mile Zimovia Highway, Wrangell, Alaska

ADEC AR Term Contract 18-70020-01

SCALE:	1" = 1 Mile	FIGURE: 1
DESIGN:	JHG	
DRAWN:	RJP	
PROJECT NO:	18-2781	
DWG:	182781b(01)	
DATE:	08/24/2018	



LEGEND

SUBSURFACE AREA(S) BACKFILLED IN 2016 WITH BOULDERS AND OVERSIZED ROCK MATERIALS

EXISTING CULVERTS

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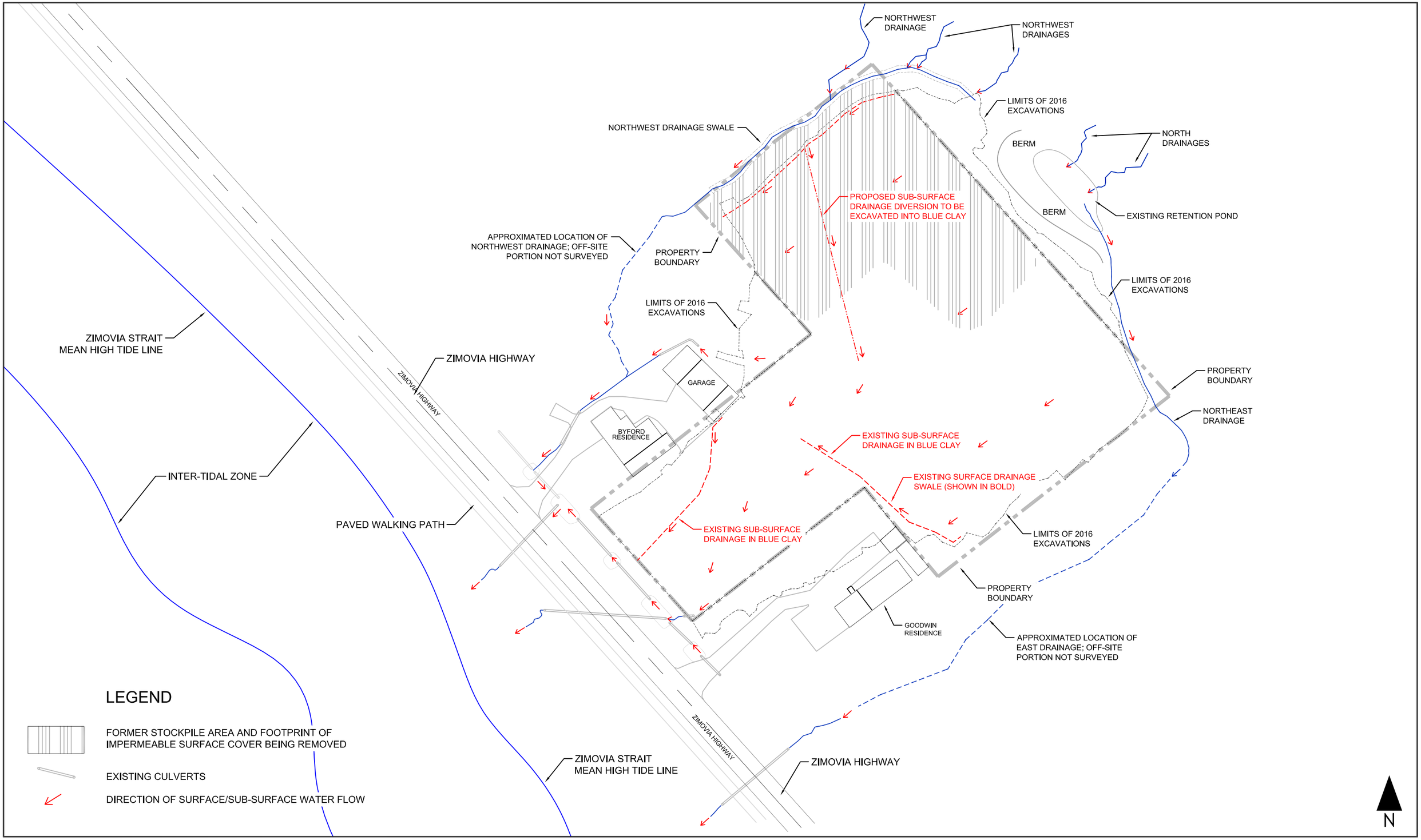
Site Map Showing Pre-Stockpile Removal Site Conditions
Wrangell Junkyard Site Restoration Plan – 4 Mile Zimovia Highway, Wrangell, Alaska
ADEC AR Term Contract 18-70020-01

DATE: 08/31/2018	SCALE: 1" = 75'
PROJ MGR: JHG	PROJECT: 18-2781
DRAWN: RJP	DWG. NO.: 182781b(02)

FIGURE 2



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Site Map Showing Existing and Proposed Site Surface and Sub-Surface Drainages
Wrangell Junkyard Site Restoration Plan – 4 Mile Zimovia Highway, Wrangell, Alaska
ADEC AR Term Contract 18-70020-01

DATE: 09/05/2018	SCALE: 1" = 75'
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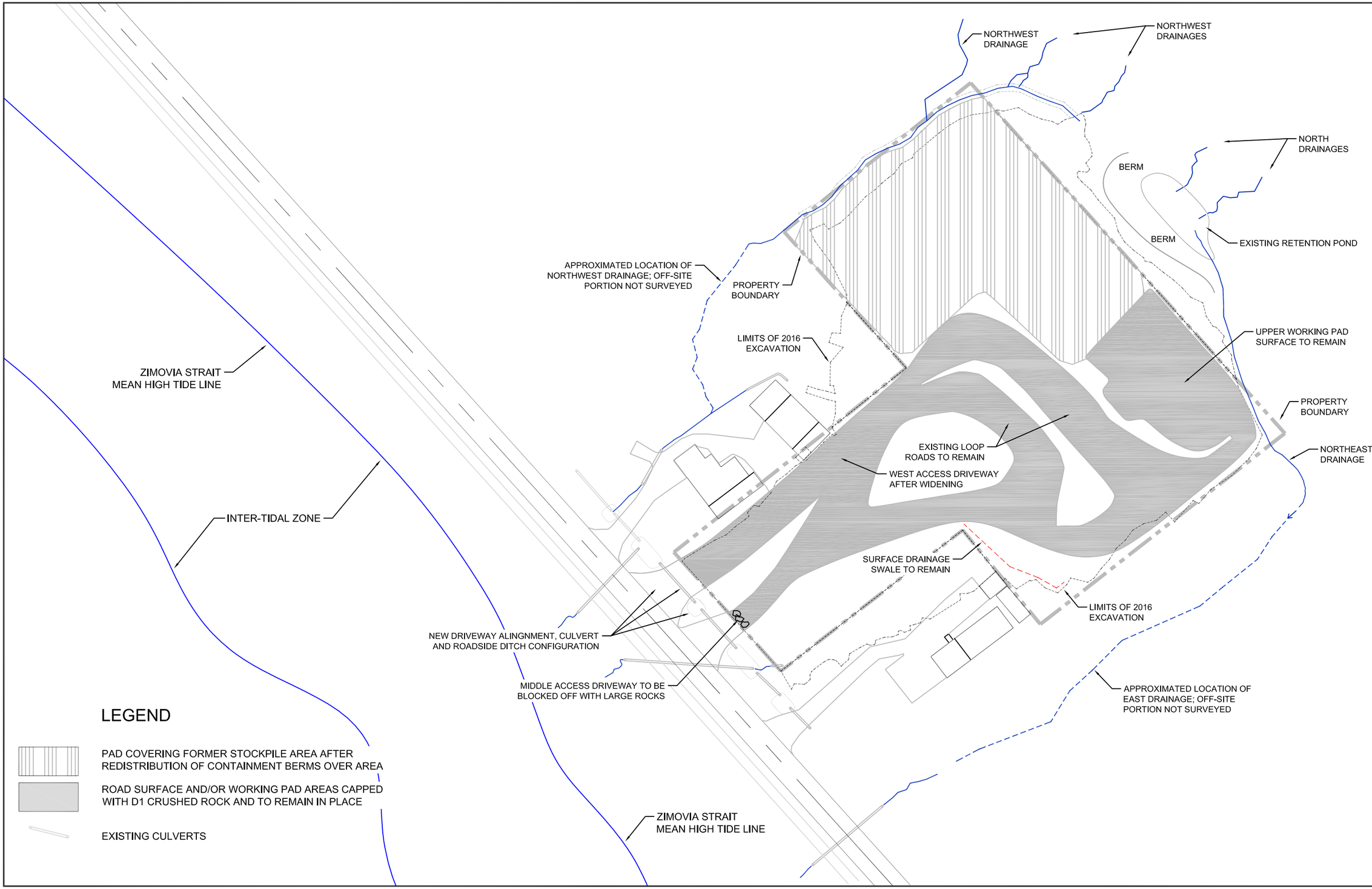
DRAWN: RJP	DWG. NO.: 182781b(03)

FIGURE 3



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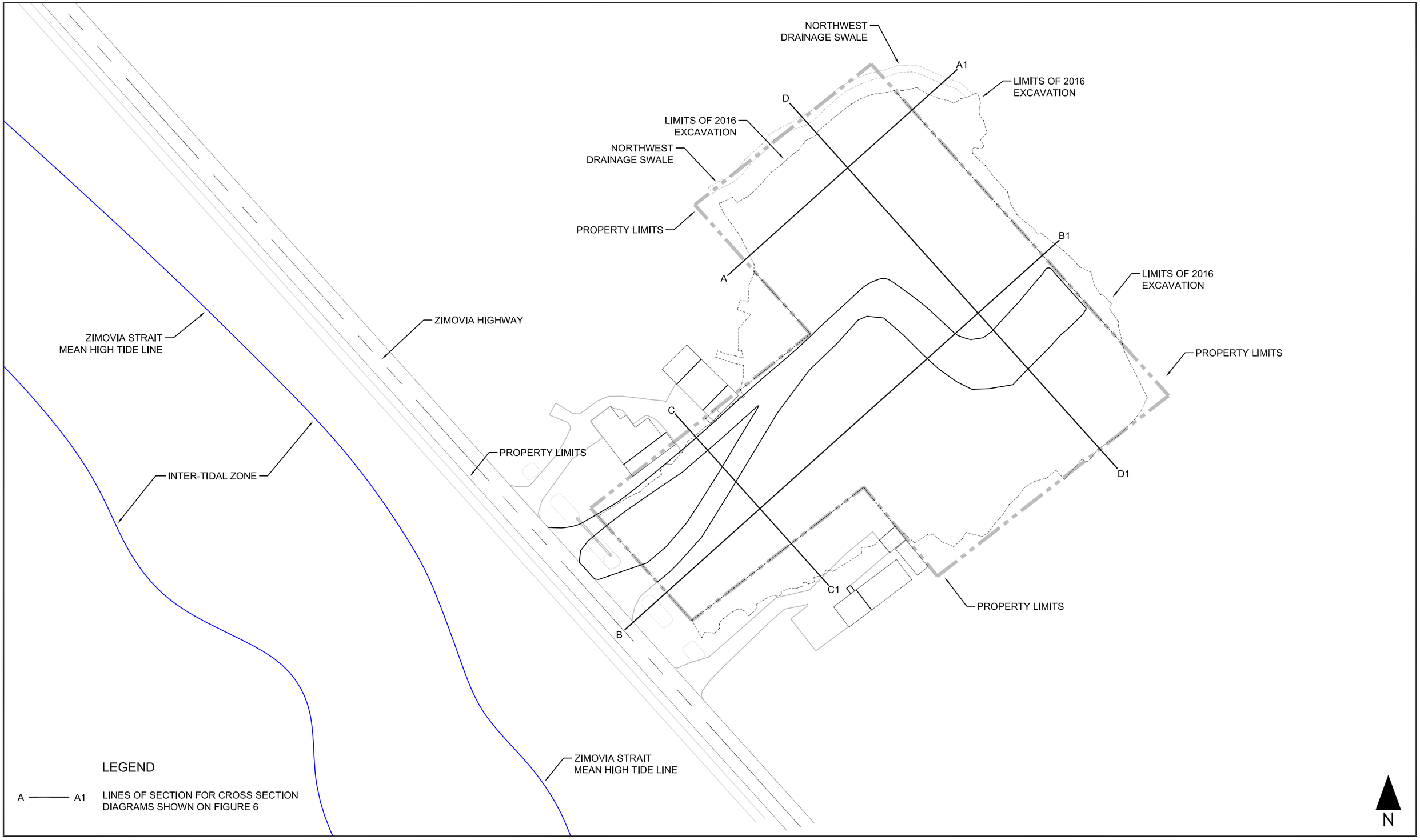
Site Map Showing Access Roads, Pads, and Features to Remain
Former Byford Junkyard – Soil Stockpile Removal – 4 Mile Zimovia Highway, Wrangell, Alaska
ADEC AR Term Contract 18-70020-01

DATE: 09/04/2018	SCALE: 1" = 75'
PROJ MGR: JHG	PROJECT: 18-2781
DRAWN: RJP	DWG. NO.: 182781b(04)

FIGURE 4



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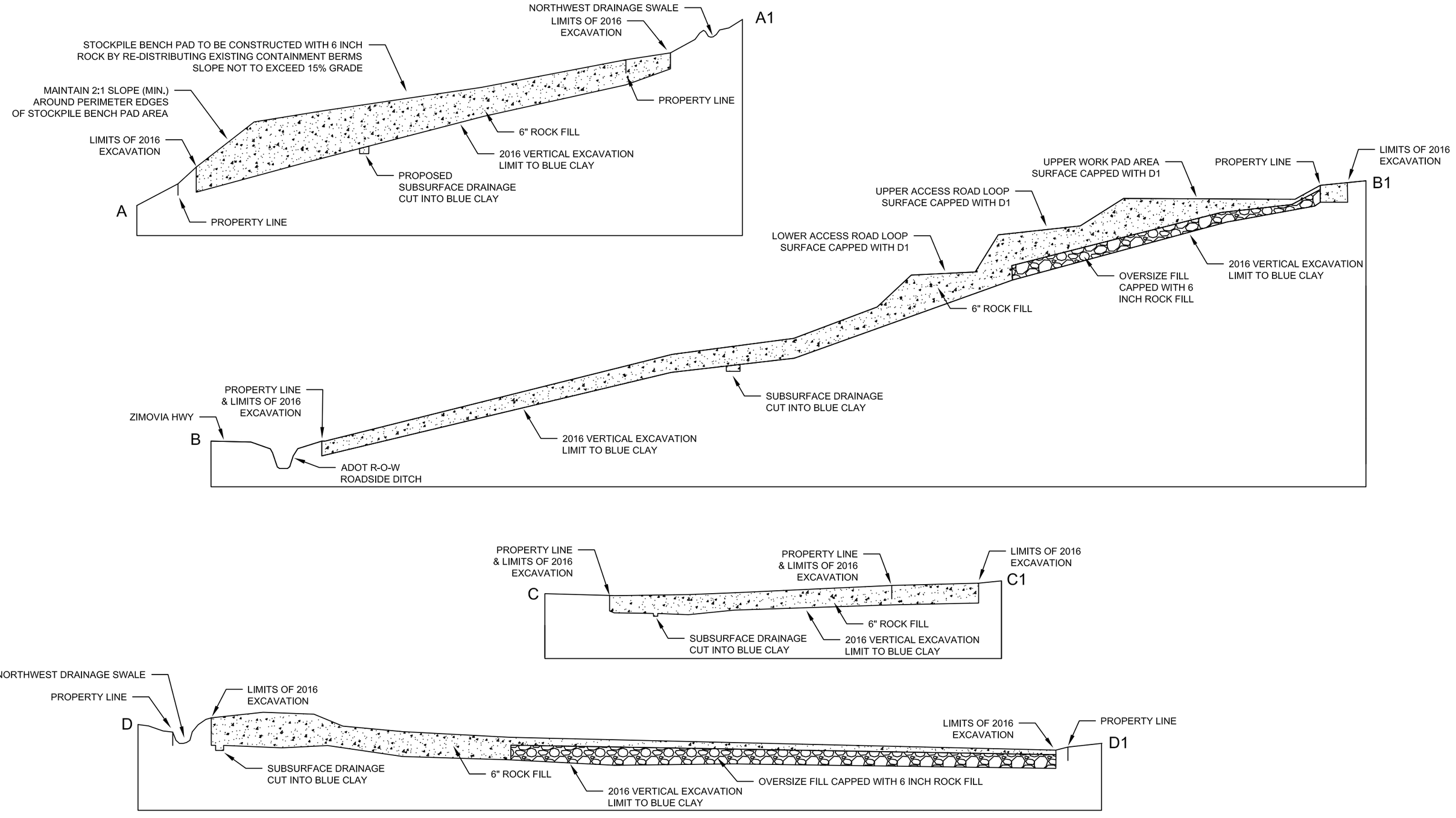
Site Map Showing Lines of Sections
Wrangell Junkyard Site Restoration Plan – 4 Mile Zimovia Highway, Wrangell, Alaska
ADEC AR Term Contract 18-70020-01

DATE: 09/05/2018	SCALE: 1" = 75'
PROJ MGR: JHG	PROJECT: 18-2781
DRAWN: RJP	DWG. NO.: 182781b(05)

FIGURE 5



NOTE: 2x VERTICAL EXAGGERATION IN CROSS SECTIONS.

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Cross Sectional Diagrams – Generalized Depiction of Finished Site Grade and Features
Wrangell Junkyard Site Restoration Plan – 4 Mile Zimovia Highway, Wrangell, Alaska
ADEC AR Term Contract 18-70020-01

DATE: 09/04/2018	SCALE: 1" = 40'
PROJ MGR: JHG	PROJECT: 18-2781
DRAWN: RJP	DWG. NO.: 182781b(05)

FIGURE 5X