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Subcontractor:	Item Number/Title/Revision:	Submittal Date:	SRCT No.:
Shannon & Wilson, Inc.	Geotechnical Report – Mina Rail Corridor, Rev. 0 (Submittal No. 7.28)	24 Apr 2007	07-00025

Section I. Submittal Information (includes above information)

Submittal Description and Revision Summary for Entire Submittal:

This report documents preliminary information collected from a literature review and field reconnaissance performed for the purpose of describing geologic conditions and presenting preliminary geotechnical recommendations for the proposed Nevada Rail Line for the Yucca Mountain Project. This is the final version of the report.

Special Instructions:

Section II. Data File Information (Add lines below if needed for additional files. Indicate "Last item" or "End of list" after last line used.)

Filename	Rev.	File Size	Description (File description and revision summary for file)	Application and Version/ Add-in or Extension and Version
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_Cover (Vol 2 of 2) 4-24-07.dwg	0	2,471 KB	Preliminary Geotechnical Report Front Cover, Vol. 2 of 2	AutoCAD 2007
SW-ColourMidWidth100.ctb	0	5 KB	Preliminary Geotechnical Report Cover, Vol. 1 of 2	AutoCAD 2007
_Spine 4-24-07.dwg	0	104 KB	Preliminary Geotechnical Report Cover Spine, Vol. 1 of 2	AutoCAD 2007
Cover Background.jpg	0	2,653 KB	Preliminary Geotechnical Report Cover, Vol. 1 of 2	Corel PHOTO-PAINT 8.0 Image
Spine 1.5.jpg	0	417 KB	Preliminary Geotechnical Report Cover Spine, Vol. 1 of 2	Corel PHOTO-PAINT 8.0 Image
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_CD Labels 4-24-07.dwg	0	593 KB	Preliminary Geotechnical Report CD Label	AutoCAD 2007
21-1-20102-214-R0x.doc	0	283 KB	Preliminary Geotechnical Report Title Sheet	MS Word 2003 SP2
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_Plate 3 4-24-07.dwg	0	80 KB	Plate 3, Geologic Cross Sections	AutoCAD 2007
Mina_x-sections_29jan2007_proj-loc_a.tif	0	219 KB	Plate 3, Geologic Cross Sections, Image	Corel PHOTO-PAINT 8.0 Image
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21-1-20102-214-R0-T1-Rev0.xls	0	65 KB	Table 1, Project Bibliography	MS Excel 2003 SP2	
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Cover (Vol 2 of 2 for import OLE) 24 April 07.ppt	0	699 KB	Cover page for Volume 2 of 2	Microsoft Powerpoint	
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Shannon & Wilson, Inc.			Geotechnical Report – Mina Rail Corridor, Rev. 0 (Submittal No. 7.28)	24 Apr 2007	07-00025
MRC Geotechnical Report, Rev 0, Vol 1.pdf	0	122,424 KB	Adobe Acrobat report, Volume 1	Adobe Acrobat 7.0	
MRC Geotechnical Report, Rev 0, Vol 2.pdf	0	62,832 KB	Adobe Acrobat report, Volume 2	Adobe Acrobat 7.0	
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KAA 4/25/07

Geotechnical Report
Mina Rail Corridor
Volume 2 of 2

Task 1.4a: Preliminary Geotechnical Analysis Report (Submittal No. 7.28)

Rev. 0

Prepared by:

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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Prepared for:

BECHTEL SAIC COMPANY, LLC

Nevada Rail Corridor
Yucca Mountain Project
Geotechnical Analysis
NN-HC4-00197

April 24, 2007

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TABLE 1
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TABLE 2
GENERALIZED STRATIGRAPHIC COLUMNS

Geologic Age			Radio-metric age (Ma)	Area 1[1]	Area 2[1]	Area 3[1]	Area 4[1]	Area 5[1]	Area 6[1]
Era	Period	Epoch		San Antonio Mountains; Southern Klondyke, General Thomas, and Goldfield Hills; Malpais Mesa; Mt. Jackson Ridge; Montezuma and Lida Valleys; and Lone Mountain	Montezuma Range, Clayton Hills, Paymaster Ridge, Palmetto Mountains, Silver Peak Mountains, Mineral Ridge, Weepah Hills, and Big Smoky Valley	Monte Cristo Range	Pilot Mountains, Gabbs Valley Range, and Gillis Range	Candelaria and Garfield Hills, Excelsior Mountains, Columbus and Rhodes Salt Marshes, and Soda Spring Valley	Wassuk Range, Walker River basin, Terrill and Desert Mountains, and Sunshine and Whiskey Flats
CENOZOIC	Quaternary	Holocene	<1.6	Fluvial, fan, dune, playa, and landslide deposits	Fluvial, fan, dune, and playa deposits; basalt flows and cinder cones	Fluvial, fan, basin-fill, eolian, and lacustrine deposits	Fluvial, fan, basin-fill, eolian, playa, and lacustrine deposits	Fluvial, fan, basin-fill, eolian, playa, and lacustrine deposits	Fluvial, fan, basin-fill, eolian, playa, and lacustrine deposits
		Pleistocene		Pediment or remnant alluvial fan deposits	Pediment deposits		Pediment or remnant alluvial fan deposits	Pediment or remnant alluvial fan and landslide deposits	Pediment or remnant alluvial fan and landslide deposits
	Tertiary	Pliocene	1.6-4.8		Conglomerate and sandstone		Gravel deposits		Gravel deposits
			4.8-5.3		Basalt and basaltic andesite lava flows	Basalt lava flows and cinder cones		Basalt to andesite lava flows, flow breccia, and cinder cones	Basalt lava flows and cinder cones
					Conglomerate, sandstone, siltstone, claystone, and tuff		Fanglomerate	Conglomerate, sandstone, siltstone, shale, and diatomite	Gravel deposits
			5.3-6.9		Silver Peak Volcanics		Latite lava flows, plugs, and dikes	Basalt of Rattlesnake Canyon	
								Latite flows, plugs, and dikes	
			6.9-7.4		Weepah unit		Alluvium and colluvium		
		Upper Miocene		Malpais Basalt and Rabbit Spring Formation		Basalt flows, cinder cones, sandstone, and conglomerate		Andesite and basalt flows, dikes, and sedimentary rocks	Basalt, basaltic andesite, and andesite lava flows
			7.4-9.0	Tuff of Stonewall Flat	Tuff of Stonewall Flat	Rhyolite domes, flow breccia, tuff, and sedimentary rocks			
							Fine-grained lacustrine sediments, fluvial gravel deposits, and sandstone		
							Rhyolite flows, dikes, & plugs	Rhyolite flows, dikes, & plugs	Rhyolite flows, dikes, & plugs
							Basalt flows, dikes, and plugs	Basalt lava flows	
							Landslide deposits		
			9-15	Rhyolite of Klondyke	Rhyolite agglutinate	Esmeralda Formation with basal basalt flows and lahars		Conglomerate, landslide breccia, gravel, sandstone, siltstone, and silty claystone, with intervals of tuff, volcanic breccia, and mafic lava flows	Wassuk Group (sedimentary and volcanic rocks)
				Pozo Formation	Esmeralda Formation				Latite to andesite lava flows, lahars, dikes, and plugs
				Trachyandesite of Mud Lake and	Basalt lava flows				Sedimentary breccia, conglomerate, and sandstone
				Siebert Tuff, Mira Basalt, and rhyolitic ash-fall tuff, tuff breccia, and andesite lava flows in Mount Jackson area					
		Middle Miocene	15-17	Trachyandesite of Red Mountain	Andesite to dacite lava flows and lahars; subordinate ash-fall tuff, sandstone, and shale	Gilbert Andesite	Andesite to rhyodacite lava flows, lahars, and shallow intrusive bodies, locally intercalated with volcaniclastic rocks and andesitic to rhyolitic ash-flow tuff	Andesite to dacite lava flows, subordinate lahars, and a shallow, micromonzonite intrusive	
				Brougher Rhyolite	Brougher Rhyolite, Oddie Rhyolite, and equivalent rhyolite to dacite dikes, plugs, domes, and flows	Sedimentary rocks of McLeans			
				Volcanics of Donovan Peak		Upper (lava flow) unit of Blair Junction sequence			
				Oddie Rhyolite					
				Divide Andesite		Middle (lithic tuff) unit of Blair Junction sequence			
								Olivine basalt flows	
		Lower Miocene	17-22	Landslide and Fluvial Deposits		Rhyolite intrusions, breccia, and lava flows	Rhyolite of Gabbs Valley Range	Rhyolite of Gabbs Valley Range	
				Fraction Tuff (includes Meda Rhyolite and Heller Tuff)					
				Andesite and dacite lava flows			Lavas of Mount Ferguson	Lavas of Mount Ferguson	
				Espina Breccia					
				Rhyolite of Wildhorse Spring					
				Chispa Andesite					
				Tuff of Chispa Hills					
				Dacite at Goldfield					
				Andesite megabreccia					
				Sandstone and conglomerate					
				Milltown Andesite					

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Geologic Age			Radio-metric age (Ma)	Area 1[1]	Area 2[1]	Area 3[1]	Area 4[1]	Area 5[1]	Area 6[1]
Era	Period	Epoch		San Antonio Mountains; Southern Klondyke, General Thomas, and Goldfield Hills; Malpais Mesa; Mt. Jackson Ridge; Montezuma and Lida Valleys; and Lone Mountain	Montezuma Range, Clayton Hills, Paymaster Ridge, Palmetto Mountains, Silver Peak Mountains, Mineral Ridge, Weepah Hills, and Big Smoky Valley	Monte Cristo Range	Pilot Mountains, Gabbs Valley Range, and Gillis Range	Candelaria and Garfield Hills, Excelsior Mountains, Columbus and Rhodes Salt Marshes, and Soda Spring Valley	Wassuk Range, Walker River basin, Terrill and Desert Mountains, and Sunshine and Whiskey Flats
CENOZOIC	Tertiary	Lower Miocene	22-23.8	Rhyodacite to andesite flows and dikes of north Goldfield Hills	Andesite breccia	Lower (intermediate lava flows and tuff breccia) unit of Blair Junction sequence		Tuff of Candelaria	
				Silicic and lamprophyre dikes and sills of Lone Mountain area	Candelaria Junction Tuff			Candelaria Junction Tuff	Rhyolite and rhyodacite tuff
				Rhyodacite ash-flow tuff	Rhyolite to rhyodacite ash-flow tuffs	Dacite and andesite to rhyodacite ash-flow and ash-fall tuffs, tuff breccia, lava flows, and intrusive rocks		Andesite breccia of Little Summit and andesite tuff	
							Belleville Tuff	Belleville Tuff	
							Sandstone, conglomerate, siltstone, diatomite, and tuff	Tuff of Eastside mine	
		Oligocene	23.8-26		Metallic City Tuff	Tuff of Castle Peak	Tuff of Redrock Canyon	Metallic City Tuff	
				Volcaniclastic sandstone and siltstone	Conglomerate, sandstone, and basalt flows		Siltstone, tuff, tuffaceous sandstone, and conglomerate	Tuff of Candelaria Mountain	
							Lavas of Redrock Canyon		
							Hu-Pwi Rhyodacite	Tuff of Volcanic Hills	Hu-Pwi Rhyodacite
							Intermediate lavas of Nugent Wash area		
							Lacustrine shale	Tuff of Pinchot Creek	
							Blue Sphinx Tuff		Blue Sphinx Tuff
							Tuff of Gabbs Valley, siltstone, and sandstone	Tuff of Miller Mountain	Dacite, rhyodacite, and rhyolite ash-flow tuffs
				Tuff of Antelope Springs		Andesite lava flows	Rhyodacite lava flows		
						Tuffs of Crow Springs, Cedar Mountain, and Royston Hills	Petrified Spring Tuff		
				Monotony Tuff			Singatse Tuff	Altered rhyolite to rhyodacite ash-flow tuffs with andesite lava flows and gravel layers	Singatse Tuff
							Guild Mine Member of Mickey Pass Tuff		Mickey Pass Tuff
			26-30	Sandstorm Formation				Pervasively silicified tuffaceous and sedimentary rocks	
						Tuff of Cirac Valley			
							Bettles Lava and Lava of Giroux Valley		
							Conglomerate	Conglomerate	
			30-36	Kendall Tuff			Fine-grained to porphyritic, felsic and mafic intrusive rocks	Fine-grained to porphyritic, felsic intrusive rocks	Rhyolite porphyry dikes
				Vindicator Rhyolite					
				Rhyolite ash-flow tuffs					
		Eocene	36-58		Quartz monzonite of Mineral Ridge pluton				
		Paleocene	58-66						
MESOZOIC	Cretaceous		66-144	Granite and quartz monzonite of the Lone Mountain pluton and related intrusions	Quartz monzonite, monzonite, granodiorite, and granite of the Weepah, Dyer, Palmetto, Sylvania, Montezuma Range, and other plutons; mafic and felsic dikes and stocks	Quartz monzonite, granodiorite, and granite of the Redlich area, Gilbert district, and Crow Springs pluton, and related intrusions	Granite, quartz monzonite, and granodiorite of the Gillis Range and Red Granite mine plutons and related intrusions	Granite, granodiorite, and quartz monzonite of the Alum Creek and Whiskey Flat plutons and related intrusions	Granite, granodiorite, and quartz monzonite of the Black Mt., Walker Lake, Whiskey Flat, and other plutons
							Diorite, tonalite, and serpentine intrusive bodies	Diorite, tonalite, gabbro, and serpentine intrusive bodies	Diorite, tonalite, and gabbro intrusive bodies (dikes, stocks, and plugs)
							Volcanic rocks of Telephone Canyon	Gold Range Formation	Siltstone, argillite, and limestone, metamorphosed largely to hornfels, schist, and marble, and intruded locally by granite and granodiorite
							Dunlap Formation	Dunlap Formation	
	Jurassic		144-208				Granite of Thorne		
							Volcano Peak Formation		
							Sunrise Formation	Sunrise Formation	

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Era	Period	Epoch		San Antonio Mountains; Southern Klondyke, General Thomas, and Goldfield Hills; Malpais Mesa; Mt. Jackson Ridge; Montezuma and Lida Valleys; and Lone Mountain	Montezuma Range, Clayton Hills, Paymaster Ridge, Palmetto Mountains, Silver Peak Mountains, Mineral Ridge, Weepah Hills, and Big Smoky Valley	Monte Cristo Range	Pilot Mountains, Gabbs Valley Range, and Gillis Range	Candelaria and Garfield Hills, Excelsior Mountains, Columbus and Rhodes Salt Marshes, and Soda Spring Valley	Wassuk Range, Walker River basin, Terrill and Desert Mountains, and Sunshine and Whiskey Flats
MESOZOIC	Triassic		208-245				Gabbs Formation Luning Formation, middle clastic member Metamorphosed submarine lava flows and flow breccia of intermediate composition; tectonically brecciated and epidotized rhyolite; silicic to intermediate ash-flow tuff; hornfels, graywacke, argillite, and limestone Luning Formation, lower carbonate member	Gabbs Formation Luning Formation Pamlico Formation Clastic, volcaniclastic, and carbonate sedimentary rocks Metamorphosed submarine lava flows and flow breccia of intermediate to mafic composition; tectonically brecciated and epidotized rhyolite; silicic to intermediate ash-flow tuff, graywacke, conglomerate, chert, siltstone, hornfels, mudstone, argillite, slate, limestone, and marble	Andesite lava flows, latite to rhyolite tuff, and volcaniclastic rocks, largely metamorphosed to greenstone, serpentinite, and hornfels, and intruded locally by granodiorite and quartz monzonite dikes
PALEOZOIC	Permian		245-286			Candelaria Formation Mina Formation Diablo Formation Havallah sequence Limestone, dolomite, chert, & chert-pebble conglomerate Fine-grained clastic rocks, limestone, quartzite, and mafic volcanic rocks, partly metamorphosed to greenstone	Mina Formation Base of stratigraphic section not exposed	Candelaria Formation Black Dyke Formation Mina Formation Diablo Formation Limestone, dolomite, chert, & chert-pebble conglomerate Limestone, chert, sandstone, quartzite, hornfels, siltstone, and shale Palmetto Fm, metmorphosed Harkless Fm, metamorphosed Poleta Fm, metmorphosed Campito Formation, metamorphosed to hornfels Base of stratigraphic section not exposed	Base of stratigraphic section not exposed
	Pennsylvanian Mississippian		286-360						
	Devonian		360-408						
	Silurian Ordovician		408-505						
	Cambrian		505-570	Palmetto Formation Emigrant Formation Mule Spring Limestone Harkless Formation Poleta Formation Campito Formation	Palmetto Formation Emigrant Formation Mule Spring Limestone Harkless Formation Poleta Formation Campito Formation	Base of stratigraphic section not exposed			
LATE PROTER-OZOIC			570-900	Deep Spring Formation Reed Dolomite Wyman Formation	Deep Spring Formation Reed Dolomite Wyman Formation				
Information Sources				Albers and Stewart, 1972; Cornwall, 1972; Ashley, 1975; Bonham and Garside, 1979; Maldonado, 1984; Whitebread and John, 1992; Workman et al, 2002a	Albers and Stewart, 1972; Stewart et al, 1974, 1994; Robinson et al, 1976; Robinson and Stewart, 1984; McKee, 1985; Stewart, 1989; Stewart and Diamond, 1990; Workman et al, 2002a	Albers and Stewart, 1972; Stewart et al, 1994	Ross, 1961; Hardyman, 1980; Speed, 1981; Stewart et al, 1981a, 1982; Ekren and Byers, 1985a, 1985b; Oldow and Meinwald, 1992; Oldow and Dockery, 1993	Ross, 1961; Garside, 1979, 1982; Stewart, 1979; Speed and Cogbill, 1979; Speed, 1981; Stewart et al, 1981a, 1981b, 1982, 1994; Robinson and Stewart, 1984; Ekren and Byers, 1985b; Oldow and Speed, 1985; Oldow and Steuer, 1985	Bingler, 1978; Stewart et al, 1981a, 1981b, 1981c

Note: 1. Please refer to Figure 1 for the general location of the six principal areas represented by the generalized stratigraphic columns.

TABLE 3
DESCRIPTION OF GEOLOGIC UNITS

GEOLOGIC MAP UNIT SYMBOL	GEOLOGIC MAP UNIT NAME	GEOLOGIC MAP UNIT DESCRIPTION	REPRESENTATIVE GEOLOGIC UNIT	REPRESENTATIVE GEOLOGIC UNIT AGE (Ma)
Qmw	Mining waste	Excavated and processed ore dumped in tailings ponds and spoil piles adjacent to mines and mills.	Goldfield CMC tailings	Holocene
			Mine tailings near Millers	Holocene
Qc	Fluvial deposits	Unconsolidated, loose, variably silty, sandy gravel and gravelly sand, with cobbles and boulders in channels and floodplains of modern drainages.	Stream-channel and floodplain alluvium of modern washes, creeks, and rivers	Holocene
Qe	Eolian deposits	Unconsolidated, loose to medium-dense, fine to medium-grained sand and silt.	Sand dune, sheet, and ramp deposits	Holocene to Pleistocene
Qp	Playa and spring deposits	Interbedded clay, silt, and fine-grained sand with white, saline crusts and interbedded evaporite deposits in salt marshes and tufa mounds or travertine terraces at former spring sites.	Playa deposits of Columbus, Rhodes, and Teels Salt Marshes	Holocene to Pleistocene
			Spring deposits at mouth of Bettles Well Canyon	Holocene to Pleistocene
Ql	Lacustrine deposits	Poorly graded, rounded sand and gravel in strandline and beach deposits; gravel, sand, and sandy silt in littoral and nearshore deposits; and tufa mounds.	Deposits of ancestral and modern Walker Lake, small Pleistocene lakes, and glacial Lake Lahontan	Holocene to Pleistocene
Qls	Landslide deposits	Hummocky, lobate masses of unstratified, unsorted, angular, clay- to block-sized fragments of diverse rock types.	Debris flows in Gillis Range	Holocene to Pleistocene
Qbf	Basin-fill deposits	Brown and grayish-white, stiff to hard silt and clay and dense, silty to clayey, fine to medium-grained sand in gently sloping alluvial plains between the distal ends of alluvial fans and on the fringes of playas.	Undifferentiated eolian, lacustrine, floodplain, and distal alluvial-fan deposits, that occur together in low areas of modern basins	Holocene to Pleistocene
Qay	Younger alluvial fan deposits	Unconsolidated, loose to very dense, reddish-brown to brown, variably silty, sandy gravel and gravelly sand with cobbles and boulders ≤3-feet diameter, underlying aggradational fan surfaces, that are slightly dissected by washes ≤20 feet deep.	Upper, middle, and lower fan alluvium	Holocene to Pleistocene
Qao	Older alluvial fan deposits	Unconsolidated to well-cemented, loose to very dense, reddish- yellowish- and grayish-brown, variably clayey and silty, sandy gravel, gravelly sand, and calcrete, with abundant carbonate-coated cobbles and scattered boulders ≤4-feet diameter, underlying degradational fan surfaces, that are moderately to very dissected by washes, which typically are 20-100 feet deep.	Upper, middle, and lower fan alluvium	Pleistocene
Qb	Quaternary basalt flows & cinder cones	Dark-gray to black basalt lava flows, and black and red feeder dikes and scoriaceous cinder cones.	Basalt flows and cinder cones in Clayton and Big Smoky Valleys	Pleistocene
QTf	Quaternary-Tertiary alluvium (QTa)	Thinly bedded to cross-bedded, loose to dense, grayish-brown, reddish-brown, and brown, variably silty and gravelly, fine to coarse-grained sand, weakly to strongly indurated with calcium carbonate and limonite; very dense calcrete intervals and cobble-gravel channels incised into bedded intervals; partly covered at land surface with a gravel lag and eolian sand.	Fluvial sediments of the ancestral Walker River and other Pleistocene streams	Quaternary and Tertiary
QTg		Very dense, reddish- to yellowish-brown, variably silty, gravelly sand and sandy gravel, loosely to moderately indurated by calcium carbonate, underlying deeply weathered alluvial fan surfaces, which might have been physically detached by erosion from the highlands from which they formerly received erosional detritus.	Remnant alluvial fan deposits	Quaternary and Tertiary
QTp		Medium-dense to dense, brown to brownish-yellow, gravelly sand and sandy gravel, unconsolidated to poorly cemented with limonite; deposited on shallowly to deeply eroded bedrock surfaces extending outward from mountain fronts.	Pediment deposits	Quaternary and Tertiary
Tsy	Pliocene to middle Miocene sedimentary rocks	Conglomerate, sedimentary breccia, gravelly sandstone, sandstone, siltstone, claystone, shale, limestone, diatomite, and gypsum of fluvial and lacustrine origin; spring-deposited tufa mounds; landslide deposits consisting mostly of blocks and boulders of volcanic rocks in sand and gravel; and locally deposited nonwelded to welded, ash-fall tuff, ash-flow tuff, and lahars.	Lacustrine and fluvial sedimentary rocks and landslide deposits in the Excelsior and Pilot Mountains, the Silver Peak, Gabbs Valley, and Gillis Ranges, and the Candelaria, Weepah, and Garfield Hills	5.8-9
			Pozo Formation	<11
			Sedimentary rocks in the Wassuk Range	12-15
			Sedimentary rocks of McLeans	15-15.7
Tb	Pliocene and Miocene basalt and basaltic andesite lava flows	Generally dark-gray to black, finely crystalline to porphyritic, locally auto-brecciated, variably vesicular, basalt to basaltic andesite lava flows. Many vesicular flows contain secondary minerals (amygdules) partially or nearly completely filling voids. Black to red, scoriaceous cinder cones and feeder dikes occur locally.	Basalt of Silver Peak Range and Candelaria Hills	4.8
			Basalt of Rattlesnake Canyon	5.7
			Basalt of Monte Cristo Range	7.2
			Malpais Basalt	7.8
			Basalt of Gabbs Valley and Gillis Ranges, Garfield Hills, and Excelsior Mountains	8.5
			Basalt of Blackcap Mountain	10.4-13.5
			Trachyandesite of Mud Lake	10.4-13.5
			Mira Basalt	13-17
			Trachyandesite of Red Mountain	~15
			Older basalt of Excelsior Mts	17.2
Tsp	Silver Peak volcanics	Rhyolite to basalt lava flows, rhyolitic ash-flow tuff, ash-fall tuff, and mudflow breccia; interlayered with sandstone and siltstone; and intruded by rhyolite domes, plugs, and dikes.	None	5.9-6.3
Tst	Tuff of Stonewall Flat	Light-gray, light-brown, and purplish-brown, nonwelded to densely welded, crystal-poor, trachyte to comendite ash-flow tuff.	None	7.5-7.6

TABLE 3
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GEOLOGIC MAP UNIT SYMBOL	GEOLOGIC MAP UNIT NAME	GEOLOGIC MAP UNIT DESCRIPTION	REPRESENTATIVE GEOLOGIC UNIT	REPRESENTATIVE GEOLOGIC UNIT AGE (Ma)
Ta4	Late to middle Miocene lava flows, flow breccias, and lahars of mostly intermediate composition	Basalt, basaltic andesite, andesite, latite, dacite, and rhyodacite lava flows, flow breccias, and lahars with related plugs, dikes, and shallow intrusive masses of irregular shape; moderately to intensely altered in mining districts by hydrothermal solutions related to precipitation of mineral deposits.	Latite lava flows, plugs, and dikes in Gabbs Valley and Gillis Ranges and in Garfield Hills	5.8
			Basaltic andesite and andesite lava flows and intrusive rocks in the Garfield and Candelaria Hills and Wassuk Range	7.2-8
			Andesite and dacite flows of the Desert and Terrill Mountains	12-12.7
			Andesite lava flow in Mt. Jackson Ridge area	13-17
			Lava flows, lahars, and intrusives of intermediate composition in the Candelaria and Garfield Hills, Excelsior and Pilot Mountains, and Gillis and Wassuk Ranges	14-17
			Gilbert Andesite	15
			Upper unit of Blair Junction sequence	15.7
			Divide Andesite	16.8-16.9
Tt4	Middle Miocene rhyolite to rhyodacite ash-flow and ash-fall tuffs	Rhyolite and rhyodacite ash-fall tuff, ash-flow tuff, and subordinate sedimentary rocks.	Rhyolitic ash-fall tuff and tuff breccia in Mt. Jackson Ridge area	13-17
			Middle unit of Blair Junction sequence	16.6
Ta3	Early Miocene lava flows, flow breccias, and lahars of intermediate composition	Andesite, latite, dacite, and rhyodacite lava flows and flow breccias; subordinate lahars, ash-flow tuff, ash-fall tuff, tuff breccia, megabreccia, and shale; and related intrusive bodies; moderately to intensely altered in mining districts by hydrothermal solutions related to deposition of mineral deposits.	Volcanic rocks of intermediate composition in the Excelsior and Pilot Mountains, Garfield and Candelaria Hills, and Gillis Range	19-22
			Lavas of Mount Ferguson	19-22
			Chispa Andesite	20.8
			Dacite at Goldfield	21.2
			Milltown Andesite	21.5
			Lower unit of Blair Junction sequence	22
Tt3	Early Miocene rhyolite and rhyodacite ash-flow tuff and ash-fall tuff	Pink, white, tan, reddish-brown, orange, greenish-gray, gray, and black, nonwelded to densely welded, vitric to crystal-rich, variably lithic-rich, rhyolite to rhyodacite ash-flow tuff, with subordinate intervals of tuff breccia, vitrophyre, volcaniclastic rocks, and lava flows; distinctly weathered to Badland-type topography in places.	Fraction Tuff (includes Meda Rhyolite and Heller Tuff)	17.1-20.5
			Tuff of Chispa Hills	21.1
			Rhyolite and Rhyodacite tuffs of the Terrill Mountains	>21.2
			Rhyolite ash-flow tuffs of Silver Peak and Palmetto Mountains	21.5-22.8
			Tuff of Candelaria	~22.1
			Espina Breccia	~22.2
			Candelaria Junction Tuff	~22.2-22.8
			Belleville Tuff	22.9
			Rhyodacite ash-flow tuff in the Goldfield Hills	~23
			Tuff of Eastside mine	≤23.8
			Andesite to rhyodacite ash-flow and ash-fall tuff, tuff breccia, lava flows, and intrusive rocks in Monte Cristo Range	≤23.8
Tvr	Miocene rhyolite lava flows and flow breccia with subordinate intrusive rocks	Gray, yellowish-gray, pale-orange, pink, purple, reddish-brown, and black, commonly flow-banded, porphyritic, rhyolite, rhyodacite, and dacite lava flows, flow breccia, domes, plugs, and dikes; locally includes vitrophyre, tuff, or agglutinate; extensive hydrothermal alteration in the Southern Klondyke Hills.	Rhyolite in Wassuk, Gillis, and Gabbs Valley Ranges, Pilot and Excelsior Mountains, and Garfield Hills	8.5
			Rhyolite of Klondyke	10.5
			Rhyolite in Montezuma Range	~10-11
			Brougher Rhyolite	14.7-16.2
			Volcanics of Donovan Peak	14.8-16.3
			Oddie Rhyolite	16.4-16.9
			Rhyolite in Gabbs Valley Range	18.1-19.2
			Silicic to intermediate lava flows in Monte Cristo Range	18.6-20
			Rhyolite of Wildhorse Spring	20.7

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Tsv	Miocene and Oligocene volcanic, volcaniclastic, and sedimentary rocks	Fluvial and lacustrine conglomerate, sandstone, siltstone, shale, limestone, and lignite; landslide deposits; volcanic and tuff breccias; ash-fall tuff and ash-flow tuff; flow-banded rhyolite domes with black vitrophyre; basalt, andesite, dacite, rhyodacite, and rhyolite lava flows and flow breccia; extensive argillization in the Goldfield Hills and silicification in the Excelsior Mountains associated with mineral deposits.	Tuff, sedimentary rocks, and rhyolite domes in Monte Cristo Range	7.2
			Esmeralda Formation	11-13
			Younger volcanic and sedimentary rocks in Silver Peak Range, Candelaria and Garfield Hills, and Excelsior Mountains	11-15
			Siebert Formation	13-17
			Landslide deposits, fluvial deposits, and flow breccia in Goldfield Hills	21.1-21.5
			Older volcanic and sedimentary rocks in Silver Peak and Gabbs Valley Ranges and Excelsior Mountains	23-28
			Sandstorm Formation	28.6
Tso	Early Miocene and Oligocene sedimentary rocks	Olive-green, purple, orange, and white, slightly to completely weathered conglomerate, tuffaceous sandstone, sandstone, siltstone, mudstone, claystone, diatomite, and minor tuff.	Fluvial sedimentary rocks in the Goldfield Hills	21-21.5
			Volcaniclastic and lacustrine sedimentary rocks in the Gabbs Valley and Gillis Ranges and the Southern Klondyke Hills	23-26
			Fluvial sedimentary rocks in the Candelaria Hills, Pilot Mountains, and Gillis Range	~30
Ta2	Oligocene lava flows and flow breccias of intermediate composition	Light- to dark-gray, bluish-gray, and black, commonly foliated, porphyritic rhyodacite to andesite lava flows with subordinate rhyolite and basalt lava flows.	Lavas of Redrock Canyon	~24-25
			Lava flows in Monte Cristo, Gabbs Valley and Gillis Ranges	~25-26.7
			Bettles Lava	>29
			Lava of Giroux Valley	>29
Tt2	Oligocene ash-flow and ash-fall tuffs of silicic to intermediate composition	Light-brown to brown, reddish-brown, light-red to pink, reddish- to yellowish-gray, and gray, nonwelded to densely welded, crystal-rich to crystal poor, variably lithic (including pumice shards), rhyolite, rhyodacite, and dacite ash-flow tuffs with thin intervals of ash-fall tuff, vitrophyre, and lava flows; slightly to extensively hydrothermally altered yellow, green, greenish-gray, bluish-gray, lavender, purple, maroon, tan, buff, and white in many outcrop areas; distinctively weathered to hoodoos and spheroidal shapes in specific units, such as the Monotony Tuff.	Tuff of Castle Peak	<24
			Tuff of Redrock Canyon	24.1
			Metallic City Tuff	24.2-24.8
			Tuff of Candelaria Mountain	~24-25
			Hu-Pwi Rhyodacite	24-25
			Blue Sphinx Tuff	~25
			Tuff of Pinchot Creek	~25
			Tuff of Miller Mountain	~25.5
			Tuff of Gabbs Valley	25.5
			Ash-flow tuff in Wassuk Range	25-26
			Tuff of Antelope Springs	~26
			Tuff of Royston Hills	26.4
			Petrified Spring Tuff	~26.5
			Tuff of Crow Springs	26.7
			Tuff of Cedar Mountain	26.7
			Mickey Pass Tuff	26-28
			Ash-flow tuff in Candelaria & Garfield Hills and Excelsior Mts	>27
			Singatse Tuff	27.2
			Monotony Tuff	27.3
			Tuff of Cirac Valley	29.1
			Kendall Tuff	32.9
			Vindicator Rhyolite	33.0
			Rhyolite ash-flow tuff in Goldfield Hills	>33

TABLE 3
DESCRIPTION OF GEOLOGIC UNITS

GEOLOGIC MAP UNIT SYMBOL	GEOLOGIC MAP UNIT NAME	GEOLOGIC MAP UNIT DESCRIPTION	REPRESENTATIVE GEOLOGIC UNIT	REPRESENTATIVE GEOLOGIC UNIT AGE (Ma)
Ti	Tertiary intrusive rocks	Fine-grained to porphyritic and phaneritic intrusive bodies composed of felsic and mafic rocks, including quartz monzonite, monzonite, granodiorite, granite, pegmatite, rhyolite porphyry, and lamprophyre.	Generally small intrusive bodies and dikes in the Lone Mountain area, Excelsior Mountains, Garfield Hills, Gabbs Valley Range, and Wassuk Range and a small pluton at Mineral Ridge	16-51
KJg	Cretaceous and Jurassic granitic rocks	Gray, pink, and orange quartz monzodiorite, quartz monzonite, monzonite, granodiorite, and granite plutons; quartz porphyry, rhyolite, aplite, and alaskite dikes, plugs, and stocks.	Lone Mountain, Weepah, Dyer, Palmetto, Sylvania, Sugar Peak, Montezuma Range, White Wolf Canyon, Redlich, Gilbert district, Crow Springs, Gillis Range, Hidden Wash, Ryan Canyon, Red Granite mine, Alum Creek, Huntoon Valley, Whiskey Flat, Babbitt, Bald Mou	66-208
KJm	Cretaceous and Jurassic mafic intrusive rocks	Diorite, tonalite, gabbro, and serpentinite.	Dikes, plugs, stocks, irregularly shaped intrusive bodies in the Terrill Mountains	Cretaceous and Jurassic
KJsv	Cretaceous and Jurassic variably metamorphosed sedimentary and volcanic rocks	Sedimentary breccia, conglomerate, gravelly sandstone, sandstone, graywacke, siltstone, mudstone, argillite, and limestone; rhyolite to andesite ash-flow tuff, breccia, and lava flows; locally metamorphosed to greenschist-facies rocks, such as hornfels, marble, and greenstone.	Gold Range Formation	Cretaceous
			Volcanic rocks of Telephone Canyon	Cretaceous
			Dunlap Formation	Cretaceous and Jurassic
			Metamorphosed sedimentary rocks in the Wassuk Range	Cretaceous and Jurassic
JTrs	Jurassic and Triassic locally metamorphosed sedimentary and volcanic rocks	Limestone, cherty limestone, dolomite, calcareous mudstone, shale, argillite, sandstone, and conglomerate, interbedded in variable proportions and locally metamorphosed to marble, calc-silicate skarn, hornfels, and schist.	Volcano Peak Formation	Jurassic and Triassic
			Sunrise Formation	Jurassic
			Gabbs Formation	Triassic
			Luning Formation	Triassic
			Candelaria Formation	Triassic
TrPvs	Triassic and Permian commonly metamorphosed sedimentary and volcanic rocks	Submarine lava flows, volcanic breccia, and intrusive rocks of mostly intermediate to mafic composition, metamorphosed to greenstone and serpentinite; tectonically brecciated and epidotized rhyolite; silicic to intermediate ash-flow tuff, sedimentary breccia, conglomerate, gravelly sandstone, graywacke, calcareous, and feldspathic sandstone, siltstone, mudstone, limestone, and chert, metamorphosed to hornfels, argillite, slate, and marble.	Pamlico Formation	Triassic
			Metamorphosed volcanic and sedimentary rocks in the Wassuk Range	Triassic
			Metamorphosed volcanic and sedimentary rocks in the Gillis Range, Garfield Hills, and Excelsior Mountains (formerly designated "Excelsior Formation")	Triassic
			Black Dyke Formation	Permian
PPs	Permian and Pennsylvanian sedimentary rocks	Conglomerate, chert-clast sandstone, feldspathic sandstone, siltstone (locally metamorphosed to phyllite), and subordinate dolomite, limestone, chert, argillite, and graywacke sandstone.	Mina Formation	Permian
			Diablo Formation	Permian
			Havallah sequence	Pennsylvanian
Ms	Mississippian sedimentary rocks	Limestone, dolomite, subordinate chert, and minor chert-pebble conglomerate.	Carbonate rocks and subordinate clastic rocks in the Monte Cristo Range and Candelaria Hills	Mississippian
DOsv	Devonian to Ordovician sedimentary and volcanic rocks	Limestone, sandy limestone, quartz sandstone, quartzite, chert, siltstone, shale, argillite, mafic lava flows, and volcanic breccia, variably metamorphosed to hornfels, skarn, quartzite, phyllite, and greenstone.	Sedimentary and volcanic rocks of the Candelaria Hills and Monte Cristo Range (formerly assigned to the Palmetto Formation)	Devonian to Ordovician
Os	Ordovician sedimentary rocks	Shale and siltstone with subordinate limestone, dolomite, sandstone, chert, and barite; commonly metamorphosed to slate, phyllite, argillite, hornfels, calc-silicate skarn, and quartzite.	Palmetto Formation	Ordovician
Cc	Upper Cambrian carbonate rocks	Laminated to thinly bedded, variably cherty, algal, oolitic, silty, and silicified limestone, interstratified with subordinate fissile siltstone and claystone.	Emigrant Formation	Cambrian
			Mule Spring Limestone	Cambrian
CZs	Middle and lower Cambrian and Late Proterozoic sedimentary rocks	Thinly bedded argillite, claystone, siltstone, fine-grained sandstone, feldspathic sandstone, and quartzite; interstratified with thinly to very thickly bedded, fine-grained to coarsely crystalline limestone, sandy limestone, dolomite, and sandy dolomite; metamorphosed slightly to significantly to phyllite, schist, calc-silicate skarn, hornfels, and marble.	Harkless Formation	Cambrian
			Poleta Formation	Cambrian
			Campito Formation	Cambrian-Late Proterozoic
			Deep Spring Formation	Late Proterozoic
			Reed Dolomite	Late Proterozoic
			Wyman Formation	Late Proterozoic

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MCS1	1378+70	1422+62	1153	Gynelle gravelly loamy sand, 2 to 4 percent slopes	Gynelle	85	H1	0 - 3	SM	0	0	65 - 85	55 - 75	40 - 50	25 - 35	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1378+70	1422+62	1153	Gynelle gravelly loamy sand, 2 to 4 percent slopes	Gynelle	85	H2	3 - 60	GM, SM	0	15	50 - 70	40 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1422+62	1428+08	4170	Downeyville-Blacktop association	Blacktop	15	H1	0 - 7	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1422+62	1428+08	4170	Downeyville-Blacktop association	Blacktop	15	H2	7 - 11	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1422+62	1428+08	4170	Downeyville-Blacktop association	Downeyville	70	H1	0 - 4	SC-SM, SM	0	5	60 - 70	30 - 55	20 - 45	15 - 30	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1422+62	1428+08	4170	Downeyville-Blacktop association	Downeyville	70	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1422+62	1428+08	4170	Downeyville-Blacktop association	Downeyville	70	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1428+08	1453+20	1200	Playas	Playas	90	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MCS1	1428+08	1453+20	1200	Playas	Playas	90	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Luning	70	H1	0 - 6	SM	0	0	80 - 95	75 - 90	45 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Luning	70	H2	6 - 35	SM	0	0	90 - 100	75 - 100	55 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Luning	70	H3	35 - 60	GP, GW, SW	0	0	35 - 60	25 - 45	10 - 30	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Oricto	15	H1	0 - 3	SM	0	0	70 - 80	55 - 75	45 - 60	20 - 35	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Oricto	15	H2	3 - 8	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Oricto	15	H3	8 - 14	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1453+20	1454+59	1878	Luning-Oricto association	Oricto	15	H4	14 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	0	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1454+59	1455+63	4170	Downeyville-Blacktop association	Blacktop	15	H1	0 - 7	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1454+59	1455+63	4170	Downeyville-Blacktop association	Blacktop	15	H2	7 - 11	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1454+59	1455+63	4170	Downeyville-Blacktop association	Downeyville	70	H1	0 - 4	SC-SM, SM	0	5	60 - 70	30 - 55	20 - 45	15 - 30	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1454+59	1455+63	4170	Downeyville-Blacktop association	Downeyville	70	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1454+59	1455+63	4170	Downeyville-Blacktop association	Downeyville	70	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Luning	70	H1	0 - 6	SM	0	0	80 - 95	75 - 90	45 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Luning	70	H2	6 - 35	SM	0	0	90 - 100	75 - 100	55 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Luning	70	H3	35 - 60	GP, GW, SW	0	0	35 - 60	25 - 45	10 - 30	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Oricto	15	H1	0 - 3	SM	0	0	70 - 80	55 - 75	45 - 60	20 - 35	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Oricto	15	H2	3 - 8	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Oricto	15	H3	8 - 14	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1455+63	1594+81	1878	Luning-Oricto association	Oricto	15	H4	14 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	0	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	1594+81	1618+77	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H1	0 - 4	SM	0	0	85 - 100	75 - 100	45 - 70	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1594+81	1618+77	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H2	4 - 18	SM	0	0	90 - 100	75 - 90	45 - 60	25 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1594+81	1618+77	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H3	18 - 60	SM	0	0	80 - 90	50 - 75	40 - 50	15 - 30	15 - 25	0 - 5	14 - 42	7.9 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1618+77	1686+96	1201	Playas-Slaw association	Playas	60	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MCS1	1618+77	1686+96	1201	Playas-Slaw association	Playas	60	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MCS1	1618+77	1686+96	1201	Playas-Slaw association	Slaw	30	H1	0 - 9	CL, CL-ML	0	0	95 - 100	95 - 100	85 - 100	75 - 90	25 - 30	5 - 10	1.4 - 4	8.5 - 9.6	16 - 32	0.0 - 2.9	0	-	-	Low	High	High	-	Very limited	Poor	Fair
MCS1	1618+77	1686+96	1201	Playas-Slaw association	Slaw	30	H2	9 - 48	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	16 - 32	3.0 - 5.9	0	-	-	Low	High	High	-	Very limited	Poor	Fair
MCS1	1618+77	1686+96	1201	Playas-Slaw association	Slaw	30	H3	48 - 60	SC, SC-SM, SM	0	0	95 - 100	95 - 100	70 - 80	30 - 50	20 - 35	0 - 15	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	High	High	-	Very limited	Poor	Fair
MCS1	1686+96	1719+47	1441	Slaw silt loam, 0 to 2 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Fair	Fair
MCS1	1686+96	1719+47	1441	Slaw silt loam, 0 to 2 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Fair	Fair
MCS1	1686+96	1719+47	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H1	0 - 9	CL, CL-ML	0	0	95 - 100	95 - 100	85 - 100	75 - 90	25 - 30	5 - 10	1.4 - 4	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1686+96	1719+47	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H2	9 - 48	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	16 - 32	3.0 - 5.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1686+96	1719+47	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H3	48 - 60	SC, SC-SM, SM	0	0	95 - 100	95 - 100	70 - 80	30 - 50	20 - 35	0 - 15	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1719+47	1734+75	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H1	0 - 4	SM	0	0	85 - 100	75 - 100	45 - 70	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1719+47	1734+75	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H2	4 - 18	SM	0	0	90 - 100	75 - 90	45 - 60	25 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1719+47	1734+75	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H3	18 - 60	SM	0	0	80 - 90	50 - 75	40 - 50	15 - 30	15 - 25	0 - 5	14 - 42	7.9 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1734+75	1752+04	1441	Slaw silt loam, 0 to 2 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Fair	Fair
MCS1	1734+75	1752+04	1441	Slaw silt loam, 0 to 2 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Fair	Fair
MCS1	1734+75	1752+04	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H1	0 - 9	CL, CL-ML	0	0	95 - 100	95 - 100	85 - 100	75 - 90	25 - 30	5 - 10	1.4 - 4	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1734+75	1752+04	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H2	9 - 48	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	16 - 32	3.0 - 5.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1734+75	1752+04	1441	Slaw silt loam, 0 to 2 percent slopes	Slaw	90	H3	48 - 60	SC, SC-SM, SM	0	0	95 - 100	95 - 100	70 - 80	30 - 50	20 - 35	0 - 15	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	1752+04	1791+73	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H1	0 - 4	SM	0	0	85 - 100	75 - 100	45 - 70	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1752+04	1791+73	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H2	4 - 18	SM	0	0	90 - 100	75 - 90	45 - 60	25 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1752+04	1791+73	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H3	18 - 60	SM	0	0	80 - 90	50 - 75	40 - 50	15 - 30	15 - 25	0 - 5	14 - 42	7.9 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	1791+73	1960+87	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1791+73	1960+87	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1791+73	1960+87	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1791+73	1960+87	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1960+87	2077+03	1153	Gynelle gravelly loamy sand, 2 to 4 percent slopes	Gynelle	85	H1	0 - 3	SM	0	0	65 - 85	55 - 75	40 - 50	25 - 35	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	1960+87	2077+03	1153	Gynelle gravelly loamy sand, 2 to 4 percent slopes	Gynelle	85	H2	3 - 60	GM, SM	0	15	50 - 70	40 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2077+03	2170+38	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H1	0 - 4	SM	0	0	85 - 100	75 - 100	45 - 70	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	2077+03	2170+38	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H2	4 - 18	SM	0	0	90 - 100	75 - 90	45 - 60	25 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	2077+03	2170+38	2011	Nuahs loamy sand, 0 to 4 percent slopes	Nuahs	100	H3	18 - 60	SM	0	0	80 - 90	50 - 75	40 - 50	15 - 30	15 - 25	0 - 5	14 - 42	7.9 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MCS1	2170+38	2239+38	2002	Sodaspring-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2170+38	2239+38	2002	Sodaspring-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2170+38	2239+38	2002	Sodaspring-Izo association	Sodaspring	70	H1	0 - 7	SM	0	0	95 - 100	85 - 100	35 - 50	15 - 25	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Fair	Fair
MCS1	2170+38	2239+38	2002	Sodaspring-Izo association	Sodaspring	70	H2	7 - 60	SM	0	0	75 - 95	50 - 75	30 - 55	15 - 25	15 - 25	0 - 5	14 - 42	7.9 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Fair	Fair
MCS1	2239+38	2334+10	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2239+38	2334+10	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2239+38	2334+10	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2239+38	2334+10	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2334+10	2351+85	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2334+10	2351+85	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2334+10	2351+85	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2334+10	2351+85	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2351+85	2367+76	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MCS1	2351+85	2367+76	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2351+85	2367+76	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2351+85	2367+76	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2367+76	2374+75	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2367+76	2374+75	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2367+76	2374+75	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2367+76	2374+75	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2374+75	2389+13	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2374+75	2389+13	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2374+75	2389+13	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2374+75	2389+13	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2389+13	2396+84	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2389+13	2396+84	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2389+13	2396+84	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2389+13	2396+84	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2396+84	2400+56	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2396+84	2400+56	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2396+84	2400+56	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2396+84	2400+56	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2400+56	2405+31	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2400+56	2405+31	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2400+56	2405+31	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2400+56	2405+31	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2405+31	2410+22	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2405+31	2410+22	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2405+31	2410+22	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2405+31	2410+22	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2410+22	2416+10	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2410+22	2416+10	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2410+22	2416+10	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2410+22	2416+10	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2416+10	2597+59	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2416+10	2597+59	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2416+10	2597+59	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2416+10	2597+59	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2597+59	2602+51	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2597+59	2602+51	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2597+59	2602+51	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2597+59	2602+51	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2602+51	2612+75	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2602+51	2612+75	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2602+51	2612+75	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2602+51	2612+75	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2612+75	2777+15	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2612+75	2777+15	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2612+75	2777+15	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2612+75	2777+15	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2777+15	2804+51	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2777+15	2804+51	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2777+15	2804+51	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2777+15	2804+51	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2804+51	2806+95	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H1	0 - 5	SM	0	0	100	75 - 100	60 - 75	35 - 45	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2804+51	2806+95	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H2	5 - 60	SM	0	0	100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2806+95	2816+84	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2806+95	2816+84	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2806+95	2816+84	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2806+95	2816+84	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2816+84	2820+33	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H1	0 - 5	SM	0	0	100	75 - 100	60 - 75	35 - 45	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2816+84	2820+33	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H2	5 - 60	SM	0	0	100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2820+33	2822+63	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2820+33	2822+63	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2820+33	2822+63	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2820+33	2822+63	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2822+63	2882+50	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H1	0 - 5	SM	0	0	100	75 - 100	60 - 75	35 - 45	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2822+63	2882+50	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H2	5 - 60	SM	0	0	100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2882+50	2927+11	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2882+50	2927+11	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2882+50	2927+11	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2882+50	2927+11	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2927+11	2947+16	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H1	0 - 5	SM	0	0	100	75 - 100	60 - 75	35 - 45	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MCS1	2927+11	2947+16	1930	Cirac fine sandy loam, 0 to 2 percent slopes	Cirac	100	H2	5 - 60	SM	0	0	100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Very limited	Fair	Fair
MCS1	2947+16	3012+24	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2947+16	3012+24	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2947+16	3012+24	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	2947+16	3012+24	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3012+24	3014+87	4182	Candelaria-Gynelle-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3014+87	3056+41	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3014+87	3056+41	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3014+87	3056+41	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3014+87	3056+41	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3056+41	3114+89	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3056+41	3114+89	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3056+41	3114+89	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3056+41	3114+89	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3114+89	3123+99	4182	Candelaria-Gynelle-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3123+99	3146+03	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3123+99	3146+03	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3123+99	3146+03	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3123+99	3146+03	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3146+03	3154+29	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3146+03	3154+29	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3146+03	3154+29	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3146+03	3154+29	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3154+29	3225+99	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3154+29	3225+99	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3154+29	3225+99	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3154+29	3225+99	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3225+99	3229+78	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3225+99	3229+78	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3225+99	3229+78	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3225+99	3229+78	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3229+78	3246+02	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3229+78	3246+02	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3229+78	3246+02	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3229+78	3246+02	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3246+02	3252+93	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3246+02	3252+93	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3246+02	3252+93	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3246+02	3252+93	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3252+93	3258+93	1910	Izo, rarely flooded-Izo association	Izo	35	H1	0 - 3	GW-GM	5	10	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3252+93	3258+93	1910	Izo, rarely flooded-Izo association	Izo	55	H1	0 - 8	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3252+93	3258+93	1910	Izo, rarely flooded-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3252+93	3258+93	1910	Izo, rarely flooded-Izo association	Izo	55	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3258+93	3380+15	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3258+93	3380+15	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3258+93	3380+15	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3258+93	3380+15	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Candelaria	50	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3380+15	3396+88	4182	Candelaria-Gynelle-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MCS1	3396+88	3422+10	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3396+88	3422+10	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3396+88	3422+10	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3396+88	3422+10	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3422+10	3431+94	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H1	0 - 4	SM	0	0	65 - 80	50 - 75	20 - 50	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3422+10	3431+94	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H2	4 - 16	GM	0	0	30 - 45	25 - 40	15 - 35	10 - 25	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3422+10	3431+94	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H3	16 - 60	GP-GM, GW, GW-GM	0	0	20 - 40	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3422+10	3431+94	4185	Candelaria-Typic Torriorthents association	Typic Torriorthents	20	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3422+10	3431+94	4185	Candelaria-Typic Torriorthents association	Typic Torriorthents	20	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3431+94	3446+00	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3431+94	3446+00	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3431+94	3446+00	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3431+94	3446+00	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3446+00	3500+17	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H1	0 - 4	SM	0	0	65 - 80	50 - 75	20 - 50	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3446+00	3500+17	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H2	4 - 16	GM	0	0	30 - 45	25 - 40	15 - 35	10 - 25	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3446+00	3500+17	4185	Candelaria-Typic Torriorthents association	Candelaria	65	H3	16 - 60	GP-GM, GW, GW-GM	0	0	20 - 40	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3446+00	3500+17	4185	Candelaria-Typic Torriorthents association	Typic Torriorthents	20	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3446+00	3500+17	4185	Candelaria-Typic Torriorthents association	Typic Torriorthents	20	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
MCS1	3500+17	3560+59	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3500+17	3560+59	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3500+17	3560+59	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3500+17	3560+59	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3560+59	3563+61	1342	Barmmot-Badland association	Badland	35	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Poor	Poor
MCS1	3560+59	3563+61	1342	Barmmot-Badland association	Badland	35	H2	6 - 60	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Very limited	Poor	Poor
MCS1	3560+59	3563+61	1342	Barmmot-Badland association	Barnmot	55	H1	0 - 2	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.9 - 8.4	0 - 2	3.0 - 5.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
MCS1	3560+59	3563+61	1342	Barmmot-Badland association	Barnmot	55	H2	2 - 60	CH, MH	0	0	90 - 100	90 - 100	80 - 95	70 - 85	50 - 60	20 - 30	0.01 - 0.42	7.9 - 9.0	0 - 8	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
MCS1	3563+61	3571+65	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3563+61	3571+65	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3563+61	3571+65	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3563+61	3571+65	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Candelaria	75	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Candelaria	75	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Candelaria	75	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Candelaria	75	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3571+65	3572+25	4184	Candelaria, dry-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3572+25	3573+76	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3572+25	3573+76	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3572+25	3573+76	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3572+25	3573+76	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Candelaria	75	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Candelaria	75	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Candelaria	75	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Candelaria	75	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3573+76	3584+93	4184	Candelaria, dry-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3584+93	3588+88	1155	Gynelle-Izo association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3584+93	3588+88	1155	Gynelle-Izo association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3584+93	3588+88	1155	Gynelle-Izo association	Izo	35	H1	0 - 3	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3584+93	3588+88	1155	Gynelle-Izo association	Izo	35	H2	3 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Candelaria	75	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Candelaria	75	H2	1 - 4	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Candelaria	75	H3	4 - 16	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Candelaria	75	H4	16 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Izo	10	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3588+88	3642+66	4184	Candelaria, dry-Izo association	Izo	10	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Candelaria	70	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Candelaria	70	H2	1 - 11	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Candelaria	70	H3	11 - 22	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Candelaria	70	H4	22 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Izo	15	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3642+66	3711+73	334	Candelaria-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3711+73	3713+83	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Candelaria	70	H1	0 - 1	GM	0	0	35 - 50	30 - 45	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Candelaria	70	H2	1 - 11	SM	0	0	70 - 80	65 - 75	50 - 60	20 - 35	20 - 25	0 - 5	4 - 14	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Candelaria	70	H3	11 - 22	GM	0	0	25 - 45	20 - 45	15 - 25	10 - 20	15 - 25	0 - 5	4 - 14	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Candelaria	70	H4	22 - 60	GP-GM, GW, GW-GM	0	0	25 - 45	20 - 35	10 - 20	0 - 10	-	0	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Izo	15	H1	0 - 8	GP, GW	0	0	20 - 40	10 - 25	0 - 10	0 - 5	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MCS1	3713+83	3723+48	334	Candelaria-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3723+48	3739+09	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Gynelle	15	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Gynelle	15	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Luning	45	H1	0 - 3	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Luning	45	H2	3 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Timper	30	H1	0 - 3	GC-GM, GM, SC-SM, SM	0	0	55 - 80	50 - 75	30 - 50	20 - 30	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Timper	30	H2	3 - 14	GC-GM, GM, SC-SM, SM	0	0	60 - 100	55 - 100	45 - 80	20 - 35	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Timper	30	H3	14 - 24	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3739+09	3761+07	550	Luning-Timper-Gynelle association	Timper	30	H4	24 - 60	GM, GP-GM, GW-GM, SM, SW-SM	0	0	45 - 65	40 - 60	20 - 35	5 - 15	15 - 25	0 - 5	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3761+07	3864+21	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Gynelle	15	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Gynelle	15	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Luning	45	H1	0 - 3	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Luning	45	H2	3 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Timper	30	H1	0 - 3	GC-GM, GM, SC-SM, SM	0	0	55 - 80	50 - 75	30 - 50	20 - 30	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Timper	30	H2	3 - 14	GC-GM, GM, SC-SM, SM	0	0	60 - 100	55 - 100	45 - 80	20 - 35	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Timper	30	H3	14 - 24	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3864+21	3959+97	550	Luning-Timper-Gynelle association	Timper	30	H4	24 - 60	GM, GP-GM, GW-GM, SM, SW-SM	0	0	45 - 65	40 - 60	20 - 35	5 - 15	15 - 25	0 - 5	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	3959+97	4041+65	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Gynelle	35	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Gynelle	35	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Oricto	20	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Oricto	20	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Oricto	20	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4041+65	4083+88	312	Gynelle-Oricto association, alkali	Oricto	20	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Gynelle	15	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Gynelle	15	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Luning	45	H1	0 - 3	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Luning	45	H2	3 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Timper	30	H1	0 - 3	GC-GM, GM, SC-SM, SM	0	0	55 - 80	50 - 75	30 - 50	20 - 30	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Timper	30	H2	3 - 14	GC-GM, GM, SC-SM, SM	0	0	60 - 100	55 - 100	45 - 80	20 - 35	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Timper	30	H3	14 - 24	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4083+88	4089+75	550	Luning-Timper-Gynelle association	Timper	30	H4	24 - 60	GM, GP-GM, GW-GM, SM, SW-SM	0	0	45 - 65	40 - 60	20 - 35	5 - 15	15 - 25	0 - 5	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Gynelle	35	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Gynelle	35	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Oricto	20	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Oricto	20	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Oricto	20	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4089+75	4110+87	312	Gynelle-Oricto association, alkali	Oricto	20	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Gynelle	15	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Gynelle	15	H2	2 - 60	GM, GM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Luning	45	H1	0 - 3	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Luning	45	H2	3 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Timper	30	H1	0 - 3	GC-GM, GM, SC-SM, SM	0	0	55 - 80	50 - 75	30 - 50	20 - 30	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Timper	30	H2	3 - 14	GC-GM, GM, SC-SM, SM	0	0	60 - 100	55 - 100	45 - 80	20 - 35	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Timper	30	H3	14 - 24	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4110+87	4151+48	550	Luning-Timper-Gynelle association	Timper	30	H4	24 - 60	GM, GP-GM, GW-GM, SM, SW-SM	0	0	45 - 65	40 - 60	20 - 35	5 - 15	15 - 25	0 - 5	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Gynelle	35	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Gynelle	35	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Oricto	20	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Oricto	20	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Oricto	20	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4151+48	4292+99	312	Gynelle-Oricto association, alkali	Oricto	20	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4292+99	4308+13	341	Zaba-Gynelle association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4292+99	4308+13	341	Zaba-Gynelle association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4292+99	4308+13	341	Zaba-Gynelle association	Zaba	60	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4292+99	4308+13	341	Zaba-Gynelle association	Zaba	60	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4292+99	4308+13	341	Zaba-Gynelle association	Zaba	60	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Oricto	30	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Oricto	30	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Oricto	30	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Oricto	30	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Roic	40	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Roic	40	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Roic	40	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Wardenot	20	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MCS1	4308+13	4333+53	350	Roic-Oricto-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Gynelle	35	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Gynelle	35	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Oricto	20	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Oricto	20	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Oricto	20	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4333+53	4362+91	312	Gynelle-Oricto association, alkali	Oricto	20	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4362+91	4499+04	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Badland	20	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Badland	20	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Roic	40	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Roic	40	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Roic	40	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MCS1	4499+04	4588+95	352	Roic-Wardenot-Badland association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Oricto	30	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Oricto	30	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Oricto	30	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Oricto	30	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Roic	40	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Roic	40	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Roic	40	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Wardenot	20	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MCS1	4588+95	4634+91	350	Roic-Oricto-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MCS1	4634+91	4742+25	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4776+52	4858+49	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	4858+49	4871+30	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	4871+30	4892+00	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	4871+30	4892+00	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	4871+30	4892+00	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	4892+00	4937+13	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Cirac	50	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Cirac	50	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4937+13	4950+51	455	Cirac-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Playas	25	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Playas	25	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Yomba	40	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Yomba	40	H2	3 - 11	SC, SC-SM	0	0	80 - 100	75 - 100	70 - 85	35 - 50	20 - 30	5 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Yomba	40	H3	11 - 18	GM	0	0	40 - 60	35 - 55	20 - 30	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Yomba	40	H4	18 - 60	GP, GW	0	0	25 - 40	20 - 35	10 - 20	0 - 5	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Youngston	20	H1	0 - 3	CL, CL-ML	0	0	95 - 100	95 - 100	75 - 95	60 - 80	25 - 35	5 - 15	4 - 14	7.9 - 8.4	0 - 2	3.0 - 5.9	0	-	-	Low	Moderate	High	-	Very limited	Poor	Fair
MN1	4950+51	4966+43	162	Yomba-Playas-Youngston association, alkali	Youngston	20	H2	3 - 60	CL	0	0	100	100	95 - 100	70 - 85	35 - 40	15 - 20	1.4 - 4	7.9 - 9.0	2 - 8	3.0 - 5.9	0	-	-	Low	Moderate	High	-	Very limited	Poor	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Cirac	50	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Cirac	50	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	4966+43	5002+52	455	Cirac-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5002+52	5005+67	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5002+52	5005+67	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5005+67	5057+22	455	Cirac-Kawich association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5005+67	5057+22	455	Cirac-Kawich association	Cirac	50	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5005+67	5057+22	455	Cirac-Kawich association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5005+67	5057+22	455	Cirac-Kawich association	Cirac	50	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5005+67	5057+22	455	Cirac-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5005+67	5057+22	455	Cirac-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5057+22	5066+52	341	Zaba-Gynelle association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	5057+22	5066+52	341	Zaba-Gynelle association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	5057+22	5066+52	341	Zaba-Gynelle association	Zaba	60	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	5057+22	5066+52	341	Zaba-Gynelle association	Zaba	60	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	5057+22	5066+52	341	Zaba-Gynelle association	Zaba	60	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Belted	30	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Belted	30	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Belted	30	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Belted	30	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Orphant	15	H1	0 - 5	GM, SM	0	0	55 - 80	50 - 75	30 - 50	15 - 30	15 - 25	0 - 5	14 - 42	6.6 - 7.8	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Orphant	15	H2	5 - 17	SC	0	0	70 - 100	65 - 100	40 - 65	20 - 40	25 - 35	10 - 15	4 - 14	7.4 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Orphant	15	H3	17 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Unsel	40	H1	0 - 7	SC	0	0	70 - 80	55 - 75	45 - 55	35 - 45	30 - 35	10 - 15	4 - 14	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Unsel	40	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Unsel	40	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5066+52	5117+47	100	Unsel-Belted-Orphant association	Unsel	40	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H1	0 - 5	GM	0	0	45 - 55	35 - 50	25 - 35	15 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, Inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (Shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MN1	5117+47	5231+92	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Badland	20	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Badland	20	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Roic	40	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Roic	40	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Roic	40	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5231+92	5295+24	352	Roic-Wardenot-Badland association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Roic	30	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Roic	30	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Roic	30	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Stonell	35	H1	0 - 5	GM	0	0	45 - 55	35 - 50	25 - 35	15 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Stonell	35	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Stonell	35	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5295+24	5321+39	481	Stonell-Roic-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H1	0 - 5	GM	0	0	45 - 55	35 - 50	25 - 35	15 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5321+39	5380+67	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Roic	30	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Roic	30	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Roic	30	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Stonell	35	H1	0 - 5	GM	0	0	45 - 55	35 - 50	25 - 35	15 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Stonell	35	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Stonell	35	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5380+67	5432+86	481	Stonell-Roic-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5432+86	5442+18	443	Wardenot-Roic association	Roic	20	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5432+86	5442+18	443	Wardenot-Roic association	Roic	20	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5432+86	5442+18	443	Wardenot-Roic association	Roic	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5432+86	5442+18	443	Wardenot-Roic association	Wardenot	70	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5432+86	5442+18	443	Wardenot-Roic association	Wardenot	70	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5442+18	5507+12	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Gynelle	70	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Gynelle	70	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Oricto	15	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Oricto	15	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Oricto	15	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Oricto	15	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Playas	3	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5507+12	5528+23	317	Gynelle-Oricto association, warm	Playas	3	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Advokay	30	H1	0 - 3	GM, SM	0	0	55 - 80	50 - 75	25 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Advokay	30	H2	3 - 7	GC, SC	0	0	55 - 80	50 - 75	30 - 55	20 - 35	30 - 40	10 - 15	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Advokay	30	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Blacktop	25	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Blacktop	25	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Roic	30	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	High	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Roic	30	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	High	High	-	Very limited	Poor	Poor
MN1	5528+23	5553+14	356	Roic-Advokay-Blacktop association	Roic	30	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	High	High	-	Very limited	Poor	Poor
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Gynelle	70	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Gynelle	70	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Oricto	15	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Oricto	15	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Oricto	15	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Oricto	15	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Playas	3	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5553+14	5638+58	317	Gynelle-Oricto association, warm	Playas	3	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Blacktop	40	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Blacktop	40	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Rodad	25	H1	0 - 4	GC-GM, GM, SC-SM, SM	0	20	45 - 70	40 - 65	30 - 50	20 - 35	20 - 30	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Rodad	25	H2	4 - 12	GC	0	0	30 - 60	25 - 55	25 - 50	20 - 45	35 - 45	15 - 25	0.42 - 1.4	7.9 - 9.0	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet)		Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties								Physical and Chemical Properties				Soil Rock and Water Features				Risk of Corrosion		Site Development	Material Source	
										>10 inches	3 to10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Concrete	Uncoated Steel	Excavation Difficulty	Local Roads and Streets	Sand	Gravel
	From	To								Percent Retained		Percent Passing				Percent		mM/sec	pH	mmhos/cm	Percent	inches	inches								
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Rodad	25	H3	12 - 16	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Theriot	20	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Theriot	20	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5638+58	5651+21	111	Blacktop-Rodad-Theriot association	Theriot	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Gynelle	70	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Gynelle	70	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Oricto	15	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Oricto	15	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Oricto	15	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Oricto	15	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Playas	3	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5651+21	5681+09	317	Gynelle-Oricto association, warm	Playas	3	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Badland	45	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Badland	45	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belcher	20	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belcher	20	H2	3 - 10	SC-SM, SM	0	0	100	100	65 - 80	35 - 50	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belcher	20	H3	10 - 18	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belcher	20	H4	18 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belted	20	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belted	20	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belted	20	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5681+09	5690+66	901	Badland-Belcher-Belted association	Belted	20	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Gynelle	70	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Gynelle	70	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Oricto	15	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Oricto	15	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Oricto	15	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Oricto	15	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Playas	3	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5690+66	5753+73	317	Gynelle-Oricto association, warm	Playas	3	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Badland	45	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Badland	45	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belcher	20	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belcher	20	H2	3 - 10	SC-SM, SM	0	0	100	100	65 - 80	35 - 50	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belcher	20	H3	10 - 18	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belcher	20	H4	18 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belted	20	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belted	20	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belted	20	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5753+73	5770+10	901	Badland-Belcher-Belted association	Belted	20	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Cirac	50	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Cirac	50	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5770+10	5782+32	455	Cirac-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5782+32	5794+57	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5782+32	5794+57	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5794+57	5798+38	455	Cirac-Kawich association	Cirac	50	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5794+57	5798+38	455	Cirac-Kawich association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5794+57	5798+38	455	Cirac-Kawich association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5794+57	5798+38	455	Cirac-Kawich association	Cirac	50	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	5794+57	5798+38	455	Cirac-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5794+57	5798+38	455	Cirac-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	5798+38	5861+44	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5798+38	5861+44	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Badland	45	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Badland	45	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belcher	20	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belcher	20	H2	3 - 10	SC-SM, SM	0	0	100	100	65 - 80	35 - 50	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belcher	20	H3	10 - 18	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belcher	20	H4	18 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belted	20	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belted	20	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belted	20	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5861+44	5877+32	901	Badland-Belcher-Belted association	Belted	20	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5877+32	5881+87	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5877+32	5881+87	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Badland	45	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Badland	45	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belcher	20	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belcher	20	H2	3 - 10	SC-SM, SM	0	0	100	100	65 - 80	35 - 50	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belcher	20	H3	10 - 18	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belcher	20	H4	18 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belted	20	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belted	20	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belted	20	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5881+87	5908+82	901	Badland-Belcher-Belted association	Belted	20	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	5908+82	6026+35	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches	3 to 10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Physical and Chemical Properties: Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Soil Rock and Water Features: Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
										Percent Retained		Percent Passing				Percent	Percent	mM/sec	pH	mmhos/cm	Percent	inches	inches								
MN1	5908+82	6026+35	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	6026+35	6046+35	430	Slaw-Playas complex	Playas	40	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	6026+35	6046+35	430	Slaw-Playas complex	Playas	40	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	6026+35	6046+35	430	Slaw-Playas complex	Slaw	45	H1	0 - 8	CL-ML, ML	0	0	95 - 100	95 - 100	75 - 90	50 - 75	20 - 30	0 - 10	4 - 14	8.5 - 9.6	16 - 32	0.0 - 2.9	0	-	-	Moderate	High	High	-	Very limited	Poor	Poor
MN1	6026+35	6046+35	430	Slaw-Playas complex	Slaw	45	H2	8 - 60	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	4 - 16	3.0 - 5.9	0	-	-	Moderate	High	High	-	Very limited	Poor	Poor
MN1	6046+35	6050+74	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	6046+35	6050+74	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN1	6050+74	6106+55	433	Slaw-Cirac association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Playas	2	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Slaw	40	H1	0 - 8	CL-ML, ML	0	0	95 - 100	95 - 100	75 - 90	50 - 75	20 - 30	0 - 10	4 - 14	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Moderate	High	High	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Slaw	30	H1	0 - 8	CL-ML, ML	0	0	95 - 100	95 - 100	75 - 90	50 - 75	20 - 30	0 - 10	4 - 14	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Moderate	High	High	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Slaw	40	H2	8 - 60	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	4 - 16	3.0 - 5.9	-	-	-	Moderate	High	High	-	Very limited	Poor	Fair
MN1	6050+74	6106+55	433	Slaw-Cirac association	Slaw	30	H2	8 - 60	CL, ML	0	0	100	100	95 - 100	85 - 95	35 - 45	10 - 20	0.42 - 1.4	8.5 - 9.6	4 - 16	3.0 - 5.9	-	-	-	Moderate	High	High	-	Very limited	Poor	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	6106+55	6136+92	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Gynelle	35	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Gynelle	35	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Oricto	20	H1	0 - 2	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Oricto	20	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Oricto	20	H3	7 - 19	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6136+92	6232+92	312	Gynelle-Oricto association, alkali	Oricto	20	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Badland	20	H1	0 - 2	CH, CL, GC, MH	0	0	65 - 100	50 - 100	40 - 100	35 - 100	20 - 75	10 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Badland	20	H2	2 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	None	High	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Roic	40	H1	0 - 3	GM	0	0	40 - 60	30 - 50	20 - 40	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Roic	40	H2	3 - 8	CL-ML, ML, SC-SM, SM	0	0	90 - 100	80 - 100	70 - 90	35 - 70	20 - 30	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Roic	40	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	High	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	40 - 65	15 - 35	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	6232+92	6257+42	352	Roic-Wardenot-Badland association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6257+42	6293+60	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6293+60	6317+22	316	Gynelle-Wardenot association	Gynelle	50	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6293+60	6317+22	316	Gynelle-Wardenot association	Gynelle	50	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6293+60	6317+22	316	Gynelle-Wardenot association	Wardenot	35	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6293+60	6317+22	316	Gynelle-Wardenot association	Wardenot	35	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6317+22	6378+40	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Gynelle	25	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Gynelle	25	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Stonell	15	H1	0 - 5	GM	0	0	40 - 50	35 - 50	30 - 40	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Stonell	15	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Stonell	15	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Wardenot	45	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6378+40	6522+82	445	Wardenot-Gynelle-Stonell association	Wardenot	45	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6522+82	6528+42	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Gynelle	25	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Gynelle	25	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Stonell	15	H1	0 - 5	GM	0	0	40 - 50	35 - 50	30 - 40	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Stonell	15	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#100 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Stonell	15	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Wardenot	45	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6528+42	6531+85	445	Wardenot-Gynelle-Stonell association	Wardenot	45	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6531+85	6539+29	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Blacktop	40	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Blacktop	40	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Rodad	25	H1	0 - 4	GC-GM, GM, SC-SM, SM	0	20	45 - 70	40 - 65	30 - 50	20 - 35	20 - 30	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Rodad	25	H2	4 - 12	GC	0	0	30 - 60	25 - 55	25 - 50	20 - 45	35 - 45	15 - 25	0.42 - 1.4	7.9 - 9.0	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Rodad	25	H3	12 - 16	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Theriot	20	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Theriot	20	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6539+29	6630+01	111	Blacktop-Rodad-Theriot association	Theriot	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Annaw	45	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Annaw	45	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Annaw	45	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6630+01	6674+04	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H1	0 - 5	GM	0	0	45 - 55	35 - 50	25 - 35	15 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.0	8 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H2	5 - 10	GC	0	0	35 - 55	25 - 50	20 - 40	15 - 35	25 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Stonell	35	H3	10 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	10 - 15	5 - 15	-	0	42 - 141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6674+04	6682+88	480	Stonell-Wardenot-Izo association, moist	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Annaw	45	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Annaw	45	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Annaw	45	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6682+88	6759+21	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Blacktop	40	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Blacktop	40	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Rodad	25	H1	0 - 4	GC-GM, GM, SC-SM, SM	0	20	45 - 70	40 - 65	30 - 50	20 - 35	20 - 30	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Rodad	25	H2	4 - 12	GC	0	0	30 - 60	25 - 55	25 - 50	20 - 45	35 - 45	15 - 25	0.42 - 1.4	7.9 - 9.0	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Rodad	25	H3	12 - 16	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Theriot	20	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Theriot	20	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6759+21	6762+38	111	Blacktop-Rodad-Theriot association	Theriot	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Annaw	45	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Annaw	45	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Annaw	45	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6762+38	6763+14	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Blacktop	40	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Blacktop	40	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Rodad	25	H1	0 - 4	GC-GM, GM, SC-SM, SM	0	20	45 - 70	40 - 65	30 - 50	20 - 35	20 - 30	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Rodad	25	H2	4 - 12	GC	0	0	30 - 60	25 - 55	25 - 50	20 - 45	35 - 45	15 - 25	0.42 - 1.4	7.9 - 9.0	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Rodad	25	H3	12 - 16	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Theriot	20	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Theriot	20	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6763+14	6842+43	111	Blacktop-Rodad-Theriot association	Theriot	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Annaw	45	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Annaw	45	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Annaw	45	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	6842+43	7102+58	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Lyda	15	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Lyda	15	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Lyda	15	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Lyda	15	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Veet	25	H1	0 - 4	SM	0	0	60 - 75	30 - 50	20 - 45	15 - 25	15 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Veet	25	H2	4 - 14	GC, GC-GM	0	10	40 - 60	35 - 55	25 - 50	15 - 25	20 - 25	5 - 10	4 - 14	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Veet	25	H3	14 - 60	GM, GP-GM, GW-GM	0	10	45 - 55	30 - 50	15 - 30	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Zadvar	45	H1	0 - 6	SM	0	0	60 - 80	50 - 75	40 - 60	20 - 35	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Zadvar	45	H2	6 - 12	CL, GC, SC	0	0	60 - 90	55 - 85	45 - 75	35 - 60	35 - 40	15 - 20	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Zadvar	45	H3	12 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7102+58	7290+60	201	Zadvar-Veet-Lyda association	Zadvar	45	H4	22 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	15 - 35	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Kyler	20	H1	0 - 3	GC-GM, GM	0	40	30 - 40	25 - 40	20 - 35	15 - 25	15 - 25	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Kyler	20	H2	3 - 9	GC-GM, GM, SC-SM, SM	0	10	45 - 65	40 - 60	35 - 55	25 - 40	15 - 25	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Kyler	20	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Logring	45	H1	0 - 7	GM, SM	0	30	50 - 75	40 - 65	30 - 55	15 - 35	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 4	0.0 - 2.9	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Logring	45	H2	7 - 14	GM, SM	0	35	45 - 65	35 - 55	20 - 45	15 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 4	0.0 - 2.9	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Logring	45	H3	14 - 18	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Ubehebe	20	H1	0 - 2	GM, SM	0	0	55 - 65	40 - 50	30 - 40	15 - 25	15 - 25	0 - 5	14 - 42	7.9 - 8.4	0 - 4	0.0 - 2.9	-	23	Moderately cemented	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Ubehebe	20	H2	2 - 4	GC, GC-GM, SC-SM	0	0	60 - 70	45 - 55	35 - 45	25 - 35	25 - 30	5 - 10	4 - 14	7.9 - 8.4	0 - 4	0.0 - 2.9	-	23	Moderately cemented	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Ubehebe	20	H3	4 - 17	GC, GC-GM	0	5	50 - 60	40 - 55	35 - 50	25 - 35	25 - 35	5 - 15	4 - 14	7.9 - 8.4	0 - 4	3.0 - 5.9	-	23	Moderately cemented	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7290+60	7322+03	640	Logring-Kyler-Ubehebe association	Ubehebe	20	H4	17 - 21	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	23	Moderately cemented	Moderate	Low	High	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H1	0 - 4	GM	0	0	50 - 60	40 - 50	30 - 45	10 - 30	20 - 25	0 - 5	4 - 14	6.6 - 7.8	0 - 2	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H2	4 - 13	GC, GC-GM	0	0	50 - 60	35 - 50	25 - 35	15 - 25	25 - 35	5 - 15	4 - 14	6.6 - 7.8	0 - 2	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H3	13 - 17	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H1	0 - 1	GC, GC-GM	0	0	35 - 55	30 - 45	20 - 35	10 - 20	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7322+03	7386+19	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Stewval	35	H1	0 - 1	GC, GC-GM	0	0	35 - 55	30 - 45	20 - 35	10 - 20	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Stewval	35	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Stewval	35	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Zadvar	50	H1	0 - 6	SM	0	0	60 - 80	50 - 75	40 - 60	20 - 35	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Zadvar	50	H2	6 - 12	CL, GC, SC	0	0	60 - 90	55 - 85	45 - 75	35 - 60	35 - 40	15 - 20	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Zadvar	50	H3	12 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7386+19	7415+60	200	Zadvar-Stewval association	Zadvar	50	H4	22 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	15 - 35	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H1	0 - 4	GM	0	0	50 - 60	40 - 50	30 - 45	10 - 30	20 - 25	0 - 5	4 - 14	6.6 - 7.8	0 - 2	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H2	4 - 13	GC, GC-GM	0	0	50 - 60	35 - 50	25 - 35	15 - 25	25 - 35	5 - 15	4 - 14	6.6 - 7.8	0 - 2	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Gabbvally	25	H3	13 - 17	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H1	0 - 1	GC, GC-GM	0	0	35 - 55	30 - 45	20 - 35	10 - 20	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7415+60	7437+07	237	Stewval-Gabbvally-Rock outcrop association	Stewval	45	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Stewval	35	H1	0 - 1	GC, GC-GM	0	0	35 - 55	30 - 45	20 - 35	10 - 20	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Stewval	35	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Stewval	35	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Zadvar	50	H1	0 - 6	SM	0	0	60 - 80	50 - 75	40 - 60	20 - 35	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Zadvar	50	H2	6 - 12	CL, GC, SC	0	0	60 - 90	55 - 85	45 - 75	35 - 60	35 - 40	15 - 20	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Zadvar	50	H3	12 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7437+07	7448+33	200	Zadvar-Stewval association	Zadvar	50	H4	22 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	15 - 35	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Lyda	15	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Lyda	15	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Lyda	15	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Lyda	15	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Veet	25	H1	0 - 4	SM	0	0	60 - 75	30 - 50	20 - 45	15 - 25	15 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Veet	25	H2	4 - 14	GC, GC-GM	0	10	40 - 60	35 - 55	25 - 50	15 - 25	20 - 25	5 - 10	4 - 14	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Veet	25	H3	14 - 60	GM, GP-GM, GW-GM	0	10	45 - 55	30 - 50	15 - 30	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Zadvar	45	H1	0 - 6	SM	0	0	60 - 80	50 - 75	40 - 60	20 - 35	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Zadvar	45	H2	6 - 12	CL, GC, SC	0	0	60 - 90	55 - 85	45 - 75	35 - 60	35 - 40	15 - 20	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Zadvar	45	H3	12 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7448+33	7503+56	201	Zadvar-Veet-Lyda association	Zadvar	45	H4	22 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	15 - 35	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H1	0 - 4	SC-SM, SM	5	30	70 - 85	45 - 65	35 - 50	15 - 35	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H1	0 - 1	GC, GC-GM	5	15	45 - 60	40 - 55	30 - 45	10 - 25	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7503+56	7529+16	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Lyda	15	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Lyda	15	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Lyda	15	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Lyda	15	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Veet	25	H1	0 - 4	SM	0	0	60 - 75	30 - 50	20 - 45	15 - 25	15 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Veet	25	H2	4 - 14	GC, GC-GM	0	10	40 - 60	35 - 55	25 - 50	15 - 25	20 - 25	5 - 10	4 - 14	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Veet	25	H3	14 - 60	GM, GP-GM, GW-GM	0	10	45 - 55	30 - 50	15 - 30	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Zadvar	45	H1	0 - 6	SM	0	0	60 - 80	50 - 75	40 - 60	20 - 35	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Zadvar	45	H2	6 - 12	CL, GC, SC	0	0	60 - 90	55 - 85	45 - 75	35 - 60	35 - 40	15 - 20	1.4 - 4	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Zadvar	45	H3	12 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7529+16	7536+38	201	Zadvar-Veet-Lyda association	Zadvar	45	H4	22 - 60	GM, GP-GM, GW-GM	0	0	35 - 55	25 - 50	15 - 35	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Moderate	Low	High	-	Somewhat limited	Fair	Fair
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H1	0 - 4	SC-SM, SM	5	30	70 - 85	45 - 65	35 - 50	15 - 35	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H1	0 - 1	GC, GC-GM	5	15	45 - 60	40 - 55	30 - 45	10 - 25	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7536+38	7545+34	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Ardivey	25	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Ardivey	25	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Ardivey	25	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Lyda	50	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Lyda	50	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Lyda	50	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7545+34	7776+05	780	Lyda-Ardivey-Izo association	Lyda	50	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Tomel	65	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Tomel	65	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Tomel	65	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Tomel	65	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7776+05	7788+18	462	Tomel-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Ardivey	25	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Ardivey	25	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Ardivey	25	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Lyda	50	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Lyda	50	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Lyda	50	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7788+18	7793+21	780	Lyda-Ardivey-Izo association	Lyda	50	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Tomel	65	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Tomel	65	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Tomel	65	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Tomel	65	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7793+21	7886+22	462	Tomel-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Ardivey	50	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Ardivey	50	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Ardivey	50	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Lyda	15	H1	0 - 4	GM	0	5	35 - 60	30 - 55	25 - 45	10 - 25	15 - 25	0 - 5	14 - 42	8.5 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Lyda	15	H2	4 - 12	GC	0	10	50 - 60	45 - 55	30 - 45	20 - 35	35 - 40	15 - 20	0.42 - 1.4	8.5 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Lyda	15	H3	12 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Lyda	15	H4	14 - 40	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7886+22	7941+00	472	Ardivey-Wardenot-Lyda association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7941+00	7983+67	422	Vigus-Wardenot association	Vigus	70	H1	0 - 8	SM	0	0	65 - 80	60 - 75	50 - 70	10 - 25	-	0	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	7941+00	7983+67	422	Vigus-Wardenot association	Vigus	70	H2	8 - 17	SC, SC-SM	0	0	85 - 100	75 - 90	65 - 80	25 - 50	25 - 35	5 - 15	1.4 - 4	7.9 - 9.0	0 - 4	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	7941+00	7983+67	422	Vigus-Wardenot association	Vigus	70	H3	17 - 60	SM	0	0	70 - 85	60 - 80	35 - 55	15 - 30	15 - 25	0 - 5	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	7941+00	7983+67	422	Vigus-Wardenot association	Wardenot	20	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	7941+00	7983+67	422	Vigus-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Tomel	65	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Tomel	65	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Tomel	65	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Tomel	65	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Wardenot	20	H1	0 - 7	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	7983+67	8005+04	462	Tomel-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Annaw	25	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Annaw	25	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Annaw	25	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Wardenot	40	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8005+04	8031+78	446	Wardenot-Annaw-Izo association	Wardenot	40	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Downeyville	30	H1	0 - 4	SC-SM, SM	0	30	70 - 85	45 - 65	35 - 50	15 - 35	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Downeyville	30	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Downeyville	30	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Pintwater	25	H1	0 - 3	GM, SM	5	10	45 - 75	40 - 65	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Pintwater	25	H2	3 - 11	GM, SM	0	10	30 - 60	25 - 50	15 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Pintwater	25	H3	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Tokoper	30	H1	0 - 2	GM, SM	0	30	55 - 75	45 - 70	30 - 45	20 - 30	15 - 25	0 - 5	14 - 42	7.9 - 8.4	0 - 4	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Tokoper	30	H2	2 - 8	GC	0	10	50 - 60	40 - 55	30 - 45	20 - 40	30 - 40	10 - 15	1.4 - 4	7.9 - 9.0	0 - 4	3.0 - 5.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Tokoper	30	H3	8 - 10	GC, GC-GM, GM, GW-GC, GW-GM	0	15	30 - 50	20 - 40	10 - 30	5 - 25	25 - 35	5 - 10	4 - 14	7.9 - 9.0	0 - 8	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Tokoper	30	H4	10 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8031+78	8049+58	715	Tokoper-Downeyville-Pintwater association	Tokoper	30	H5	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Annaw	25	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Annaw	25	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Annaw	25	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Wardenot	40	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8049+58	8057+16	446	Wardenot-Annaw-Izo association	Wardenot	40	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Slatery	20	H1	0 - 2	GM	0	5	55 - 65	30 - 50	25 - 45	15 - 30	15 - 25	0 - 5	4 - 14	7.9 - 8.4	0 - 2	0.0 - 2.9	-	20	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Slatery	20	H2	2 - 6	SM	0	0	70 - 85	55 - 75	50 - 65	30 - 50	20 - 30	0 - 5	4 - 14	7.9 - 8.4	0 - 2	0.0 - 2.9	-	20	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Slatery	20	H3	6 - 10	SM	0	0	70 - 85	55 - 75	45 - 60	30 - 45	15 - 25	0 - 5	4 - 14	7.9 - 8.4	0 - 2	0.0 - 2.9	-	20	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Slatery	20	H4	10 - 14	-	-	-	-	-	-	-	-	-	0	-	-	-	-	20	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Theriot	50	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Theriot	50	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	8057+16	8140+06	253	Theriot-Slatery-Rock outcrop association	Theriot	50	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Tomel	35	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Tomel	35	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Tomel	35	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Tomel	35	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8140+06	8200+11	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8200+11	8201+69	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8200+11	8201+69	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8200+11	8201+69	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8200+11	8201+69	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Tomel	35	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Tomel	35	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Tomel	35	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Tomel	35	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8201+69	8319+86	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Blacktop	25	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Blacktop	25	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Downeyville	15	H1	0 - 4	SC-SM, SM	0	5	60 - 70	30 - 55	25 - 45	15 - 30	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Downeyville	15	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Downeyville	15	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Pintwater	45	H1	0 - 3	GM, SM	0	35	45 - 75	40 - 65	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Pintwater	45	H2	3 - 11	GM, SM	0	10	30 - 60	25 - 50	15 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8319+86	8335+62	414	Pintwater-Blacktop-Downeyville association	Pintwater	45	H3	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Fair	Fair
MN1	8335+62	8342+65	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8335+62	8342+65	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8335+62	8342+65	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8335+62	8342+65	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Ardivey	25	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Ardivey	25	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Ardivey	25	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Tokoper	60	H1	0 - 2	GM, SM	0	30	55 - 75	45 - 70	30 - 45	20 - 30	15 - 25	0 - 5	14 - 42	7.9 - 8.4	0 - 4	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Tokoper	60	H2	2 - 8	GC	0	10	50 - 60	40 - 55	30 - 45	20 - 40	30 - 40	10 - 15	1.4 - 4	7.9 - 9.0	0 - 4	3.0 - 5.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Tokoper	60	H3	8 - 10	GC, GC-GM, GM, GW-GC, GW-GM	0	15	30 - 50	20 - 40	10 - 30	5 - 25	25 - 35	5 - 10	4 - 14	7.9 - 9.0	0 - 8	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Tokoper	60	H4	10 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8342+65	8369+88	711	Tokoper-Ardivey association	Tokoper	60	H5	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8369+88	8376+68	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8369+88	8376+68	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8369+88	8376+68	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8369+88	8376+68	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Ardivey	25	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Ardivey	25	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Ardivey	25	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	28	-	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Tokoper	60	H1	0 - 2	GM, SM	0	30	55 - 75	45 - 70	30 - 45	20 - 30	15 - 25	0 - 5	14 - 42	7.9 - 8.4	0 - 4	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Tokoper	60	H2	2 - 8	GC	0	10	50 - 60	40 - 55	30 - 45	20 - 40	30 - 40	10 - 15	1.4 - 4	7.9 - 9.0	0 - 4	3.0 - 5.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Tokoper	60	H3	8 - 10	GC, GC-GM, GM, GW-GC, GW-GM	0	15	30 - 50	20 - 40	10 - 30	5 - 25	25 - 35	5 - 10	4 - 14	7.9 - 9.0	0 - 8	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Tokoper	60	H4	10 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8376+68	8407+38	711	Tokoper-Ardivey association	Tokoper	60	H5	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN1	8407+38	8425+28	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8407+38	8425+28	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8407+38	8425+28	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8407+38	8425+28	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Tomel	35	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Tomel	35	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Tomel	35	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Tomel	35	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8425+28	8428+66	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8428+66	8435+42	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8428+66	8435+42	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8428+66	8435+42	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8428+66	8435+42	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Ardivey	30	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Tomel	35	H1	0 - 3	GM	0	0	35 - 60	25 - 50	20 - 35	10 - 25	20 - 25	0 - 5	14 - 42	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Tomel	35	H2	3 - 19	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 35	10 - 15	1.4 - 4	8.5 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Tomel	35	H3	19 - 26	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Tomel	35	H4	26 - 60	GP, GW	0	0	25 - 45	20 - 40	10 - 20	0 - 5	-	0	141	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8435+42	8470+23	460	Tomel-Ardivey-Wardenot association	Wardenot	20	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Laxal	40	H1	0 - 4	GM	0	0	35 - 60	30 - 50	20 - 40	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Laxal	40	H2	4 - 60	GM	0	0	35 - 45	30 - 40	15 - 25	10 - 15	-	0	14 - 42	8.5 - 9.0	4 - 16	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Wardenot	30	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8470+23	8476+37	931	Laxal-Wardenot-Ardivey association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8476+37	8502+74	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN1	8502+74	8603+05	442	Wardenot-Izo association	Izo	40	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8502+74	8603+05	442	Wardenot-Izo association	Izo	40	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8502+74	8603+05	442	Wardenot-Izo association	Wardenot	50	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN1	8502+74	8603+05	442	Wardenot-Izo association	Wardenot	50	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4825+77	4954+88	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4954+88	4985+67	341	Zaba-Gynelle association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	4954+88	4985+67	341	Zaba-Gynelle association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	4954+88	4985+67	341	Zaba-Gynelle association	Zaba	60	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	4954+88	4985+67	341	Zaba-Gynelle association	Zaba	60	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	4954+88	4985+67	341	Zaba-Gynelle association	Zaba	60	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	4985+67	5002+19	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5002+19	5037+01	341	Zaba-Gynelle association	Gynelle	30	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5002+19	5037+01	341	Zaba-Gynelle association	Gynelle	30	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5002+19	5037+01	341	Zaba-Gynelle association	Zaba	60	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5002+19	5037+01	341	Zaba-Gynelle association	Zaba	60	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5002+19	5037+01	341	Zaba-Gynelle association	Zaba	60	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Oricto	40	H1	0 - 2	GM, SM	0	25	50 - 70	45 - 65	35 - 55	20 - 35	15 - 25	0 - 5	14 - 42	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Oricto	40	H2	2 - 7	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Oricto	40	H3	7 - 19	GM, GW-GM	0	10	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5037+01	5218+27	310	Gynelle-Oricto association	Oricto	40	H4	19 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	15	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5218+27	5246+62	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5246+62	5251+54	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5246+62	5251+54	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5246+62	5251+54	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5251+54	5264+83	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5264+83	5270+37	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H1	0 - 3	GM	0	0	40 - 60	30 - 50	25 - 45	20 - 30	15 - 25	0 - 5	4 - 14	9.1 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #100 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
MN2	5264+83	5270+37	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H2	3 - 23	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	10 - 30	5 - 15	15 - 25	0 - 5	4 - 14	9.1 - 9.6	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5264+83	5270+37	340	Zaba very gravelly loam, 0 to 8 percent slopes	Zaba	90	H3	23 - 60	GP-GM, GW, GW-GM	0	0	20 - 50	10 - 45	5 - 15	0 - 10	-	0	141	9.1 - 9.6	4 - 16	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Gynelle	45	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Gynelle	45	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5270+37	5288+79	311	Gynelle-Cirac association	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Cirac	40	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	0	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Cirac	40	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	0	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Kawich	20	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Kawich	20	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Playas	25	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5288+79	5316+70	454	Cirac-Playas-Kawich association	Playas	25	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5316+70	5371+46	900	Playas	Playas	100	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5316+70	5371+46	900	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5371+46	5457+44	151	Kawich-Playas association	Kawich	45	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5371+46	5457+44	151	Kawich-Playas association	Kawich	45	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5371+46	5457+44	151	Kawich-Playas association	Playas	40	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5371+46	5457+44	151	Kawich-Playas association	Playas	40	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Nuyobe	40	H1	0 - 4	CL, ML	0	0	100	95 - 100	80 - 95	35 - 40	10 - 15	4 - 14	8.5 - 9.6	16 - 32	3.0 - 5.9	0	-	-	High	High	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Nuyobe	40	H2	4 - 60	CL, ML	0	0	100	95 - 100	75 - 95	35 - 40	10 - 15	1.4 - 4	7.9 - 9.0	2 - 4	3.0 - 5.9	0	-	-	High	High	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Playas	15	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Playas	15	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H1	0 - 11	CL, CL-ML, ML	0	0	100	100	85 - 95	60 - 75	25 - 35	5 - 10	1.4 - 4	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H2	11 - 34	CL, CL-ML, ML	0	0	100	100	85 - 95	50 - 75	25 - 35	5 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5457+44	5458+56	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H3	34 - 60	CL-ML, ML, SC-SM, SM	0	0	100	100	70 - 85	40 - 55	15 - 25	0 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5458+56	5461+04	151	Kawich-Playas association	Kawich	45	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5458+56	5461+04	151	Kawich-Playas association	Kawich	45	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5458+56	5461+04	151	Kawich-Playas association	Playas	40	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5458+56	5461+04	151	Kawich-Playas association	Playas	40	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Somewhat limited	Fair	Fair
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Nuyobe	40	H1	0 - 4	CL, ML	0	0	100	95 - 100	80 - 95	35 - 40	10 - 15	4 - 14	8.5 - 9.6	16 - 32	3.0 - 5.9	0	-	-	High	High	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Nuyobe	40	H2	4 - 60	CL, ML	0	0	100	95 - 100	75 - 95	35 - 40	10 - 15	1.4 - 4	7.9 - 9.0	2 - 4	3.0 - 5.9	0	-	-	High	High	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Playas	15	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Playas	15	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H1	0 - 11	CL, CL-ML, ML	0	0	100	100	85 - 95	60 - 75	25 - 35	5 - 10	1.4 - 4	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H2	11 - 34	CL, CL-ML, ML	0	0	100	100	85 - 95	50 - 75	25 - 35	5 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5461+04	5490+26	380	Nuyobe-Rustigate-Playas association	Rustigate	30	H3	34 - 60	CL-ML, ML, SC-SM, SM	0	0	100	100	70 - 85	40 - 55	15 - 25	0 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	0	-	-	High	Low	High	-	Very limited	Poor	Poor
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Cirac	15	H1	0 - 4	SM	0	0	100	90 - 100	60 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	122	-	-	Low	High	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Cirac	15	H2	4 - 60	SM	0	0	90 - 100	75 - 100	50 - 70	35 - 50	15 - 25	0 - 5	14 - 42	8.5 - 9.6	16 - 32	0.0 - 2.9	122	-	-	Low	High	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Louderback	25	H1	0 - 3	SM, SW-SM	0	0	100	100	50 - 60	5 - 15	-	0	42 - 141	9.1 - 9.6	2 - 4	0.0 - 2.9	122	-	-	Moderate	Low	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Louderback	25	H2	3 - 40	SM, SW-SM	0	0	100	100	50 - 60	5 - 15	-	0	42 - 141	9.1 - 9.6	2 - 4	0.0 - 2.9	122	-	-	Moderate	Low	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Louderback	25	H3	40 - 60	GM, GP-GM, GW-GM, SM, SW-SM	0	0	35 - 60	25 - 50	15 - 40	5 - 15	-	0	42 - 141	7.9 - 9.0	4 - 8	0.0 - 2.9	122	-	-	Moderate	Low	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Rustigate	45	H1	0 - 11	CL, CL-ML, ML	0	0	100	100	85 - 95	60 - 75	25 - 35	5 - 10	1.4 - 4	7.9 - 9.6	0 - 4	3.0 - 5.9	122	-	-	High	Low	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Rustigate	45	H2	11 - 34	CL, CL-ML, ML	0	0	100	100	85 - 95	50 - 75	25 - 35	5 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	122	-	-	High	Low	High	-	Very limited	Poor	Fair
MN2	5490+26	5617+90	370	Rustigate-Louderback-Cirac association	Rustigate	45	H3	34 - 60	CL-ML, ML, SC-SM, SM	0	0	100	100	70 - 85	40 - 55	15 - 25	0 - 10	4 - 14	7.9 - 9.6	0 - 4	3.0 - 5.9	122	-	-	High	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Kawich	30	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Kawich	30	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Playas	30	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Playas	30	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Yomba	30	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Yomba	30	H2	3 - 11	SC, SC-SM	0	0	80 - 100	75 - 100	70 - 85	35 - 50	20 - 30	5 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Yomba	30	H3	11 - 18	GM	0	0	40 - 60	35 - 55	20 - 30	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5617+90	5636+51	163	Yomba-Playas-Kawich association	Yomba	30	H4	18 - 60	GP, GW	0	0	25 - 40	20 - 35	10 - 20	0 - 5	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Kawich	35	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Kawich	35	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Playas	8	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Playas	8	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Yomba	50	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Yomba	50	H2	3 - 11	SC, SC-SM	0	0	80 - 100	75 - 100	70 - 85	35 - 50	20 - 30	5 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Yomba	50	H3	11 - 18	GM	0	0	40 - 60	35 - 55	20 - 30	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5636+51	5729+64	164	Yomba-Kawich association	Yomba	50	H4	18 - 60	GP, GW	0	0	25 - 40	20 - 35	10 - 20	0 - 5	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Kawich	30	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Kawich	30	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Playas	30	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Playas	30	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Yomba	30	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Yomba	30	H2	3 - 11	SC, SC-SM	0	0	80 - 100	75 - 100	70 - 85	35 - 50	20 - 30	5 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Yomba	30	H3	11 - 18	GM	0	0	40 - 60	35 - 55	20 - 30	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5729+64	5761+34	163	Yomba-Playas-Kawich association	Yomba	30	H4	18 - 60	GP, GW	0	0	25 - 40	20 - 35	10 - 20	0 - 5	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	0	-	-	Low	Low	High	-	Very limited	Poor	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Kawich	35	H1	0 - 6	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Kawich	35	H2	6 - 60	SM	0	0	100	100	75 - 90	15 - 30	-	0	141	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Playas	8	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Playas	8	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	-	-	-	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Yomba	50	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Yomba	50	H2	3 - 11	SC, SC-SM	0	0	80 - 100	75 - 100	70 - 85	35 - 50	20 - 30	5 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5761+34	5809+75	164	Yomba-Kawich association	Yomba	50	H3	11 - 18	GM	0	0	40 - 60	35 - 55	20 - 30	10 - 20	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN2	5761+34	5809+75	164	Yomba-Kawich association	Yomba	50	H4	18 - 60	GP, GW	0	0	25 - 40	20 - 35	10 - 20	0 - 5	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Noyson	40	H1	0 - 3	SW-SM	0	0	60 - 85	50 - 75	25 - 50	5 - 10	-	0	141	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Noyson	40	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Noyson	40	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Stumble	30	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Stumble	30	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5809+75	5859+80	390	Noyson-Stumble-Izo association	Stumble	30	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Itme	20	H1	0 - 3	SM	0	0	85 - 95	60 - 75	35 - 50	15 - 20	-	0	141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Itme	20	H2	3 - 41	SM, SP, SP-SM	0	0	65 - 85	25 - 50	10 - 30	0 - 15	-	0	141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Itme	20	H3	41 - 60	SM	0	0	80 - 90	50 - 75	35 - 50	20 - 35	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Lathrop	30	H1	0 - 5	GC-GM, GM	0	0	40 - 60	30 - 50	20 - 30	10 - 20	15 - 25	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Lathrop	30	H2	5 - 11	CL, GC, SC	0	0	60 - 95	55 - 85	50 - 75	35 - 55	30 - 40	10 - 15	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Lathrop	30	H3	11 - 30	GP, GP-GM	0	10	25 - 50	20 - 45	5 - 25	0 - 10	-	0	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Lathrop	30	H4	30 - 60	GP, GP-GM, SP, SP-SM	0	15	15 - 60	10 - 40	5 - 25	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Noyson	45	H1	0 - 3	SM	0	0	60 - 85	50 - 75	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Noyson	45	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5859+80	5873+61	391	Noyson-Lathrop-Itme association	Noyson	45	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Noyson	40	H1	0 - 3	SW-SM	0	0	60 - 85	50 - 75	25 - 50	5 - 10	-	0	141	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Noyson	40	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Noyson	40	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Stumble	30	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Stumble	30	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5873+61	5880+93	390	Noyson-Stumble-Izo association	Stumble	30	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Itme	20	H1	0 - 3	SM	0	0	85 - 95	60 - 75	35 - 50	15 - 20	-	0	141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Itme	20	H2	3 - 41	SM, SP, SP-SM	0	0	65 - 85	25 - 50	10 - 30	0 - 15	-	0	141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Itme	20	H3	41 - 60	SM	0	0	80 - 90	50 - 75	35 - 50	20 - 35	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Lathrop	30	H1	0 - 5	GC-GM, GM	0	0	40 - 60	30 - 50	20 - 30	10 - 20	15 - 25	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Lathrop	30	H2	5 - 11	CL, GC, SC	0	0	60 - 95	55 - 85	50 - 75	35 - 55	30 - 40	10 - 15	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Lathrop	30	H3	11 - 30	GP, GP-GM	0	10	25 - 50	20 - 45	5 - 25	0 - 10	-	0	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Lathrop	30	H4	30 - 60	GP, GP-GM, SP, SP-SM	0	15	15 - 60	10 - 40	5 - 25	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Noyson	45	H1	0 - 3	SM	0	0	60 - 85	50 - 75	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Noyson	45	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5880+93	5918+39	391	Noyson-Lathrop-Itme association	Noyson	45	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Noyson	40	H1	0 - 3	SW-SM	0	0	60 - 85	50 - 75	25 - 50	5 - 10	-	0	141	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Noyson	40	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Noyson	40	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Stumble	30	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Stumble	30	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5918+39	5980+39	390	Noyson-Stumble-Izo association	Stumble	30	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Belted	30	H1	0 - 6	SM	0	0	55 - 80	50 - 75	35 - 50	10 - 20	-	0	42 - 141	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Belted	30	H2	6 - 13	CL, SC	0	0	65 - 100	55 - 100	45 - 80	25 - 60	30 - 40	10 - 15	1.4 - 4	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Belted	30	H3	13 - 25	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Belted	30	H4	25 - 60	GW	0	0	20 - 40	15 - 35	10 - 20	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Orphant	15	H1	0 - 5	GM, SM	0	0	55 - 80	50 - 75	30 - 50	15 - 30	15 - 25	0 - 5	14 - 42	6.6 - 7.8	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Orphant	15	H2	5 - 17	SC	0	0	70 - 100	65 - 100	40 - 65	20 - 40	25 - 35	10 - 15	4 - 14	7.4 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Orphant	15	H3	17 - 60	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Unsel	40	H1	0 - 7	SC	0	0	70 - 80	55 - 75	45 - 55	35 - 45	30 - 35	10 - 15	4 - 14	7.9 - 9.6	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Unsel	40	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Unsel	40	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	5980+39	6039+85	100	Unsel-Belted-Orphant association	Unsel	40	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Noyson	40	H1	0 - 3	SW-SM	0	0	60 - 85	50 - 75	25 - 50	5 - 10	-	0	141	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Noyson	40	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Noyson	40	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Stumble	30	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Stumble	30	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6039+85	6164+69	390	Noyson-Stumble-Izo association	Stumble	30	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Itme	20	H1	0 - 3	SM	0	0	85 - 95	60 - 75	35 - 50	15 - 20	-	0	141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Itme	20	H2	3 - 41	SM, SP, SP-SM	0	0	65 - 85	25 - 50	10 - 30	0 - 15	-	0	141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Itme	20	H3	41 - 60	SM	0	0	80 - 90	50 - 75	35 - 50	20 - 35	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Lathrop	30	H1	0 - 5	GC-GM, GM	0	0	40 - 60	30 - 50	20 - 30	10 - 20	15 - 25	0 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Lathrop	30	H2	5 - 11	CL, GC, SC	0	0	60 - 95	55 - 85	50 - 75	35 - 55	30 - 40	10 - 15	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Lathrop	30	H3	11 - 30	GP, GP-GM	0	10	25 - 50	20 - 45	5 - 25	0 - 10	-	0	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Lathrop	30	H4	30 - 60	GP, GP-GM, SP, SP-SM	0	15	15 - 60	10 - 40	5 - 25	0 - 5	-	0	42 - 141	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Noyson	45	H1	0 - 3	SM	0	0	60 - 85	50 - 75	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Noyson	45	H2	3 - 28	SM	0	0	70 - 100	60 - 90	35 - 60	15 - 25	20 - 25	0 - 5	14 - 42	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6164+69	6640+16	391	Noyson-Lathrop-Itme association	Noyson	45	H3	28 - 45	-	-	-	-	-	-	-	-	-	0.42 - 14	-	-	-	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Belcher	25	H1	0 - 3	SM, SP-SM, SW-SM	0	0	55 - 80	50 - 75	35 - 50	5 - 15	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Belcher	25	H2	3 - 10	SC-SM, SM	0	0	100	100	65 - 80	35 - 50	15 - 25	0 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Belcher	25	H3	10 - 18	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Belcher	25	H4	18 - 22	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Izo	20	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Izo	20	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Stumble	40	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Stumble	40	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6640+16	6660+15	141	Stumble-Belcher-Izo association	Stumble	40	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6660+15	6980+21	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Stumble	35	H1	0 - 4	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Stumble	35	H2	4 - 21	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Stumble	35	H3	21 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Unsel	20	H1	0 - 7	GC, GC-GM, SC-SM	0	15	40 - 70	35 - 60	30 - 50	15 - 35	20 - 25	5 - 10	14 - 42	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Unsel	20	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Unsel	20	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Unsel	20	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6980+21	6986+72	144	Stumble-Wardenot-Unsel association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	6986+72	7176+53	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7176+53	7182+71	122	Leo-Izo association	Izo	30	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7176+53	7182+71	122	Leo-Izo association	Izo	30	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7176+53	7182+71	122	Leo-Izo association	Leo	55	H1	0 - 4	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 35	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7176+53	7182+71	122	Leo-Izo association	Leo	55	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7182+71	7458+68	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Leo	15	H1	0 - 4	GM, GW-GM, SM, SW-SM	0	0	45 - 65	25 - 50	20 - 40	5 - 25	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Leo	15	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Unsel	30	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Unsel	30	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Unsel	30	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Unsel	30	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Vindicator	40	H1	0 - 2	GM, GW-GM	0	0	35 - 55	30 - 50	20 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Vindicator	40	H2	2 - 7	GC	0	0	45 - 60	35 - 50	30 - 40	20 - 35	25 - 40	10 - 20	4 - 14	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7458+68	7475+28	591	Vindicator-Unsel-Leo association	Vindicator	40	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7475+28	7477+82	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Leo	15	H1	0 - 4	GM, GW-GM, SM, SW-SM	0	0	45 - 65	25 - 50	20 - 40	5 - 25	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Leo	15	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Unsel	30	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Unsel	30	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Unsel	30	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Unsel	30	H4	20 - 60	GP-GM, GW, GW-GM	0	0	35 - 55	30 - 50	20 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Vindicator	40	H1	0 - 2	GM, GW-GM	0	0	35 - 55	30 - 50	20 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Vindicator	40	H2	2 - 7	GC	0	0	45 - 60	35 - 50	30 - 40	20 - 35	25 - 40	10 - 20	4 - 14	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7477+82	7478+32	591	Vindicator-Unsel-Leo association	Vindicator	40	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7478+32	7480+53	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Front Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Leo	15	H1	0 - 4	GM, GW-GM, SM, SW-SM	0	0	45 - 65	25 - 50	20 - 40	5 - 25	15 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Leo	15	H2	4 - 60	GM, GW-GM, SM, SW-SM	0	0	45 - 60	40 - 50	15 - 35	5 - 20	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Unsel	30	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Unsel	30	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Unsel	30	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Unsel	30	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Vindicator	40	H1	0 - 2	GM, GW-GM	0	0	35 - 55	30 - 50	20 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Vindicator	40	H2	2 - 7	GC	0	0	45 - 60	35 - 50	30 - 40	20 - 35	25 - 40	10 - 20	4 - 14	7.4 - 8.4	0 - 2	3.0 - 5.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7480+53	7488+93	591	Vindicator-Unsel-Leo association	Vindicator	40	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN2	7488+93	7498+47	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	300+00	388+81	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Downeyville	40	H1	0 - 4	SC-SM, SM	0	5	60 - 70	30 - 55	25 - 45	15 - 30	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Downeyville	40	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Downeyville	40	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Pintwater	30	H1	0 - 3	GM, SM	0	35	45 - 75	40 - 65	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Pintwater	30	H2	3 - 11	GM, SM	0	10	30 - 60	25 - 50	15 - 35	10 - 20	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	388+81	397+32	360	Downeyville-Pintwater-Rock outcrop association	Pintwater	30	H3	11 - 15	-	-	-	-	-	-	-	-	-	0	-	-	-	-	23	Indurated	Low	Low	High	-	Very limited	Poor	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	397+32	659+96	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Izo	15	H1	0 - 8	SP, SP-SM	0	0	75 - 85	50 - 75	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Unsel	45	H1	0 - 7	SC, SC-SM	0	0	75 - 85	55 - 75	40 - 60	25 - 35	25 - 30	5 - 10	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Unsel	45	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Unsel	45	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Unsel	45	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	-	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Wardenot	30	H1	0 - 7	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	659+96	669+63	101	Unsel-Wardenot-Izo association	Wardenot	30	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Unsel	70	H1	0 - 7	SC, SC-SM	0	40	65 - 90	55 - 80	35 - 55	15 - 30	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Unsel	70	H2	7 - 11	SC	0	0	75 - 85	55 - 75	45 - 60	35 - 45	35 - 40	15 - 20	1.4 - 4	7.4 - 9.0	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Unsel	70	H3	11 - 20	SC, SC-SM	0	0	60 - 75	50 - 70	35 - 50	20 - 35	20 - 30	5 - 10	4 - 14	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	669+63	694+19	108	Unsel-Izo association	Unsel	70	H4	20 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 25	0 - 10	0 - 14	0	42 - 141	8.5 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H1	0 - 4	SC-SM, SM	5	30	70 - 85	45 - 65	35 - 50	15 - 35	15 - 25	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H2	4 - 9	GC	0	10	40 - 60	30 - 50	25 - 50	20 - 40	25 - 35	10 - 15	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Downeyville	35	H3	9 - 13	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H1	0 - 1	GC, GC-GM	5	15	45 - 60	40 - 55	30 - 45	10 - 25	20 - 25	5 - 10	14 - 42	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H2	1 - 7	GC	0	0	20 - 55	15 - 45	10 - 35	10 - 30	30 - 40	10 - 20	4 - 14	7.4 - 8.4	0	0.0 - 2.9	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN3	694+19	717+91	230	Stewval-Downeyville-Rock outcrop association	Stewval	35	H3	7 - 11	-	-	-	-	-	-	-	-	-	0	-	-	-	-	18	Indurated	Moderate	Low	Moderate	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Blacktop	40	H1	0 - 4	GM	0	5	35 - 60	30 - 50	20 - 40	10 - 25	20 - 30	0 - 5	4 - 14	7.4 - 8.4	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Blacktop	40	H2	4 - 8	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Rodad	25	H1	0 - 4	GC-GM, GM, SC-SM, SM	0	20	45 - 70	40 - 65	30 - 50	20 - 35	20 - 30	0 - 10	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Rodad	25	H2	4 - 12	GC	0	0	30 - 60	25 - 55	25 - 50	20 - 45	35 - 45	15 - 25	0.42 - 1.4	7.9 - 9.0	0 - 2	3.0 - 5.9	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Rodad	25	H3	12 - 16	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Theriot	20	H1	0 - 4	GM, SM	0	15	40 - 70	40 - 60	25 - 50	10 - 30	-	0	4 - 14	7.9 - 9.6	0 - 2	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Theriot	20	H2	4 - 8	GM, SM	0	10	40 - 75	35 - 75	25 - 60	15 - 50	20 - 25	0 - 5	4 - 14	7.9 - 9.6	0 - 4	0.0 - 2.9	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	717+91	723+12	111	Blacktop-Rodad-Theriot association	Theriot	20	H3	8 - 12	-	-	-	-	-	-	-	-	-	0	-	-	-	-	10	Indurated	Low	Low	High	-	Very limited	Poor	Poor
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Annaw	45	H1	0 - 3	GM, SM	0	0	40 - 60	35 - 50	25 - 35	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Annaw	45	H2	3 - 11	GM, SM	0	0	50 - 85	45 - 75	30 - 60	15 - 35	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Annaw	45	H3	11 - 60	GM, GP-GM, GW-GM	0	0	20 - 55	20 - 45	10 - 20	5 - 15	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H1	0 - 4	GC, GC-GM	0	0	30 - 55	25 - 50	15 - 30	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H2	4 - 14	GC	0	10	40 - 55	30 - 45	20 - 40	15 - 30	25 - 40	10 - 20	1.4 - 4	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Ardivey	15	H3	14 - 60	GW, GW-GM	0	10	15 - 35	10 - 30	5 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H1	0 - 7	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
MN3	723+12	780+78	400	Annaw-Wardenot-Ardivey association	Wardenot	25	H2	7 - 60	GM, GP-GM, GW-GM	0	10	25 - 50	20 - 45	15 - 40	5 - 15	-	0	42 - 141	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S1	10000+00	10006+13	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10000+00	10006+13	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10006+13	10013+74	826	Playas	Playas	100	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S1	10006+13	10013+74	826	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S1	10013+74	10020+23	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10013+74	10020+23	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10013+74	10020+23	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10020+23	10053+59	484	Orizaba silty clay loam	Orizaba	90	H1	0 - 3	CL	0	0	100	100	95 - 100	85 - 95	30 - 40	15 - 25	0.42 - 1.4	9.1 - 11.0	8 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S1	10020+23	10053+59	484	Orizaba silty clay loam	Orizaba	90	H2	3 - 60	CL	0	0	100	95 - 100	75 - 90	50 - 80	30 - 40	10 - 20	1.4 - 4	8.5 - 9.0	4 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S1	10053+59	10095+50	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10053+59	10095+50	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10053+59	10095+50	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10096+55	10100+94	292	Fallon fine sandy loam	Fallon	90	H1	0 - 10	SM	0	0	100	100	60 - 80	25 - 40	-	0	4 - 14	6.6 - 9.0	4 - 8	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S1	10096+55	10100+94	292	Fallon fine sandy loam	Fallon	90	H2	10 - 60	ML, SM	0	0	95 - 100	85 - 100	70 - 90	40 - 60	-	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S1	10106+49	10134+35	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10106+49	10134+35	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10227+92	10264+78	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10227+92	10264+78	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10372+96	10389+15	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10372+96	10389+15	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S1	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor
S1	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	Low	High	-	Somewhat limited	Poor	Poor
S1	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	Low	High	-	Somewhat limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet)		Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties								Physical and Chemical Properties				Soil Rock and Water Features				Risk of Corrosion		Site Development		Material Source	
										>10 inches	3 to 10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Concrete	Uncoated Steel	Excavation Difficulty	Local Roads and Streets	Sand	Gravel
	From	To								Percent Retained		Percent Passing				Percent	Percent	mM/sec	pH	mmhos/cm	Percent	inches	inches								
S1	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S1	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S1	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H1	0 - 2	GM, SM	0	0	60 - 85	50 - 75	40 - 65	20 - 50	-	0	14 - 42	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S1	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H2	2 - 11	CL, MH, ML	0	0	90 - 100	85 - 100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S1	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H3	11 - 60	CL, MH, ML	0	0	100	100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S1	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10578+19	10587+09	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H2	6 - 60	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S1	10587+09	10591+71	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10866+10	10906+80	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10906+80	10921+75	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10906+80	10921+75	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10906+80	10921+75	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10921+75	10931+69	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10931+69	10947+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10931+69	10947+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10931+69	10947+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10947+28	10972+91	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	10972+91	11043+21	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10972+91	11043+21	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	10972+91	11043+21	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11043+21	11113+04	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11043+21	11113+04	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11113+04	11149+03	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11113+04	11149+03	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11113+04	11149+03	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11149+03	11186+67	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches	3 to 10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Physical and Chemical Properties: Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Soil Rock and Water Features: Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
										Percent Retained		Percent Passing				Percent	Percent	mM/sec	pH	mmhos/cm	Percent	inches	inches								
S1	11149+03	11186+67	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	11186+67	11216+33	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11216+33	11278+78	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	11278+78	11325+62	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11325+62	11325+75	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11325+75	11326+08	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+75	11326+08	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+75	11326+08	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11325+75	11326+08	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11326+08	11326+22	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11326+22	11349+07	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+22	11349+07	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+22	11349+07	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11326+22	11349+07	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11349+07	11507+17	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11349+07	11507+17	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11349+07	11507+17	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11507+17	11553+53	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S1	11553+53	11579+60	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11553+53	11579+60	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11553+53	11579+60	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S1	11579+60	11662+28	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11579+60	11662+28	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11662+28	11699+65	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11662+28	11699+65	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S1	11662+28	11699+65	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S1	11662+28	11699+65	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10000+00	10006+13	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10000+00	10006+13	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10006+13	10013+74	826	Playas	Playas	100	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S2	10006+13	10013+74	826	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S2	10013+74	10020+23	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10013+74	10020+23	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10013+74	10020+23	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10020+23	10053+59	484	Orizaba silty clay loam	Orizaba	90	H1	0 - 3	CL	0	0	100	100	95 - 100	85 - 95	30 - 40	15 - 25	0.42 - 1.4	9.1 - 11.0	8 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S2	10020+23	10053+59	484	Orizaba silty clay loam	Orizaba	90	H2	3 - 60	CL	0	0	100	95 - 100	75 - 90	50 - 80	30 - 40	10 - 20	1.4 - 4	8.5 - 9.0	4 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S2	10053+59	10095+50	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10053+59	10095+50	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10053+59	10095+50	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10096+55	10100+94	292	Fallon fine sandy loam	Fallon	90	H1	0 - 10	SM	0	0	100	100	60 - 80	25 - 40	-	0	4 - 14	6.6 - 9.0	4 - 8	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S2	10096+55	10100+94	292	Fallon fine sandy loam	Fallon	90	H2	10 - 60	ML, SM	0	0	95 - 100	85 - 100	70 - 90	40 - 60	-	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S2	10106+49	10134+35	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10106+49	10134+35	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10134+35	10152+68	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10152+68	10184+47	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10184+47	10227+92	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10227+92	10264+78	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10227+92	10264+78	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10264+78	10372+96	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10372+96	10389+15	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10372+96	10389+15	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S2	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10389+15	10443+00	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10443+00	10450+64	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10450+64	10502+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10502+19	10505+40	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10505+40	10521+30	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10521+30	10541+99	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10541+99	10552+84	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S2	10552+84	10556+30	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S2	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10552+84	10556+30	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S2	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H1	0 - 2	GM, SM	0	0	60 - 85	50 - 75	40 - 65	20 - 50	-	0	14 - 42	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S2	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H2	2 - 11	CL, MH, ML	0	0	90 - 100	85 - 100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S2	10556+30	10569+68	691	Ultra gravelly fine sandy loam	Ultra	90	H3	11 - 60	CL, MH, ML	0	0	100	100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S2	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10569+68	10578+19	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10578+19	10587+10	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H2	6 - 60	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S2	10587+10	10591+71	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10591+71	10746+88	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10746+88	10866+10	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10866+10	10911+08	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10911+08	10920+95	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10911+08	10920+95	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10911+08	10920+95	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10920+95	10929+64	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10929+64	10939+98	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10929+64	10939+98	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10929+64	10939+98	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	10939+98	11261+24	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Bango	60	H1	0 - 6	SM	0	0	90 - 95	90 - 95	45 - 60	15 - 30	-	0	14 - 42	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Bango	60	H2	6 - 12	CL	0	0	90 - 100	90 - 100	75 - 90	55 - 75	30 - 35	10 - 15	1.4 - 4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Bango	60	H3	12 - 60	CL, CL-ML	0	0	85 - 95	85 - 95	70 - 85	55 - 70	25 - 35	5 - 15	1.4 - 4	7.9 - 9.0	4 - 16	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Hawsley	25	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Hawsley	25	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Hawsley	25	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Playas	2	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S2	11261+24	11302+20	4250	Bango-Hawsley complex, 0 to 4 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	50 - 60	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11302+20	11309+31	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11309+31	11341+94	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11309+31	11341+94	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11309+31	11341+94	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	50 - 60	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11341+94	11397+06	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11397+06	11417+64	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11397+06	11417+64	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11397+06	11417+64	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11417+64	11472+69	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S2	11472+69	11498+77	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11472+69	11498+77	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11472+69	11498+77	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S2	11498+77	11581+24	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11498+77	11581+24	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11581+24	11618+81	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11581+24	11618+81	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11581+24	11618+81	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S2	11581+24	11618+81	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10000+00	10004+56	1210	Trocken-Bluewing association	Bluewing	20	H1	0 - 7	SP-SM	0	10	70 - 85	35 - 45	15 - 30	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10000+00	10004+56	1210	Trocken-Bluewing association	Bluewing	20	H2	7 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 15	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10000+00	10004+56	1210	Trocken-Bluewing association	Trocken	70	H1	0 - 3	SM	0	0	65 - 85	50 - 75	30 - 50	10 - 20	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10000+00	10004+56	1210	Trocken-Bluewing association	Trocken	70	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Bluewing	20	H1	0 - 7	SP-SM	0	10	70 - 85	35 - 45	15 - 30	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Bluewing	20	H2	7 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 15	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H1	0 - 4	GM	0	0	40 - 60	35 - 50	25 - 35	10 - 20	20 - 30	0 - 5	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10004+56	10055+69	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10055+69	10065+82	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S3	10055+69	10065+82	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Bluewing	20	H1	0 - 7	SP-SM	0	10	70 - 85	35 - 45	15 - 30	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Bluewing	20	H2	7 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 15	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H1	0 - 4	GM	0	0	40 - 60	35 - 50	25 - 35	10 - 20	20 - 30	0 - 5	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Perazzo	45	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10065+82	10075+05	3001	Perazzo-Rawe-Bluewing association	Rawe	25	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Carwalker	20	H1	0 - 2	SM	0	0	100	100	50 - 70	10 - 20	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	Moderate	High	Low	-	Very limited	Fair	Fair
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Carwalker	20	H2	2 - 41	SM	0	0	95 - 100	90 - 100	60 - 75	15 - 30	0	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	Moderate	High	Low	-	Very limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet)		Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties								Physical and Chemical Properties				Soil Rock and Water Features				Risk of Corrosion		Site Development		Material Source	
	From	To								>10 inches	3 to10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Concrete	Uncoated Steel	Excavation Difficulty	Local Roads and Streets	Sand	Gravel
										Percent Retained		Percent Passing				Percent	Percent	mM/sec	pH	mmhos/cm	Percent	inches	inches								
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Carwalker	20	H3	41 - 60	SM	0	0	95 - 100	75 - 100	60 - 75	15 - 30	0	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	Moderate	High	Low	-	Very limited	Fair	Fair
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Schurz	70	H1	0 - 9	ML, SM	0	0	100	100	85 - 95	40 - 65	20 - 30	0 - 5	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	High	Low	High	-	Very limited	Fair	Fair
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Schurz	70	H2	9 - 45	CL-ML, ML, SC-SM, SM	0	0	100	100	85 - 95	45 - 75	15 - 30	0 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	High	Low	High	-	Very limited	Fair	Fair
S3	10075+05	10086+71	631	Schurz-Carwalker complex, occasionally flooded, 0 to 2 percent slopes	Schurz	70	H3	45 - 60	SM	0	0	95 - 100	75 - 100	60 - 75	15 - 30	0	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	100	-	-	High	Low	High	-	Very limited	Fair	Fair
S3	10086+71	10355+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10086+71	10355+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10086+71	10355+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10355+89	10425+73	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10355+89	10425+73	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10425+73	10461+73	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10425+73	10461+73	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10425+73	10461+73	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10461+73	10499+36	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10461+73	10499+36	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S3	10499+36	10529+03	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10529+03	10591+47	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S3	10591+47	10638+31	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10638+31	10638+44	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10638+44	10638+78	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+44	10638+78	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+44	10638+78	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+44	10638+78	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10638+78	10638+92	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10638+92	10661+77	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+92	10661+77	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+92	10661+77	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10638+92	10661+77	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10661+77	10819+86	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10661+77	10819+86	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10661+77	10819+86	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (Artificial-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Front Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10819+86	10866+22	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S3	10866+22	10892+29	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10866+22	10892+29	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10866+22	10892+29	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S3	10892+29	10974+96	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10892+29	10974+96	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10974+96	11012+35	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10974+96	11012+35	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10974+96	11012+35	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S3	10974+96	11012+35	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10007+90	10017+18	826	Playas	Playas	100	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S4	10007+90	10017+18	826	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S4	10017+18	10021+37	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10017+18	10021+37	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10017+18	10021+37	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10021+37	10054+64	484	Orizaba silty clay loam	Orizaba	90	H1	0 - 3	CL	0	0	100	100	95 - 100	85 - 95	30 - 40	15 - 25	0.42 - 1.4	9.1 - 11.0	8 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S4	10021+37	10054+64	484	Orizaba silty clay loam	Orizaba	90	H2	3 - 60	CL	0	0	100	95 - 100	75 - 90	50 - 80	30 - 40	10 - 20	1.4 - 4	8.5 - 9.0	4 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S4	10054+64	10096+55	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10054+64	10096+55	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10054+64	10096+55	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10097+59	10101+95	292	Fallon fine sandy loam	Fallon	90	H1	0 - 10	SM	0	0	100	100	60 - 80	25 - 40	-	0	4 - 14	6.6 - 9.0	4 - 8	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S4	10097+59	10101+95	292	Fallon fine sandy loam	Fallon	90	H2	10 - 60	ML, SM	0	0	95 - 100	85 - 100	70 - 90	40 - 60	-	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S4	10107+56	10135+39	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10107+56	10135+39	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10135+39	10153+72	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10135+39	10153+72	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10135+39	10153+72	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10153+72	10185+50	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10153+72	10185+50	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10153+72	10185+50	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10153+72	10185+50	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10153+72	10185+50	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10185+50	10228+95	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10185+50	10228+95	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10185+50	10228+95	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10228+95	10265+82	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10228+95	10265+82	761	Yerington loamy fine sand, 0 to 2 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10265+82	10373+99	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10265+82	10373+99	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10265+82	10373+99	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10373+99	10390+18	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10373+99	10390+18	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S4	10390+18	10444+04	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10390+18	10444+04	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10390+18	10444+04	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10444+04	10451+67	361	Hough sand, 0 to 2 percent slopes	Hough	90	H1	0 - 10	SM	0	0	100	90 - 100	50 - 75	10 - 20	-	0	42 - 141	6.6 - 7.3	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10444+04	10451+67	361	Hough sand, 0 to 2 percent slopes	Hough	90	H2	10 - 21	CL, SC	0	0	100	90 - 100	80 - 90	35 - 55	25 - 35	10 - 15	4 - 14	6.6 - 7.3	0	3.0 - 5.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10444+04	10451+67	361	Hough sand, 0 to 2 percent slopes	Hough	90	H3	21 - 60	SM, SW-SM	0	0	90 - 100	85 - 95	50 - 75	5 - 25	-	0	141 - 705	6.6 - 8.4	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10444+04	10451+67	361	Hough sand, 0 to 2 percent slopes	Playas	2	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10444+04	10451+67	361	Hough sand, 0 to 2 percent slopes	Playas	2	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 16	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10451+67	10503+22	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10451+67	10503+22	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10451+67	10503+22	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10503+22	10506+44	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10503+22	10506+44	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10506+44	10522+33	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10506+44	10522+33	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10506+44	10522+33	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10522+33	10543+02	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#100 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S4	10522+33	10543+02	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10522+33	10543+02	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10522+33	10543+02	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10522+33	10543+02	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10522+33	10543+02	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10522+33	10543+02	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10543+02	10553+87	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10543+02	10553+87	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10543+02	10553+87	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10553+87	10557+33	711	Vylach-Weena association	Vylach	50	H1	0 - 5	SM	0	0	75 - 90	65 - 75	40 - 55	20 - 35	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Vylach	50	H2	5 - 12	CL, SC	0	0	90 - 100	80 - 95	70 - 85	35 - 60	35 - 50	15 - 25	1.4 - 4	6.6 - 9.0	0 - 2	3.0 - 5.9	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Vylach	50	H3	12 - 27	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Vylach	50	H4	27 - 60	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Moderately cemented	Low	Low	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Weena	35	H1	0 - 7	CL, CL-ML	0	0	85 - 100	80 - 100	70 - 90	55 - 75	20 - 35	5 - 15	4 - 14	6.6 - 9.0	0 - 4	3.0 - 5.9	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Weena	35	H2	7 - 17	-	-	-	-	-	-	-	-	-	0.42 - 141	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10553+87	10557+33	711	Vylach-Weena association	Weena	35	H3	17 - 21	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	43	Indurated, Moderately cemented	Low	Moderate	High	-	Somewhat limited	Poor	Poor
S4	10557+33	10570+72	691	Ultra gravelly fine sandy loam	Ultra	90	H1	0 - 2	GM, SM	0	0	60 - 85	50 - 75	40 - 65	20 - 50	-	0	14 - 42	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S4	10557+33	10570+72	691	Ultra gravelly fine sandy loam	Ultra	90	H2	2 - 11	CL, MH, ML	0	0	90 - 100	85 - 100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S4	10557+33	10570+72	691	Ultra gravelly fine sandy loam	Ultra	90	H3	11 - 60	CL, MH, ML	0	0	100	100	80 - 90	60 - 75	40 - 55	15 - 25	0.01 - 0.42	6.6 - 9.0	8 - 16	6.0 - 8.9	-	-	-	Low	High	High	-	Very limited	Poor	Poor
S4	10570+72	10579+23	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10570+72	10579+23	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10570+72	10579+23	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10579+23	10588+16	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Badland	10	H2	6 - 60	CH, CL, MH, ML	0	0	100	100	100	90 - 100	45 - 75	20 - 35	0.01 - 0.42	7.4 - 9.6	0 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Patna	20	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S4	10588+16	10592+31	4230	Typic Torriorthents-Patna-Badland association	Typic Torriorthents	55	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10592+31	10696+93	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H1	0 - 7	GW-GM	0	5	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H2	7 - 60	GW-GM	0	15	30 - 40	25 - 35	15 - 25	5 - 10	-	0	141 - 705	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Rawe	55	H1	0 - 4	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Rawe	55	H2	4 - 11	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Rawe	55	H3	11 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Trocken	15	H1	0 - 3	GM, SM	0	0	45 - 65	35 - 50	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10696+93	10718+80	3020	Rawe-Bluewing-Trocken association	Trocken	15	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Perazzo	55	H1	0 - 4	GM	0	0	40 - 60	35 - 50	25 - 35	10 - 20	20 - 30	0 - 5	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Perazzo	55	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Perazzo	55	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Perazzo	55	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Typic Torriorthents	30	H1	0 - 6	GM	0	0	45 - 60	35 - 55	20 - 35	10 - 20	15 - 20	0 - 5	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S4	10718+80	10728+36	3000	Perazzo-Typic Torriorthents association	Typic Torriorthents	30	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Somewhat limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10728+36	10791+15	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H1	0 - 7	GW-GM	0	5	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H2	7 - 60	GW-GM	0	15	30 - 40	25 - 35	15 - 25	5 - 10	-	0	141 - 705	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, Inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (Inches)	Depth to Bedrock (Inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Rawe	55	H1	0 - 4	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Rawe	55	H2	4 - 11	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Rawe	55	H3	11 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Trocken	15	H1	0 - 3	GM, SM	0	0	45 - 65	35 - 50	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10791+15	10802+17	3020	Rawe-Bluewing-Trocken association	Trocken	15	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H1	0 - 3	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H2	3 - 9	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Theon	25	H1	0 - 1	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Theon	25	H2	1 - 8	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10802+17	10815+60	1090	Singatse-Theon-Rock outcrop association	Theon	25	H3	8 - 12	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H1	0 - 7	GW-GM	0	5	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H2	7 - 60	GW-GM	0	15	30 - 40	25 - 35	15 - 25	5 - 10	-	0	141 - 705	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Rawe	55	H1	0 - 4	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Rawe	55	H2	4 - 11	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Rawe	55	H3	11 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Trocken	15	H1	0 - 3	GM, SM	0	0	45 - 65	35 - 50	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10815+60	10825+33	3020	Rawe-Bluewing-Trocken association	Trocken	15	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H1	0 - 3	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H2	3 - 9	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Theon	25	H1	0 - 1	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Theon	25	H2	1 - 8	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10825+33	10833+95	1090	Singatse-Theon-Rock outcrop association	Theon	25	H3	8 - 12	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H1	0 - 7	GW-GM	0	5	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Bluewing	20	H2	7 - 60	GW-GM	0	15	30 - 40	25 - 35	15 - 25	5 - 10	-	0	141 - 705	6.6 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Rawe	55	H1	0 - 4	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Rawe	55	H2	4 - 11	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Rawe	55	H3	11 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Trocken	15	H1	0 - 3	GM, SM	0	0	45 - 65	35 - 50	25 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10833+95	10851+40	3020	Rawe-Bluewing-Trocken association	Trocken	15	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	6.6 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Hawsley	40	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H1	0 - 8	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H2	8 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H3	15 - 36	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Patna	45	H4	36 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10851+40	10864+42	4220	Patna-Hawsley sands, 0 to 4 percent slopes	Playas	5	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Not limited	Fair	Fair
S4	10864+42	10935+03	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10864+42	10935+03	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10935+03	10939+22	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10935+03	10939+22	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10935+03	10939+22	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10935+03	10939+22	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	10939+22	11018+51	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10939+22	11018+51	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	10939+22	11018+51	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11018+51	11051+64	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11018+51	11051+64	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11051+64	11072+47	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11051+64	11072+47	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11051+64	11072+47	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Gynelle	20	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Gynelle	20	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H1	0 - 3	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H2	3 - 8	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H3	8 - 14	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H4	14 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	0	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Typic Torriorthents	50	H1	0 - 6	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11072+47	11108+51	1310	Typic Torriorthents-Gynelle-Oricto association	Typic Torriorthents	50	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S4	11108+51	11118+19	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11108+51	11118+19	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H1	0 - 3	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H2	3 - 9	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Theon	25	H1	0 - 1	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Theon	25	H2	1 - 8	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11118+19	11136+61	1090	Singatse-Theon-Rock outcrop association	Theon	25	H3	8 - 12	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Gynelle	20	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Gynelle	20	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet)		Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties							Physical and Chemical Properties				Soil Rock and Water Features				Risk of Corrosion		Site Development		Material Source	
										>10 inches	3 to10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Concrete	Uncoated Steel	Excavation Difficulty	Local Roads and Streets	Sand	Gravel
	From	To								Percent Retained		Percent Passing				Percent		mM/sec	pH	mmhos/cm	Percent	inches	inches								
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Singatse	50	H1	0 - 2	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Singatse	50	H2	2 - 6	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11136+61	11187+16	1091	Singatse-Gynelle-Izo association	Singatse	50	H3	6 - 10	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H1	0 - 8	SM	0	0	65 - 75	30 - 50	20 - 30	10 - 20	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H1	0 - 8	SM	0	0	65 - 75	30 - 50	20 - 30	10 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H2	8 - 40	SP, SP-SM	0	0	75 - 85	20 - 35	10 - 25	0 - 10	-	0	141 - 705	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H2	8 - 40	SP, SP-SM	0	0	60 - 85	20 - 35	10 - 25	0 - 10	-	0	141 - 705	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H3	40 - 60	SM	0	0	80 - 90	40 - 55	25 - 40	10 - 15	-	0	141 - 705	7.9 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11187+16	11204+02	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H3	40 - 60	SM	0	0	80 - 90	40 - 55	25 - 40	10 - 15	-	0	141 - 705	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11204+02	11272+10	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11204+02	11272+10	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11272+10	11331+44	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S4	11272+10	11331+44	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S4	11331+44	11348+16	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11331+44	11348+16	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11348+16	11365+99	1173	Hawsley-Izo association	Hawsley	60	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11348+16	11365+99	1173	Hawsley-Izo association	Hawsley	60	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11348+16	11365+99	1173	Hawsley-Izo association	Hawsley	60	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11348+16	11365+99	1173	Hawsley-Izo association	Izo	25	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11348+16	11365+99	1173	Hawsley-Izo association	Izo	25	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11365+99	11390+16	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11365+99	11390+16	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11365+99	11390+16	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11390+16	11565+04	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11390+16	11565+04	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11390+16	11565+04	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11390+16	11565+04	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11565+04	11936+14	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11565+04	11936+14	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11565+04	11936+14	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S4	11936+14	11982+48	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S4	11982+48	12008+57	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11982+48	12008+57	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	11982+48	12008+57	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S4	12008+57	12088+28	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	12008+57	12088+28	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	12088+28	12131+23	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	12088+28	12131+23	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	12088+28	12131+23	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S4	12088+28	12131+23	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10007+90	10016+53	826	Playas	Playas	100	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S5	10007+90	10016+53	826	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S5	10016+53	10021+24	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10016+53	10021+24	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10016+53	10021+24	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10021+24	10054+82	484	Orizaba silty clay loam	Orizaba	90	H1	0 - 3	CL	0	0	100	100	95 - 100	85 - 95	30 - 40	15 - 25	0.42 - 1.4	9.1 - 11.0	8 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S5	10021+24	10054+82	484	Orizaba silty clay loam	Orizaba	90	H2	3 - 60	CL	0	0	100	95 - 100	75 - 90	50 - 80	30 - 40	10 - 20	1.4 - 4	8.5 - 9.0	4 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S5	10054+82	10096+69	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10054+82	10096+69	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10054+82	10096+69	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10097+82	10103+46	292	Fallon fine sandy loam	Fallon	90	H1	0 - 10	SM	0	0	100	100	60 - 80	25 - 40	-	0	4 - 14	6.6 - 9.0	4 - 8	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S5	10097+82	10103+46	292	Fallon fine sandy loam	Fallon	90	H2	10 - 60	ML, SM	0	0	95 - 100	85 - 100	70 - 90	40 - 60	-	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S5	10109+00	10137+24	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10109+00	10137+24	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S5	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S5	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S5	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S5	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S5	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10281+73	10290+50	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10281+73	10290+50	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10290+50	10297+46	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10290+50	10297+46	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10297+46	10299+38	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10297+46	10299+38	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10299+38	10307+12	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10299+38	10307+12	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10307+12	10341+45	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10307+12	10341+45	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10341+45	10359+05	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10341+45	10359+05	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10359+05	10367+50	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10359+05	10367+50	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Front Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S5	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10386+64	10498+34	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10386+64	10498+34	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10507+09	10545+54	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10507+09	10545+54	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10545+54	10557+98	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10545+54	10557+98	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10557+98	10579+21	763	Yerington loamy fine sand, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10557+98	10579+21	763	Yerington loamy fine sand, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S5	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S5	10579+21	10620+37	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10579+21	10620+37	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S5	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10620+37	10683+49	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10620+37	10683+49	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10701+30	10760+47	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10701+30	10760+47	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10765+33	10767+23	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10765+33	10767+23	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10767+23	10773+67	661	Isolde fine sand, 0 to 15 percent slopes	Isolde	90	H1	0 - 7	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10767+23	10773+67	661	Isolde fine sand, 0 to 15 percent slopes	Isolde	90	H2	7 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10773+67	10796+01	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10773+67	10796+01	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10773+67	10796+01	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10773+67	10796+01	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10773+67	10796+01	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10796+01	10825+43	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H1	0 - 4	GC, GC-GM, SC-SM	0	0	55 - 70	50 - 65	45 - 60	30 - 45	20 - 30	5 - 10	4 - 14	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10796+01	10825+43	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10796+01	10825+43	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10796+01	10825+43	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10825+43	10829+49	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10825+43	10829+49	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10825+43	10829+49	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10829+49	10841+13	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H1	0 - 4	GC, GC-GM, SC-SM	0	0	55 - 70	50 - 65	45 - 60	30 - 45	20 - 30	5 - 10	4 - 14	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10829+49	10841+13	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10829+49	10841+13	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10829+49	10841+13	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10841+13	10887+74	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10887+74	10892+98	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10892+98	10893+63	633	Singatse-Theon association	Singatse	50	H1	0 - 6	SM	0	0	70 - 80	45 - 55	35 - 45	25 - 35	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10892+98	10893+63	633	Singatse-Theon association	Singatse	50	H2	6 - 12	-	-	-	-	-	-	-	-	-	0.01 - 0.42	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10892+98	10893+63	633	Singatse-Theon association	Singatse	50	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10892+98	10893+63	633	Singatse-Theon association	Theon	35	H1	0 - 2	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10892+98	10893+63	633	Singatse-Theon association	Theon	35	H2	2 - 11	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10892+98	10893+63	633	Singatse-Theon association	Theon	35	H3	11 - 15	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10893+63	10916+36	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10916+36	10923+85	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10916+36	10923+85	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10916+36	10923+85	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10923+85	10926+88	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10926+88	10935+84	633	Singatse-Theon association	Singatse	50	H1	0 - 6	SM	0	0	70 - 80	45 - 55	35 - 45	25 - 35	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10926+88	10935+84	633	Singatse-Theon association	Singatse	50	H2	6 - 12	-	-	-	-	-	-	-	-	-	0.01 - 0.42	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10926+88	10935+84	633	Singatse-Theon association	Singatse	50	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10926+88	10935+84	633	Singatse-Theon association	Theon	35	H1	0 - 2	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10926+88	10935+84	633	Singatse-Theon association	Theon	35	H2	2 - 11	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10926+88	10935+84	633	Singatse-Theon association	Theon	35	H3	11 - 15	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10935+84	10944+79	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10944+79	10949+20	633	Singatse-Theon association	Singatse	50	H1	0 - 6	SM	0	0	70 - 80	45 - 55	35 - 45	25 - 35	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10944+79	10949+20	633	Singatse-Theon association	Singatse	50	H2	6 - 12	-	-	-	-	-	-	-	-	-	0.01 - 0.42	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10944+79	10949+20	633	Singatse-Theon association	Singatse	50	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated, Moderately cemented	Low	Low	High	-	Very limited	Poor	Poor
S5	10944+79	10949+20	633	Singatse-Theon association	Theon	35	H1	0 - 2	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10944+79	10949+20	633	Singatse-Theon association	Theon	35	H2	2 - 11	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10944+79	10949+20	633	Singatse-Theon association	Theon	35	H3	11 - 15	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10949+20	10962+10	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10962+10	10978+57	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10962+10	10978+57	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10962+10	10978+57	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10978+57	11002+17	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H1	0 - 4	GC, GC-GM, SC-SM	0	0	55 - 70	50 - 65	45 - 60	30 - 45	20 - 30	5 - 10	4 - 14	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10978+57	11002+17	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10978+57	11002+17	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	10978+57	11002+17	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11002+17	11027+65	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11027+65	11038+20	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11038+20	11043+79	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H1	0 - 4	GC, GC-GM, SC-SM	0	0	55 - 70	50 - 65	45 - 60	30 - 45	20 - 30	5 - 10	4 - 14	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11038+20	11043+79	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11038+20	11043+79	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11038+20	11043+79	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Bluewing	35	H1	0 - 7	SP-SM	0	10	70 - 85	35 - 45	15 - 30	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Bluewing	35	H2	7 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 15	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Perazzo	50	H1	0 - 4	GM	0	0	40 - 60	35 - 50	25 - 35	10 - 20	20 - 30	0 - 5	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Perazzo	50	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Perazzo	50	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11043+79	11070+30	3003	Perazzo-Bluewing association	Perazzo	50	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11070+30	11212+55	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11070+30	11212+55	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11070+30	11212+55	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11212+55	11221+61	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11212+55	11221+61	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Bluewing	15	H1	0 - 7	SP-SM	0	10	70 - 85	35 - 45	15 - 30	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Bluewing	15	H2	7 - 60	GP-GM, GW, GW-GM	0	0	40 - 50	20 - 35	10 - 15	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Cleaver	20	H1	0 - 2	GM	0	0	35 - 50	25 - 40	20 - 30	10 - 20	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Cleaver	20	H2	2 - 11	CL, SC	0	0	75 - 85	50 - 75	45 - 70	40 - 60	35 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	3.0 - 5.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Cleaver	20	H3	11 - 23	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Cleaver	20	H4	23 - 60	GP-GM, GW, GW-GM	0	10	15 - 30	10 - 25	5 - 15	0 - 10	-	0	14 - 42	6.6 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Deefan	50	H1	0 - 3	GC, GC-GM	0	0	30 - 60	25 - 50	20 - 40	10 - 20	20 - 25	5 - 10	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Deefan	50	H2	3 - 10	CH, CL, GC	0	0	55 - 85	50 - 75	45 - 65	40 - 60	45 - 60	20 - 30	0.42 - 1.4	7.4 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Deefan	50	H3	10 - 26	-	-	-	-	-	-	-	-	-	0.42 - 1.4	-	-	-	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11221+61	11224+84	3043	Deefan-Cleaver-Bluewing association	Deefan	50	H4	26 - 60	GP-GM, GW, GW-GM	0	0	20 - 45	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11224+84	11245+56	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11224+84	11245+56	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11245+56	11266+24	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11245+56	11266+24	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11245+56	11266+24	1172	Hawsley sand, 0 to 4 percent slopes	Hawsley	90	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Gynelle	20	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Gynelle	20	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Gynelle	20	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H1	0 - 3	GM	0	10	40 - 60	35 - 55	25 - 45	15 - 30	15 - 25	0 - 5	14 - 42	8.5 - 9.6	2 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H2	3 - 8	GC	0	5	45 - 60	35 - 55	20 - 40	10 - 35	30 - 35	10 - 15	4 - 14	8.5 - 9.6	4 - 8	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H3	8 - 14	GM, GW-GM	0	15	35 - 55	30 - 50	10 - 35	5 - 20	15 - 25	0 - 5	14 - 42	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Oricto	15	H4	14 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	0	30 - 60	25 - 50	10 - 35	0 - 15	-	0	42 - 141	8.5 - 9.6	8 - 16	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Typic Torriorthents	50	H1	0 - 6	GM, SM	0	0	45 - 60	35 - 55	20 - 40	10 - 15	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11266+24	11302+25	1310	Typic Torriorthents-Gynelle-Oricto association	Typic Torriorthents	50	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Very limited	Fair	Fair
S5	11302+25	11311+93	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11302+25	11311+93	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H1	0 - 3	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H2	3 - 9	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Singatse	45	H3	9 - 13	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Theon	25	H1	0 - 1	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Theon	25	H2	1 - 8	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11311+93	11330+36	1090	Singatse-Theon-Rock outcrop association	Theon	25	H3	8 - 12	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	20	Indurated	Low	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Gynelle	20	H1	0 - 2	GM, GP-GM, GW-GM, SM, SW-SM	0	0	40 - 60	30 - 50	15 - 35	5 - 15	-	0	141 - 705	7.9 - 9.6	0 - 4	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Gynelle	20	H2	2 - 60	GM, SM	0	15	50 - 70	35 - 60	20 - 40	10 - 20	-	0	42 - 141	7.9 - 9.6	4 - 8	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Izo	15	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Izo	15	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	15	-	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Singatse	50	H1	0 - 2	SM	0	0	70 - 80	45 - 55	30 - 40	15 - 25	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Singatse	50	H2	2 - 6	SM	0	0	60 - 70	30 - 50	20 - 30	10 - 30	15 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S5	11330+36	11380+90	1091	Singatse-Gynelle-Izo association	Singatse	50	H3	6 - 10	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	15	Indurated	Low	Low	High	-	Very limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H1	0 - 8	SM	0	0	65 - 75	30 - 50	20 - 30	10 - 20	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H1	0 - 8	SM	0	0	65 - 75	30 - 50	20 - 30	10 - 15	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H2	8 - 40	SP, SP-SM	0	0	75 - 85	20 - 35	10 - 25	0 - 10	-	0	141 - 705	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H2	8 - 40	SP, SP-SM	0	0	60 - 85	20 - 35	10 - 25	0 - 10	-	0	141 - 705	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	20	H3	40 - 60	SM	0	0	80 - 90	40 - 55	25 - 40	10 - 15	-	0	141 - 705	7.9 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11380+90	11397+77	3090	Inmo-Inmo, occasionally flooded, association	Inmo	70	H3	40 - 60	SM	0	0	80 - 90	40 - 55	25 - 40	10 - 15	-	0	141 - 705	7.9 - 9.6	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11397+77	11465+84	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11397+77	11465+84	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11465+84	11525+19	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H1	0 - 6	SM	0	0	60 - 80	50 - 75	30 - 55	10 - 20	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S5	11465+84	11525+19	4240	Typic Torriorthents, 2 to 4 percent slopes	Typic Torriorthents	100	H2	6 - 60	GC-GM, GM, SC-SM, SM	0	0	50 - 80	35 - 65	20 - 45	10 - 35	15 - 30	0 - 10	4 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	High	High	-	Not limited	Fair	Fair
S5	11525+19	11541+90	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11525+19	11541+90	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11541+90	11559+74	1173	Hawsley-Izo association	Hawsley	60	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11541+90	11559+74	1173	Hawsley-Izo association	Hawsley	60	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #200 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S5	11541+90	11559+74	1173	Hawsley-Izo association	Hawsley	60	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11541+90	11559+74	1173	Hawsley-Izo association	Izo	25	H1	0 - 8	GP-GM, GW, GW-GM, SW, SW-SM	0	0	35 - 60	30 - 50	15 - 35	0 - 10	-	0	141 - 705	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11541+90	11559+74	1173	Hawsley-Izo association	Izo	25	H2	8 - 60	GW, GW-GM	0	0	20 - 40	15 - 35	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11559+74	11583+90	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11559+74	11583+90	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11559+74	11583+90	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11583+90	11758+78	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11583+90	11758+78	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11583+90	11758+78	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11583+90	11758+78	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	11758+78	12129+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11758+78	12129+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	11758+78	12129+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S5	12129+89	12176+22	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S5	12176+22	12202+32	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	12176+22	12202+32	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	12176+22	12202+32	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S5	12202+32	12282+02	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12202+32	12282+02	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12282+02	12324+98	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12282+02	12324+98	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12282+02	12324+98	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S5	12282+02	12324+98	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10000+00	10007+90	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10007+90	10016+53	826	Playas	Playas	100	H1	0 - 6	CH, CL, MH, ML	0	0	100	100	100	90 - 100	40 - 55	15 - 25	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S6	10007+90	10016+53	826	Playas	Playas	100	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.0	4 - 32	6.0 - 8.9	0	-	-	None	High	High	-	Very limited	Poor	Poor
S6	10016+53	10021+24	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10016+53	10021+24	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10016+53	10021+24	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10021+24	10054+82	484	Orizaba silty clay loam	Orizaba	90	H1	0 - 3	CL	0	0	100	100	95 - 100	85 - 95	30 - 40	15 - 25	0.42 - 1.4	9.1 - 11.0	8 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S6	10021+24	10054+82	484	Orizaba silty clay loam	Orizaba	90	H2	3 - 60	CL	0	0	100	95 - 100	75 - 90	50 - 80	30 - 40	10 - 20	1.4 - 4	8.5 - 9.0	4 - 16	3.0 - 5.9	92	-	-	High	High	High	-	Very limited	Poor	Poor
S6	10054+82	10096+69	121	Appian loamy sand	Appian	90	H1	0 - 8	SM	0	0	95 - 100	90 - 100	50 - 65	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10054+82	10096+69	121	Appian loamy sand	Appian	90	H2	8 - 18	CL, SC	0	0	95 - 100	90 - 100	75 - 90	40 - 60	35 - 45	15 - 20	1.4 - 4	8.5 - 9.6	0 - 8	3.0 - 5.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10054+82	10096+69	121	Appian loamy sand	Appian	90	H3	18 - 60	SP, SP-SM, SW-SM	0	0	85 - 100	75 - 90	30 - 50	0 - 10	-	0	42 - 141	7.4 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10097+82	10103+46	292	Fallon fine sandy loam	Fallon	90	H1	0 - 10	SM	0	0	100	100	60 - 80	25 - 40	-	0	4 - 14	6.6 - 9.0	4 - 8	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S6	10097+82	10103+46	292	Fallon fine sandy loam	Fallon	90	H2	10 - 60	ML, SM	0	0	95 - 100	85 - 100	70 - 90	40 - 60	-	0	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	130	-	-	High	Low	High	-	Very limited	Poor	Poor
S6	10109+00	10137+24	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10109+00	10137+24	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10137+24	10151+75	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10151+75	10180+18	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10180+18	10207+61	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10207+61	10224+90	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S6	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S6	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	Engineering Index Properties: 3 to 10 inches (Percent Retained)	Engineering Index Properties: #4 Sieve (Percent Passing)	Engineering Index Properties: #10 Sieve (Percent Passing)	Engineering Index Properties: #40 Sieve (Percent Passing)	Engineering Index Properties: #100 Sieve (Percent Passing)	Engineering Index Properties: Liquid Limit (Percent)	Engineering Index Properties: Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Physical and Chemical Properties: Reaction (pH)	Physical and Chemical Properties: Salinity (electrical conductivity) (mmhos/cm)	Physical and Chemical Properties: Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Soil Rock and Water Features: Depth to Bedrock (inches)	Soil Rock and Water Features: Bedrock Hardness	Soil Rock and Water Features: Frost Action	Risk of Corrosion: Concrete	Risk of Corrosion: Uncoated Steel	Site Development: Excavation Difficulty	Site Development: Local Roads and Streets	Material Source: Sand	Material Source: Gravel
S6	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S6	10224+90	10241+64	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10241+64	10243+89	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H1	0 - 1	SM	0	0	95 - 100	90 - 100	45 - 75	15 - 30	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	40	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10243+89	10267+99	552	Rawe complex, 2 to 4 percent slopes	Rawe	45	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S6	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S6	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Malpais	60	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Fair
S6	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S6	10267+99	10272+19	755	Malpais-Yerington complex, 4 to 8 percent slopes	Yerington	30	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Somewhat limited	Poor	Fair
S6	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H1	0 - 5	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H2	5 - 15	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10272+19	10281+73	516	Patna sand, 0 to 4 percent slopes	Patna	85	H3	15 - 60	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10281+73	10290+50	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10281+73	10290+50	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10290+50	10297+46	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10290+50	10297+46	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10290+50	10297+46	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10297+46	10299+38	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10297+46	10299+38	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10299+38	10307+12	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10299+38	10307+12	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10299+38	10307+12	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10307+12	10341+45	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10307+12	10341+45	767	Yerington gravelly sandy loam, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10341+45	10359+05	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10341+45	10359+05	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10359+05	10367+50	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10359+05	10367+50	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10359+05	10367+50	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10367+50	10385+61	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10385+61	10386+64	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10386+64	10498+34	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10386+64	10498+34	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10498+34	10507+09	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10507+09	10545+54	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10507+09	10545+54	762	Yerington loamy fine sand, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties: >10 inches (Percent Retained)	3 to 10 inches (Percent Retained)	#4 Sieve (Percent Passing)	#10 Sieve (Percent Passing)	#40 Sieve (Percent Passing)	#200 Sieve (Percent Passing)	Liquid Limit (Percent)	Plasticity Index (Percent)	Physical and Chemical Properties: Saturated Hydraulic Conductivity (mM/sec)	Reaction (pH)	Salinity (electrical conductivity) (mmhos/cm)	Linear Extensibility (shrink-swell) (Percent)	Soil Rock and Water Features: Depth to Water Table (inches)	Depth to Bedrock (inches)	Bedrock Hardness	Frost Action	Risk of Corrosion: Concrete	Uncoated Steel	Site Development: Excavation Difficulty	Local Roads and Streets	Material Source: Sand	Gravel
S6	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10545+54	10557+98	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10545+54	10557+98	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10545+54	10557+98	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10557+98	10579+21	763	Yerington loamy fine sand, 4 to 8 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	100	95 - 100	70 - 85	15 - 30	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10557+98	10579+21	763	Yerington loamy fine sand, 4 to 8 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H1	0 - 10	GM, SM	0	0	55 - 80	50 - 75	45 - 70	10 - 20	0 - 14	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H2	10 - 14	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10579+21	10620+37	655	Theon-Yerington association	Theon	60	H3	14 - 18	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	36	Indurated	Low	Low	High	-	Very limited	Poor	Fair
S6	10579+21	10620+37	655	Theon-Yerington association	Yerington	25	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	36	-	Low	Moderate	High	-	Very limited	Poor	Fair
S6	10579+21	10620+37	655	Theon-Yerington association	Yerington	25	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10620+37	10683+49	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10620+37	10683+49	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10620+37	10683+49	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10701+30	10760+47	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10701+30	10760+47	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10701+30	10760+47	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10760+47	10765+33	551	Rawe gravelly sandy loam, 4 to 15 percent slopes	Rawe	85	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10765+33	10767+23	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10765+33	10767+23	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10765+33	10767+23	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10767+23	10773+67	661	Isolde fine sand, 0 to 15 percent slopes	Isolde	90	H1	0 - 7	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10767+23	10773+67	661	Isolde fine sand, 0 to 15 percent slopes	Isolde	90	H2	7 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10773+67	10796+30	1073	Hawsley-Gamgee association	Gamgee	30	H1	0 - 4	SM	1	15	80 - 90	65 - 80	50 - 65	25 - 35	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10773+67	10796+30	1073	Hawsley-Gamgee association	Gamgee	30	H2	4 - 17	CL, SC	0	0	80 - 100	80 - 100	60 - 85	45 - 70	25 - 30	10 - 15	0.42 - 1.4	7.9 - 9.0	4 - 8	3.0 - 5.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10773+67	10796+30	1073	Hawsley-Gamgee association	Gamgee	30	H3	17 - 60	CL-ML, ML, SC-SM, SM	0	0	80 - 95	75 - 90	60 - 75	35 - 60	15 - 25	0 - 10	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10773+67	10796+30	1073	Hawsley-Gamgee association	Hawsley	55	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10773+67	10796+30	1073	Hawsley-Gamgee association	Hawsley	55	H2	8 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10796+30	10815+70	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H1	0 - 4	GC, GC-GM, SC-SM	0	0	55 - 70	50 - 65	45 - 60	30 - 45	20 - 30	5 - 10	4 - 14	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10796+30	10815+70	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H2	4 - 13	GC	0	0	40 - 60	35 - 50	30 - 40	20 - 35	30 - 40	10 - 15	1.4 - 4	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10796+30	10815+70	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H3	13 - 21	GM, GP-GM, GW-GM	0	0	20 - 30	15 - 25	10 - 20	5 - 15	-	0	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10796+30	10815+70	532	Perazzo gravelly loam, 2 to 8 percent slopes	Perazzo	85	H4	21 - 60	GP-GM, GW, GW-GM	0	0	20 - 30	15 - 25	10 - 20	0 - 10	-	0	42 - 141	7.9 - 9.6	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	10815+70	10828+01	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H1	0 - 8	SM	0	0	70 - 85	60 - 75	35 - 60	20 - 35	-	0	14 - 42	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10815+70	10828+01	766	Yerington gravelly sandy loam, 2 to 4 percent slopes	Yerington	85	H2	8 - 60	SM	0	0	80 - 100	75 - 100	50 - 75	15 - 25	-	0	42 - 141	8.5 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Moderate	High	-	Not limited	Fair	Fair
S6	10828+01	10832+84	657	Theon association, steep	Theon	20	H1	0 - 3	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10828+01	10832+84	657	Theon association, steep	Theon	65	H1	0 - 3	GC-GM, SC, SC-SM	5	10	55 - 80	45 - 75	35 - 50	20 - 45	20 - 30	5 - 10	4 - 14	6.6 - 8.4	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10828+01	10832+84	657	Theon association, steep	Theon	65	H2	3 - 11	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10828+01	10832+84	657	Theon association, steep	Theon	20	H2	3 - 11	GC	0	5	40 - 60	25 - 50	15 - 40	10 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10828+01	10832+84	657	Theon association, steep	Theon	20	H3	11 - 15	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10828+01	10832+84	657	Theon association, steep	Theon	65	H3	11 - 15	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	28	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10832+84	10869+47	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10832+84	10869+47	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10832+84	10869+47	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10832+84	10869+47	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10832+84	10869+47	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10832+84	10869+47	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10894+03	10923+01	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10923+01	10933+45	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10923+01	10933+45	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10923+01	10933+45	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	High	-	Very limited	Poor	Poor
S6	10933+45	10942+48	751	Malpais gravelly loamy sand, 2 to 8 percent slopes	Malpais	90	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Poor
S6	10933+45	10942+48	751	Malpais gravelly loamy sand, 2 to 8 percent slopes	Malpais	90	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Poor

TABLE 4
SOIL SURVEY DATA BY STATION INTERVAL

Alignment Segment	Station (feet) From	Station (feet) To	Map Unit	Map Unit Name	Component Name	Component Percentage	Horizon	Depth, inches	USCS Symbol	Engineering Index Properties								Physical and Chemical Properties				Soil Rock and Water Features				Risk of Corrosion		Site Development		Material Source	
										>10 inches	3 to 10 inches	#4 Sieve	#10 Sieve	#40 Sieve	#200 Sieve	Liquid Limit	Plasticity Index	Saturated Hydraulic Conductivity	Reaction	Salinity (electrical conductivity)	Linear Extensibility (shrink-swell)	Depth to Water Table	Depth to Bedrock	Bedrock Hardness	Frost Action	Concrete	Uncoated Steel	Excavation Difficulty	Local Roads and Streets	Sand	Gravel
										Percent Retained		Percent Passing				Percent	Percent	mM/sec	pH	mmhos/cm	Percent	inches	inches								
S6	10933+45	10942+48	751	Malpais gravelly loamy sand, 2 to 8 percent slopes	Malpais	90	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Poor	Poor
S6	10942+48	10947+32	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H1	0 - 3	GC-GM, GM	0	5	40 - 60	30 - 50	20 - 45	15 - 35	20 - 30	0 - 10	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	Low	High	-	Very limited	Poor	Poor
S6	10942+48	10947+32	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H2	3 - 12	GC	0	5	40 - 60	30 - 50	25 - 40	15 - 30	30 - 40	10 - 20	1.4 - 4	6.6 - 9.0	0 - 2	0.0 - 2.9	-	30	Indurated	Low	Low	Low	High	-	Very limited	Poor	Poor
S6	10942+48	10947+32	651	Theon very gravelly sandy loam, 8 to 30 percent slopes	Theon	85	H3	12 - 16	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	30	Indurated	Low	Low	Low	High	-	Very limited	Poor	Poor
S6	10947+32	10959+16	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10947+32	10959+16	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10947+32	10959+16	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10947+32	10959+16	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10947+32	10959+16	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10947+32	10959+16	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Malpais	25	H1	0 - 3	SM	0	0	70 - 85	60 - 75	35 - 50	15 - 25	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Malpais	25	H2	3 - 25	GM	0	5	50 - 60	35 - 50	30 - 45	20 - 35	20 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Malpais	25	H3	25 - 60	GM	0	40	40 - 55	35 - 50	25 - 35	20 - 30	20 - 25	0 - 5	14 - 42	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Rawe	60	H1	0 - 1	SM	0	0	70 - 90	60 - 75	45 - 60	20 - 35	15 - 25	0 - 5	14 - 42	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Rawe	60	H2	1 - 10	CL, SC	0	0	75 - 95	60 - 90	40 - 65	35 - 60	40 - 50	15 - 25	0.42 - 1.4	6.6 - 8.4	0 - 2	6.0 - 8.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	10959+16	10959+16	553	Rawe-Malpais association	Rawe	60	H3	10 - 60	GM, GP, GP-GM, GW-GM	0	0	45 - 60	10 - 50	5 - 35	0 - 20	-	0	14 - 42	7.9 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Bluewing	20	H1	0 - 7	GW-GM	0	5	30 - 40	25 - 35	15 - 25	5 - 10	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Bluewing	20	H2	7 - 60	GW-GM	0	15	30 - 40	25 - 35	15 - 25	5 - 10	-	0	141 - 705	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Rednik	40	H1	0 - 6	GM	0	0	45 - 55	35 - 50	25 - 40	15 - 25	-	0	14 - 42	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Rednik	40	H2	6 - 11	GC	0	5	35 - 60	30 - 50	20 - 35	15 - 30	25 - 35	10 - 15	1.4 - 4	7.9 - 9.0	4 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Rednik	40	H3	11 - 16	GM	0	5	35 - 60	30 - 50	15 - 40	10 - 25	-	0	42 - 141	8.5 - 9.6	2 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Rednik	40	H4	16 - 60	GM, GP-GM, GW, GW-GM, SW-SM	0	5	30 - 60	25 - 60	15 - 30	0 - 15	-	0	141 - 705	8.5 - 9.6	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Trocken	25	H1	0 - 3	SM	0	0	65 - 85	50 - 75	40 - 60	20 - 30	20 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11375+06	11406+55	1072	Rednik-Trocken-Bluewing association	Trocken	25	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	7.9 - 9.0	2 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Goldyke	50	H1	0 - 3	SM	0	0	60 - 85	55 - 70	30 - 50	15 - 30	20 - 25	0 - 5	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Goldyke	50	H2	3 - 6	SC-SM, SM	0	0	60 - 80	50 - 75	40 - 65	10 - 35	20 - 30	0 - 10	14 - 42	7.9 - 8.4	0 - 2	0.0 - 2.9	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Goldyke	50	H3	6 - 22	-	-	-	-	-	-	-	-	-	0.01 - 0.42	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Goldyke	50	H4	22 - 26	-	-	-	-	-	-	-	-	-	0 - 0.01	-	-	-	-	-	Moderately cemented	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Trocken	35	H1	0 - 3	SM	0	0	65 - 85	50 - 75	30 - 50	10 - 20	-	0	14 - 42	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11406+55	11478+17	1032	Goldyke-Trocken association	Trocken	35	H2	3 - 60	GM, SM	0	0	35 - 70	20 - 50	15 - 40	10 - 20	20 - 25	0 - 5	4 - 14	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11478+17	11599+10	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H1	0 - 4	SM	0	0	95 - 100	90 - 100	65 - 80	30 - 40	15 - 25	0 - 5	14 - 42	7.4 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11478+17	11599+10	1871	Luning sandy loam, 0 to 4 percent slopes	Luning	100	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11599+10	11612+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	11599+10	11612+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	11599+10	11612+89	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	11612+89	11791+75	1040	Isolde-Hawsley association	Hawsley	40	H1	0 - 3	SM	0	0	100	90 - 100	60 - 75	20 - 35	-	0	42 - 141	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11612+89	11791+75	1040	Isolde-Hawsley association	Hawsley	40	H2	3 - 60	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11612+89	11791+75	1040	Isolde-Hawsley association	Isolde	50	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11612+89	11791+75	1040	Isolde-Hawsley association	Isolde	50	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	11791+75	12162+85	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	11791+75	12162+85	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	11791+75	12162+85	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Hawsley	10	H1	0 - 8	SM, SW-SM	0	0	100	90 - 100	75 - 90	5 - 20	-	0	141 - 705	6.6 - 8.4	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Hawsley	10	H2	8 - 42	SM, SW-SM	0	0	85 - 100	75 - 100	55 - 70	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Hawsley	10	H3	42 - 60	SM, SW-SM	0	0	100	100	75 - 90	5 - 25	-	0	141 - 705	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Isolde	55	H1	0 - 6	SP, SP-SM	0	0	100	100	75 - 90	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Isolde	55	H2	6 - 60	SP, SP-SM	0	0	100	100	50 - 80	0 - 10	-	0	141 - 705	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Patna	25	H1	0 - 6	SM	0	0	95 - 100	95 - 100	60 - 70	15 - 25	-	0	42 - 141	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Patna	25	H2	6 - 24	SC, SC-SM	0	0	95 - 100	95 - 100	65 - 80	35 - 50	25 - 30	5 - 10	14 - 42	6.6 - 7.8	0	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Patna	25	H3	24 - 43	SM, SW-SM	0	0	95 - 100	95 - 100	50 - 60	5 - 20	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Patna	25	H4	43 - 60	SM	0	0	95 - 100	95 - 100	60 - 80	15 - 35	-	0	42 - 141	7.4 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Playas	1	H1	0 - 6	ML	0	0	100	100	100	90 - 100	35 - 50	10 - 20	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S6	12162+85	12209+19	1044	Isolde-Patna-Hawsley association	Playas	1	H2	6 - 60	CH, CL, MH	0	0	100	100	100	90 - 100	45 - 75	20 - 40	0.01 - 0.42	8.5 - 9.6	16 - 32	6.0 - 8.9	-	-	-	None	High	High	-	Somewhat limited	Fair	Fair
S6	12209+19	12235+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H1	0 - 12	SM	0	0	85 - 100	85 - 100	75 - 90	15 - 25	-	0	42 - 141	6.6 - 8.4	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	12209+19	12235+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H2	12 - 18	SM	0	0	85 - 100	85 - 100	55 - 75	15 - 25	-	0	42 - 141	7.9 - 8.4	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	12209+19	12235+28	4100	Stumble loamy sand, 2 to 4 percent slopes	Stumble	100	H3	18 - 60	SM	0	0	75 - 85	50 - 70	40 - 60	15 - 25	-	0	42 - 141	7.9 - 9.0	0 - 8	0.0 - 2.9	-	-	-	Low	Low	High	-	Not limited	Fair	Fair
S6	12235+28	12314+99	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H1	0 - 10	GM, GP, SM, SP	0	0	40 - 100	25 - 100	5 - 80	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12235+28	12314+99	3300	Typic Torriorthents, 4 to 15 percent slopes	Typic Torriorthents	100	H2	10 - 60	GM, GP, SM, SP	0	0	15 - 100	10 - 100	0 - 70	0 - 25	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12314+99	12357+94	1870	Luning-Sundown association	Luning	75	H1	0 - 4	SM	0	0	100	90 - 100	70 - 85	20 - 35	-	0	42 - 141	7.4 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12314+99	12357+94	1870	Luning-Sundown association	Luning	75	H2	4 - 60	SM	0	0	75 - 95	55 - 90	45 - 80	10 - 30	-	0	42 - 141	7.9 - 9.0	0 - 4	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12314+99	12357+94	1870	Luning-Sundown association	Sundown	15	H1	0 - 3	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair
S6	12314+99	12357+94	1870	Luning-Sundown association	Sundown	15	H2	3 - 60	SM	0	0	95 - 100	85 - 100	70 - 85	15 - 30	-	0	42 - 141	7.9 - 9.0	0 - 2	0.0 - 2.9	-	-	-	Low	Low	High	-	Somewhat limited	Fair	Fair

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT1001	MCS1	NA	NA	Plate 1	Wassuk Range at Cottonwood Creek	KJg	Moderate to medium-high strength, gray, phaneritic to porphyritic hornblende-biotite GRANODIORITE. Average composition is 24% quartz, 19% potassium feldspar, 46% plagioclase feldspar, and 11% mafic minerals (up to 4.5% chloritized biotite and 3% hornblende); moderately weathered due to numerous shear zones; conspicuous multilithic xenoliths; unsuitable for ballast.	Outcrop is just north of a fault separating this pluton from another to the south. Fractures are extremely closely to widely spaced (up to 6 feet apart)	10/4/06	ALG/SMP
						KJg	Canyon in fault-zone, outer edge of granodiorite is well-sheared in outer rind, with angular blocks of rock in sheared melange. Very poor (*) quarry potential due to sheared nature. All surrounding rock is similar.	Not measured	10/5/06	WTL
MT1002	MCS1	NA	NA	Plate 1	Wassuk Range at Cottonwood Creek	KJg	Generally high strength (lower in shear zones), pale-pink to gray, porphyritic, biotite GRANITE. Average composition is 30% quartz, 27% potassium feldspar, 38% sericitized plagioclase feldspar, and 5% mafic minerals (up to 3% biotite). Rock is less sheared than nearby granodiorite, but it still is slightly to moderately weathered and readily decomposes to grus. It is unsuitable for ballast.	Mostly medium-spaced fractures (less than or equal to 4 feet apart), but extremely closely spaced fractures can occur in shear zones. In and near shear zones, fractures typically are coated with iron oxide, amorphous silica, chlorite, & kaolinite(?).	10/4/06	ALG/SMP
						KJg	Granite outcrop, Difference between sheared granodiorite and granite. Granite is weathered and sheared on face, but with hard rock in between. Entire face between side canyons has 3 outcrops, but with colluvium (approx 50 to 100 ft wide) between outcrops. Colluvial-filled areas could be shear zones. Overall ** (possible with lot more exploration); scattered outcrops with intervening colluvium cover.	Not measured	10/5/06	WTL
MT1004	MCS1	NA	NA	18	Walker Lake Valley at Thorne; level ground at base of fan and next to existing UPRR tracks to Army Depot.	Ql	Interbedded tan, loose to medium-dense, slightly silty to silty, fine to medium SAND (SP-SM to SM) and soft to medium-stiff, sandy SILT (ML); trace coarse-grained sand and sub-angular, fine gravel; surface eolian sand, locally formed into dunes, and a fine gravel lag.	Dessication fractures extend at least 18 inches below land surface	10/4/06	ALG/SMP
						Ql	Level ground at base of fan; next to existing RR tracks [1-ft deep test pit] at start of alignment (silty, fine SAND) and fine sandy SILT (Ql) Lake deposits of Walker Lake (ancient).	Not applicable	10/5/06	WTL
MT1005	MCS1	1005+66	-198	18	Walker Lake Valley	Ql	Described by Stewart et al (1981b) as poorly graded beach sand (SP), littoral deposits of medium-grained sand and sandy silt (SP to SM), tufa deposits on bouldery shoreline; alluvium and lacustrine terraces, and fine-grained playa deposits, locally overlain by young alluvial fan sediments.	Not applicable	10/4/06	ALG/SMP
						Ql	Light-brownish-gray and dessicated at land surface	Not applicable	10/4/06	ALG/SMP
MT1006	MCS1	1024+90	-190	18	Old RR embankment, Walker Lake Valley	Fill	Abandoned RR embankment, 8 to 10 ft (approx 20 degree side slope), upper 4 ft (approx. 24 degrees), lower 6 ft (approx. 18 degrees).	Not applicable	10/5/06	WTL
MT1007	MCS1	1156+75	-166	19	Walker Lake Valley	Qay	Thinly bedded, weakly indurated, medium-dense, tan, slightly silty to silty, fine- to coarse-grained SAND with scattered gravel to boulder-sized clasts up to 15-inch diameter (composite SW); surface sand reworked by wind into dunes; the alluvial fan here is relatively undissected and slopes 4 degrees SW	Dessication cracks extend 2-3 feet below land surface	10/4/06	ALG/SMP
						Qay	Gully cut [about] 3m east of starting point (approx. 4 ft deep) on Qay. Cut bank with silty, fine to coarse SAND, underlain by fine sandy SILT. Blow sand around gully cut	Not applicable	10/5/06	WTL
MT1008	MCS1	1270+24	-543	19	Walker Lake Valley, at an unnamed, shallow wash	Qe	The wash and banks are covered with loose, brown, slightly silty, fine-grained SAND (SP-SM), with trace medium to coarse-grained sand and gravel; greater than 2 feet thick.	Not applicable	10/4/06	ALG/SMP
						Qe	Approx. 3 ft drainage, east side. 2 ft high Test Pit. Uniform slightly silty fine SAND, faintly stratified.	Not applicable	10/5/06	WTL
MT1009	MCS1	1369+02	-169	19	Old RR grade in Walker Lake Valley	Qe	Loose to medium-dense, brown, slightly gravelly, fine-grained SAND (SP), with calcium carbonate coating some gravels and occurring as nodules; overlain by loose, tan, slightly silty, fine to medium-grained SAND (SP)	Not applicable	10/4/06	ALG/SMP
						Qe	Old RR grade in walker valley	Not applicable	10/5/06	WTL

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MT1010	MCS1	1469+83	1357	19	Highway US 95 rock cut, Garfield Hills	Ta4	US 95 rock cut: Weak to moderate strength red latite, very highly fractured, 35 degree cut slope, locally glassy, locally pillowed. Probably better as embankment fill.	Not measured	10/5/05	WTL
						Ta4	Moderate to medium-high strength, dark-gray to black, glassy to finely crystalline, fresh to moderately weathered LATITE LAVA FLOWS; weathers to small outcrops protruding from talus - gravel to boulder-sized clasts to 18 inches in diameter in a matrix of loose, tan silty sand (SP-SM); not suitable for ballast	Closely to medium-spaced fractures	10/4/06	ALG/SMP
MT1011	MCS1	1565+77	97	20	Garfield Hills	Ta4/TrPvs	US 95 road cut in Tertiary latite (Ta4) over Triassic rhyolite (TrPvs). Slope 51 degrees. Rhyolite is very weak, highly fractured, red and white, sheared, brecciated. Latite is dark gray, very weak (75%) and moderate strong (25%), locally pillowed; sheared and mylonitic at contact. Very poor ballast and sub ballast. * rock.	Not measured	10/5/05	WTL
						Ta4/TrPvs	Generally high to very high-strength (lower in breccia/shear zones that comprise an estimated 25% of the rock), dark-gray to black, finely crystalline, fresh to slightly weathered LATITE LAVA FLOWS, veined with amorphous silica(Ta4). Very low to moderate-strength, red, green, purple, and white, altered, metamorphosed RHYOLITE, sheared throughout; gypsum (satin spar) fills some fractures; paleosoil on eroded upper surface in contact with latite (TrPvs).	Closely to medium-spaced fractures, except in shear zones, where fractures are very closely to closely spaced (Ta4). Extremely closely to closely spaced fractures (TRPvs).	10/4/06	ALG/SMP
MT1012	MCS1	1610+60	1536	20	NDOT pit MI 05-05. Southside of US 95; Soda Spring Valley, at distal end	Qay	Gravel Pit approx. 8 to 10 ft deep (inactive).	Not applicable	10/5/05	WTL
						Qay	Ekren and Byers (1985b) indicate that material consists of unconsolidated silt, sand, gravel, and boulders.	Not applicable	10/4/06	ALG/SMP
MT1013	MCS1	NA	NA	Plate 1	Garfield Hills	Tb	Tertiary basalt (Tb) outcrop, representative of large area in surrounding hills. Hard, dark gray, BASALT, closely to widely jointed; approx. 20,000 psi.; ***** Access road excellent, plenty room for plant site. [Approx. 50 ft high, 300 ft long exposure of basalt; approx. 4 ft flows.]	Widely jointed	10/5/05	WTL
						Tb	Very high-strength, dark-gray, porphyritic BASALT, fresh except for a thin rind of desert varnish: small olivine and plagioclase phenocrysts in a finely crystalline groundmass of plagioclase, pyroxene, olivine, and magnetite; excellent ballast material.	Medium to very widely spaced fractures (8 inches to greater than 6 ft apart)	10/4/06	ALG/SMP
MT1015	S6	NA	NA	1	Mason Valley	Qbf	Interbedded, brown, slightly clayey to clayey, soft to stiff, sandy SILT (ML to ML-CL) and loose to medium-dense, brown, fine-grained silty SAND (SM to SC) with trace medium to coarse-grained sand: salt veins, light-gray and dessicated at land surface.	Not applicable	10/6/06	ALG/SMP
MT1016	S6	NA	NA	Plate 1	Northern end of Mason Valley, SE of Cleaver Peak in the Desert Mountains	Tb	Dark-colored, mostly fine-grained basalt, basaltic andesite, and andesite.	Outcrops too far away for direct observation of fracture patterns	10/6/06	ALG/SMP
MT1017	S6	NA	NA	2	Campell Valley, SE of Parker Butte, at BM 4316	Qbf	Stiff to very stiff, light-brown, sandy SILT (ML), with large patches of bare, dessicated sediments and saline crust alternating with areas of eolian sand, shrubs, and gravel lag at the land surface.	Not applicable	10/6/06	ALG/SMP
MT1018	S4	10106+66	23	2	North abutment of Walker River crossing; Sunshine Flat adjacent to Walker River floodplain	Tsy	Laminated, low-strength, light-reddish-brown and light-gray banded claystone, siltstone, and fine-grained sandstone; covered with patches of gravel- to cobble-sized clasts of mafic volcanic rock (possibly remnants of thin lava flows) at the land surface.	Very closely to closely spaced fractures; orientations of fractures and bedding not measured	10/6/06	ALG/SMP
						Tsy	Near truck, medium dense brown and white, clean medium SAND; dry, trace to slightly gravelly; overlying very stiff to hard, light gray, clay (CH) medium to high plasticity. Above road dense, brown with iron oxide banding silty fine SAND larger grain size (up to small angular boulders) to top of knoll.	Not applicable	11/16/06	WAH
						Tsy	Walker R Crossing on north abutment. Possible hypothesis for interior makeup of ridge NE of crossing: (1) Basalt cap from thin lava flow related to lava flows in mountains to north; underlain by Tertiary sediments (sand, silt?) (2) Basalt flow, so entire ridge has bedrock core of lava. (3) Basalt cap from debris flow originating from north.	Not applicable	11/16/06	WTL

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MT1018a	S4	10104+08	5	2	North abutment of Walker River crossing; Sunshine Flat adjacent to Walker River floodplain	QTf	Thinly bedded to cross-bedded, loose to medium-dense, brown, trace to slightly gravelly, trace to slightly silty SAND (SW); occurs below the road from and not in contact with QTf.	Not applicable	10/6/06	ALG/SMP
MT1018b	S2	10112+49	-6	2	North abutment of Walker River crossing; Sunshine Flat adjacent to Walker River floodplain	Tsy	Laminated, low-strength, light-reddish-brown and light-gray banded claystone, siltstone, and fine-grained sandstone; covered with patches of gravel- to cobble-sized clasts of mafic volcanic rock (possibly remnants of thin lava flows) at the land surface.	Very closely to closely spaced fractures; orientations of fractures and bedding not measured	10/6/06	ALG/SMP
MT1019	S4	10150+61	128	2	Sunshine Flat	Tsy	Lacustrine sedimentary rocks crop out above and below a bench covered densely by angular to subrounded, gravel to boulder-sized clasts (less than or equal to 2.5 feet diameter) of black and red, commonly vesicular basalt. The existence of this bench in the middle of non-resistant lake beds is difficult to explain unless the gravel-boulder deposit now covering the bench is a remnant of a resistant lava flow that protected the bench from erosion.	Not measured	10/6/06	ALG/SMP
MT1020	S4	10491+94	1398	4	Sunshine Flat	Tsy	Stiff to very stiff, light-grayish-brown and orange banded, CLAY (CH) with silt and fine-grained sand laminae, apparently weathered from claystone	Not measured	10/6/06	ALG/SMP
MT1020a	S4	10489+85	46	4	Sunshine Flat	Qe	Loose, grayish-brown, SAND (SP) with a gravel lag and shrubs, underlain at a shallow depth by Tsy.	Not applicable	10/6/06	ALG/SMP
MT1021	S2	10466+35	-780	3	Butte 4478 in Sunshine Flat	Ta4	Very high-strength (locally decreased where rock is tectonically disturbed or altered), dark-gray, porphyritic basaltic andesite with sheared, brecciated, vesicular, and altered intervals; mottled orange, white, and yellow where altered; moderately altered or weathered to fresh; erodes to rounded gravel- to boulder-sized clasts; poor material for ballast.	Fractures are very closely to widely spaced; fractures in one shear zone predominantly strike N30W (330 degrees) and dip 75 to 80 degrees NE.	10/6/06	ALG/SMP
MT1022	S2	10555+85	45	4	Sunshine Flat	Tsy	Loose, light-brown medium-grained SAND (SP); stiff, light-brown SILT (ML); and hard, light-gray and orange streaked CLAY (CH); erodes to badlands topography with a mafic gravel lag at the surface and 16 degree slopes.	Not applicable	10/6/06	ALG/SMP
						Tsy	Rolling by - similar topographically with MT5026. Cuts may be in the highly plastic clay (see sequence at MT5026).	Not applicable	11/16/06	WAH/WTL
MT1023	S2	10719+18	2822	5	Weber Dam	Tsy	As seen through binoculars, mostly greenish-gray, pink, and white, fine-grained lacustrine sedimentary rocks, with darker beds that might be cemented gravel intervals (seen at MT1028).	Not measured	10/7/06	ALG/SMP
MT1024	S4	10675+93	790	4	Sunshine Flat, incised by a wash, which is 400 feet wide and 17 feet deep	QTf	Wash is approx. 400 ft across and ~20 ft deep.	Not applicable	10/7/06	ALG/SMP
MT1024a	S2	10673+18	-21	4	Sunshine Flat, incised by a wash, which is 400 feet wide and 17 feet deep	QTf	Well stratified to slightly cross-bedded, loose to medium-dense, grayish-brown, reddish-brown, and brown, slightly gravelly, slightly silty to silty SAND (SW-SM/SM); locally indurated with iron oxide and calcium carbonate; covered with eolian sand, lag gravel, and shrubs.	Not applicable	10/7/06	ALG/SMP
MT1024b	S2	10675+16	-437	4	Sunshine Flat, incised by a wash, which is 400 feet wide and 17 feet deep	QTf	Well stratified to slightly cross-bedded, loose to medium-dense, grayish-brown, reddish-brown, and brown, slightly gravelly, slightly silty to silty SAND (SW-SM/SM); locally indurated with iron oxide and calcium carbonate; covered with eolian sand, lag gravel, and shrubs.	Not applicable	10/7/06	ALG/SMP
MT1025	S2	10614+06	122	4	Sunshine Flat, unnamed wash	QTf	Interbedded, stratified, loose to dense, brown to grayish-brown, variably silty, fine-grained SAND (SP to SM) and variably silty, variably gravelly, SAND (SW to SW-SM), with cobble-gravel channels incised into bedded intervals; weakly to strongly cemented with calcium carbonate and limonite.	Not applicable	10/7/06	ALG/SMP

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MT1026	S3	10000+18	5074	5	Weber Dam quarry at White Mt., Wassuk Range	KJg	Very-high-strength, white, phaneritic, medium-grained QUARTZ MONZONITE, consisting on average of 35% quartz, 27% sodic plagioclase, 25% potassium feldspar, and less than or equal to 10% biotite; fresh except for a thin yellow, orange, or light-gray weathering rind; weathers to rounded or craggy outcrops. On the northern and western sides of the quarry, the pluton metamorphosed adjacent intermediate volcanic rocks to andalusite-hornfels and enveloped large pieces of this contact-metamorphosed rock. These xenoliths are absent from quarry faces that were worked to build Weber Dam in the 1930's. The quartz monzonite appears to have excellent potential for use as ballast.	Three closely to widely spaced, rectangular fracture sets (up to 6 ft apart), except where shear zones are present; fractures in shear zones can be very closely spaced and contain sparry calcite. The most prominent fractures strike N25-43W (317-335 degrees) and dip 64-83 degrees SW; a secondary set strikes N67-85W (95-113 degrees) and dips 44-48 degrees NE; a tertiary set strikes N58-72E (238-252 degrees) and dips 69-72 degrees SE.	10/7/06	ALG/SMP
MT1027	S3	10033+80	315	5	West side of Reservation Hill at UPRR tracks, site of a planned deep cut	QTg	Natural slope inclined approx. 17.5 degrees; volcanic gravel and boulders scattered across ground surface, including andesite, scoria, pumice	Not applicable	10/7/06	ALG/SMP
MT1027a	S3	10037+89	22	5	West side of Reservation Hill at UPRR tracks, site of a planned deep cut	QTg	Very dense, white CALCRETE; overlain by well-stratified, loose to medium-dense, brownish-gray and reddish-brown, slightly gravelly to gravelly, coarse-grained SAND (SP), with cobbles and weak limonite induration toward the top; capped by a surface lag of gravel to small-boulder-sized clasts of plutonic, volcanic, and metamorphic rocks (less than or equal to 18 inches in diameter) and pumice fragments.	Not applicable	10/7/06	ALG/SMP
MT1028	S3	10071+74	67	5	East side of Reservation Hill, above the Walker River Valley, site of a planned river crossing	Qc	As described by Bingler (1978), Gray to lavender-tan clayey silt and fine-grained sand	Not applicable	10/7/06	ALG/SMP
						QTf	As observed in outcrop and seen with binoculars, QTf appears to consist of interbedded light-gray, brown, and reddish-brown banded sand and gravel intervals, with thin intervals of dark-gray cemented gravel. The sand and gravel beds erode by deep gullying, support relatively steep natural slopes, and appear to be a good aggregate source.	Not applicable	10/7/06	ALG/SMP
						Tsy	As observed with binoculars, Tsy appears to consist of yellow, tan, gray, and light-reddish-brown banded, fine-grained materials, with better developed stratification than the sandy intervals and less of a tendency to erode by deep gullying, possibly because of more induration in the finer grained beds.	Not applicable	10/7/06	ALG/SMP
						QTf	Gravelly, silty SAND terrace above the Walker river. At 60 ft high outcrop approx. 500 ft downriver (east) from MT1028 interbedded sequence of med dense, brown slightly silty slightly gravelly fine to medium sand and sandy gravel with trace cobbles, individual beds are up to 6 to 8 inches thick...gravel layers weakly cemented.	Beds dip: N45W/10S	11/16/06	WAH
						QTf	Walker River crossing, south side. Qtg (locally cemented sandy gravel/gravelly sand) to southwest, into which big cuts will be made. Walker River gorge to east. Gravelly SAND on west bank. Approx. 100 ft high severely eroded cliff of mostly slightly to gravelly, silty SAND with 1 to 12 inch layers of sandy gravel. Forms "badland" topography. Need to protect any railroad cuts from surface erosion or from river undercutting. Formation [iron oxide cemented layers of gravel near top of slope 2 to 6 inches thick] under southwest abutment is dipping to SW at 10 degrees, N45W 10S	Beds dip: N45W/10S	11/16/06	WTL
MT1029	S3	10071+69	-552	5	East side of Reservation Hill, above the Walker River valley	QTg	Loose, brown, clast-supported gravel-cobble layer (GP) sloping 36 degrees; underlain by loose, brown, coarse-grained sand, with calcium carbonate coating clasts	Not applicable	10/7/06	ALG/SMP
MT1030	S2	10733+22	63	5	Wash, 20 feet deep, draining west to Walker Lake Valley	Qc	Mostly loose sand at and near the surface of the wash (Qc).	Not applicable	10/7/06	ALG/SMP
						QTf	Thinly interbedded, loose to dense, light-brown, brown, and reddish-brown silty sand, fine to coarse-grained sand, gravelly sand, and sandy gravel, poorly to well-indurated with limonite and calcium carbonate (SW); calcrete and limonite seams subparallel to bedding; good source of fill (QTf).	Not applicable	10/7/06	ALG/SMP
MT1031	S3	10130+73	41	5	Walker Lake Valley	Qe	Loose, brown, slightly gravelly SAND (SW) with trace silt within 8 inches of land surface	Not applicable	10/7/06	ALG/SMP

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MT1033	S3	10271+52	-5	6	Walker Lake Valley	Qe	Loose, grayish-brown, silty, fine to medium-grained SAND (SP-SM); trace coarse sand and gravel; 7 inches thick (Qe).	Not applicable	10/7/06	ALG/SMP
						Qay	Loose, reddish-brown, fine- to medium-grained SAND (SP), weakly indurated with limonite and medium-dense in the upper 3 inches. (Qay)	Not applicable	10/7/06	ALG/SMP
MT1033a	S1	10960+39	-8	6	Walker Lake Valley	Fill	US 95 embankment has 15- to 16-degree side slopes.	Not applicable	10/8/06	ALG/SMP
MT1034	S2	11072+53	-102	7	Walker Lake Valley, in an area of depressions (playas or dry lakes) surrounded by sand hills	Qbf	Medium-stiff, light-brown, sandy SILT (ML): mostly fine-grained sand, trace medium- to coarse-grained sand and gravel.	Not applicable	10/8/06	ALG/SMP
						Qe	Loose, grayish-brown, silty, fine to medium-grained SAND (SP-SM), 2 inches thick, covered with patches of gravel and shrubs.	Not applicable	10/8/06	ALG/SMP
MT1035	S3	10372+95	58	6	Calico Hills alluvial fan, borrow pit	Qay	Thinly interbedded, poorly to moderately indurated, loose to dense, grayish-brown, slightly gravelly to gravelly sand (SP to SP-SM) with subordinate sandy gravel (GP) layers; clasts sub-angular to angular and composed of diverse volcanic rocks that crop out in the nearby Calico Hills.	Not applicable	10/8/06	ALG/SMP
MT1035a	S1	11066+28	-658	6	Calico Hills alluvial fan, borrow pit	Qay	Thinly interbedded, poorly to moderately indurated, loose to dense, grayish-brown, slightly gravelly to gravelly sand (SP to SP-SM) with subordinate sandy gravel (GP) layers; clasts sub-angular to angular and composed of diverse volcanic rocks that crop out in the nearby Calico Hills.	Not applicable	10/8/06	ALG/SMP
MT1036	S3	10453+25	38	7	Calico Hills alluvial fan, borrow pit	Qay	Very dense (because of abundant large clasts), grayish-brown, silty, sandy, clast-supported GRAVEL (GP); clasts rounded to angular, gravel to boulder-sized (less than or equal to 6-feet-diameter), and composed of diverse volcanic rocks from the nearby Calico Hills.	Not applicable	10/8/06	ALG/SMP
MT1036a	S3	10478+15	-858	7	Calico Hills alluvial fan, borrow pit	Qay	Very dense (because of abundant large clasts), grayish-brown, silty, sandy, clast-supported GRAVEL (GP); clasts rounded to angular, gravel to boulder-sized (less than or equal to 6-feet-diameter), and composed of diverse volcanic rocks from the nearby Calico Hills.	Not applicable	10/8/06	ALG/SMP
MT1037	S2	11151+78	80	7	Walker Lake Valley, in a closed depression surrounded by sand hills	Qbf	Stiff to very stiff, reddish-brown sandy SILT (ML); overlain by 5 inches of dense, reddish-brown to gray, slightly silty, gravelly, fine- to coarse-grained SAND (SW); indurated and interlayered with calcium carbonate and limonite below a depth of 4 inches.	Not applicable	10/8/06	ALG/SMP
MT1038	S2	NA	NA	7	Walker Lake Valley, in a playa typical of this area	Qp	Hard, brown CLAY (CH), light-brownish-gray and dessicated at land surface	Not applicable	10/8/06	ALG/SMP
MT1039	S1	11268+10	-340	7	Walker Lake Valley, in a depression surrounded by sand hills	Qp/Qbf	Medium-stiff, light-brown, trace to slightly sandy, silty CLAY (CL/CH, Qp), overlain by approx. 3 inches of loose, reddish-brown, silty, fine-grained SAND (SM, Qbf).	Not applicable	10/8/06	ALG/SMP
MT1039a	S1	11269+60	-8	7	Walker Lake Valley, in a depression surrounded by sand hills	Qbf	Very loose, brown, fine- to medium-grained SAND (SP) with trace silt and coarse-grained sand.	Not applicable	10/8/06	ALG/SMP
MT1040	S3	10628+68	-4404	7	Double Spring playa	Qp	Soft (where wet) to hard (where dry), grayish-brown CLAY (CH) with a puffy, saline crust. A flowing well with an estimated discharge of greather than 5 gal/min and several springs issue lukewarm water with a sulfurous smell and a relatively large dissolved-solids concentration from playa sediments.	Not applicable	10/8/06	ALG/SMP
MT1040a	S3	10631+96	-4716	7	Double Spring playa	Qp	Soft (where wet) to hard (where dry), grayish-brown CLAY (CH) with a puffy, saline crust. Double Spring playa appears to be a sub-regional discharge area. Wild horses were observed approaching the springs, presumably to drink the water.	Not applicable	10/8/06	ALG/SMP
MT1041	S3	10622+26	35	7	Walker Lake Valley sand hills	Qbf	Loose, grayish-brown, fine- to coarse-grained SAND (SW) with trace silt; road cuts in sand have slopes less than or equal to 20 degrees.	Not applicable	10/8/06	ALG/SMP
						Qbf	Road cut on Schurz Bypass alignment. Loose, brown, fine to medium sand; trace (3-5%) silt. Slope of cut is inclined at 22 degrees [on south side, 13 degrees on north side], approx. 5 ft. high. The Qbf in this area MT1041, MT1042, and MT5023 will be a blowing sand hazard.	Not applicable	11/16/06	WAH/WTL

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT1042	S2	11203+06	-29	7	Walker Lake Valley alluvial flat	Qbf	Very stiff, reddish-brown, moderately well-indurated, slightly clayey, fine- to medium-grained sandy SILT (ML/MH); overlain by several inches of loose to dense (depending on degree of induration), grayish-brown to reddish-brown (depending on moisture), silty, fine- to medium-grained SAND (SM); limonite cement; dessicated at land surface where sand interval is absent.	Not applicable	10/8/06	ALG/SMP
MT1042a	S2	11196+13	898	7	Walker Lake Valley alluvial flat	Qbf	Very stiff, reddish-brown, moderately well-indurated, slightly sandy, clayey SILT (ML/MH); overlain by several inches of loose to dense (depending on degree of induration), grayish-brown to reddish-brown (depending on moisture), silty, fine- to medium-grained SAND (SM); limonite cement; dessicated at land surface where sand interval is absent.	Not applicable	10/8/06	ALG/SMP
MT1043	S2	11295+36	167	8	Walker Lake Valley alluvial flat	Qbf	Very stiff, reddish-brown, sandy SILT (ML), with trace fine gravel; poorly indurated with limonite; covered wth 2 inches of loose, grayish-brown, fine- to coarse-grained eolian sand	Not applicable	10/8/06	ALG/SMP
MT1044	S1	11409+12	44	8	Walker Lake Valley sand hills	Qbf	Very loose to loose, brown, fine- to medium-grained SAND (SP), trace silt and coarse-grained sand, weakly indurated below a depth of approx. 4 inches	Not applicable	10/8/06	ALG/SMP
MT1045	S2	11430+92	-42	8	Walker Lake Valley, in an area of closed depressions surrounded by sand hills	Qbf	Hard, yellowish-brown, silty CLAY, trace of sand (CH); thinly covered by eolian sand	Not applicable	10/8/06	ALG/SMP
						Qe	Very loose, grayish-brown, fine- to medium-grained SAND (SP)	Not applicable	10/8/06	ALG/SMP
MT1046	S3	10968+81	235	9	Gillis Range alluvial fan, believed from its large size and its tectonc and erosional history to be at least partly Pleistocene	Qay	In one area, about 5 feet of alluvium protrudes from slope wash that covers much of the RR cut. This alluvium consists of loose to medium-dense, moderately indurated, clast-supported, rounded to subrounded, gravel to cobble-sized clasts of volcanic rocks in a matrix of silty, fine-grained sand; this gravel (GP) interval is overlain by slightly indurated, medium-dense, light-grayish-brown, silty, fine to medium-grained sand (SM). Along the outcrop to the NE, a NW-striking fault displaces a cemented gravel bed down to the SW. Farther NE, the gravel was scoured from a trough, that is now filled nearly to track level with apparently finer-grained sediments	A NW-striking, high-angle fault offsets a resistant layer exposed in the RR cut, and Hardyman (1980) mapped possible fault scarps near the mouth of Gillis Canyon	10/9/06	ALG/SMP
MT1046a	S3	10971+69	19	9	Gillis Range alluvial fan, believed from its large size and its tectonc and erosional history to be at least partly Pleistocene	Fill	Railroad embankment is ~25 ft high with ~31 degree side slopes; Cut is ~60-80 ft high at ~31.5 degree slope; some cut slope failures observed to ~30 degree angle of repose.	Not applicable	10/9/06	ALG/SMP
MT1047	S6	NA	NA	Plate 1	Gillis Range	KJg	Very high-strength, light-gray to pinkish-gray, porphyritic QUARTZ MONZONITE (potassium feldspar crystals less than or equal to 1.4 inches long in a medium- to coarse-grained matrix of quartz, plagioclase and potassium feldspar, and biotite); rock ranges from fresh, with a thin orange, brown, and light-gray weathering rind, to moderately weathered (grus-covered slopes); thin rhyolite dikes intrude the quartz monzonite; possible ballast source.	Mostly medium to very widely spaced fractures (less than or equal to 10 feet apart). The dominant fracture set strikes N 23-30 degrees W (150-157 degrees) and dips 84-87 degress NE; a secondary set strikes east (75-97 degrees) and dips 55-58 degrees north; a tertiary set strikes N 40-58 degrees E (220-238 degrees) and dips 47-51 degrees SE.	10/9/06	ALG/SMP
MT1048	S3	11010+22	38	9	Walker Lake Valley above the floor of ancestral Walker Lake	Qe	Loose, grayish-brown, silty, fine- to medium-grained sand (SP-SM); the old lake bottom (alkali flats on topographic map) is composed of clay, silt, and sand, that are unsuitable for farming.	Not applicable	10/9/06	ALG/SMP
MT1049	MCS1	1639+91	5	20	Soda Spring Valley	Qp	Very stiff to hard, yellowish- to reddish-brown CLAY (CL-CH), which Ekren and Byers (1985b) state is interbedded with silt and sand; tan, dry, and dessicated at land surface.	Not applicable	10/9/06	ALG/SMP
MT1050	MCS1	1732+56	-9	20	Soda Spring Valley	Qbf	Medium-dense to dense, brown, moderately indurated, fine-grained, silty SAND (SM); shrubs and lag gravels and cobbles of scoria and mafic volcanic rocks scattered over the land surface.	Not applicable	10/9/06	ALG/SMP
MT1051	MCS1	1794+22	941	20	Soda Spring Valley, at lower end of a large, moderately dissected alluvial fan from the Garfield Hills	Qao	To a depth of 18 inches below the floor of the pit, material is medium-dense, yellowish-brown to light-grayish-brown (with decreasing moisture), dry to damp with depth, gravelly, fine-grained, silty SAND (SP-SM); rounded to angular, gravel- to cobble-sized clasts, some coated with calcium carbonate.	Not applicable	10/9/06	ALG/SMP

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MT1052	MCS1	1876+50	-219	21	Soda Spring Valley at distal end of a large, very dissected alluvial fan from the Garfield Hills	Qao	Medium-dense, reddish-brown, gravelly, silty SAND (SM) with thin, dense CALCRETE layers.	Not applicable	10/9/06	ALG/SMP
MT1053	MCS1	1971+11	2377	21	Soda Spring Valley at lower end of a Garfield Hills alluvial fan	Qao	To a depth of 3 feet below land surface, material is very dense, brown, slightly silty, sandy GRAVEL (GP) with abundant cobbles and scattered boulders to 18 inches in diameter	Not applicable	10/9/06	ALG/SMP
MT1054	MCS1	2202+02	-233	22	Soda Spring Valley where Nevada Highway 361 begins to ascend alluvial fans sloping south and west from the Gillis and Gabbs Valley Ranges.	Qao	In the lower half of a 6-feet-deep trench, material consists of thinly bedded, medium-dense to dense, reddish-brown, slightly silty, trace gravelly to gravelly, fine- to coarse-grained SAND (SW to SW-SM), weakly to strongly indurated with calcium carbonate; calcrete layers present in the middle of the trench; a very dense gravel-cobble layer is present at the bottom of the trench.	Not applicable	10/9/06	ALG/SMP
MT1055	MCS1	NA	NA	Plate 1	Gabbs Valley Range alluvial fan	Qay?	Loose to very dense (depending on induration by limonite), poorly to well-indurated, grayish- to reddish-brown, non-silty to silty, non-gravelly to gravelly, fine- to coarse-grained SAND (SW if mixed together, but ranges from SP to SM), with cobbles of volcanic rocks less than or equal to 8 inches in diameter occurring in a few beds; Excellent source for fill.	Not applicable	10/10/06	ALG/SMP
MT1056	MCS1	NA	NA	Plate 1	Gabbs Valley Range alluvial fan	Qay?	Fan alluvium not described	A concealed strike-slip fault, with a down-to-the-north component of movement, strikes NW near the waypoint; claim stakes observed in the area might have been placed here because of inferred fault-related mineralization.	10/10/06	ALG/SMP
MT1057	MCS1	NA	NA	Plate 1	Gabbs Valley Range	KJg	Moderate to high-strength, reddish-gray, mostly medium- to coarse-grained phaneritic, slightly to moderately weathered orange, brown, and white GRANITE; average composition is 25% quartz, 52% orthoclase, 22% sodic plagioclase, and 1 to 4% biotite; readily weathers to grus-covered slopes surrounding granite knobs and ledges in various stages of decomposition; unsuitable for ballast because of excessive fracturing and weathering.	Three very closely to widely spaced, rectangular fracture sets (up to 5 ft apart): (1) Strike, N 34-58 E (214-238 degrees) and dip 59-82 degrees SE; (2) Strike N 29-68 W (112-151 degrees) and dip 44-48 degrees NE; (3) Strike N20W (340 degrees) and dip 53-56 degrees SW.	10/10/06	ALG/SMP
MT1058	MCS1	NA	NA	Plate 1	Todd Mountain, Gabbs Valley Range	JTrs/Jdi/KJg	JTrs not visited because of rough road conditions. The formation consists of folded, thickly to very thickly bedded, gray to reddish-gray, dolomite, dolomitic limestone, and ferruginous, coarsely crystalline limestone, with subordinate sandstone, siltstone, and shale (Ekren and Byers, 1985a). The sedimentary rocks wholly or partly have been metamorphosed by contact with Mesozoic intrusions to marble, skarn, hornfels, argillite, slate, phyllite, and schist. Claim stakes on fan and Jdi outcrops.	East of a NW-striking strike-slip fault and north of a NE-striking strike-slip fault, the Triassic Luning Formation strikes NW and dips 45-50 degrees NE	10/10/06	ALG/SMP
MT1059	MCS1	NA	NA	Plate 1	Todd Mountain, Gabbs Valley Range	KJg	Although mostly quartz monzonite, rock in this composite pluton grades from granite to monzonite (6 to 32% quartz, 42 to 43% potassium feldspar, 25 to 52% sodic plagioclase, and trace to 10% biotite). Examined rock is very high to high-strength, light-gray, medium-grained phaneritic, fresh to moderately weathered (weathering rind, several inches thick and colored orange, brown, red, and light-gray) quartz monzonite with approx. 10% biotite. Weathering along rectangular fractures results in rounded to surounded outcrops. Rock is excellent ballast material.	Three prominent fracture sets are closely to very widely spaced (6 inches to greater than 6 ft apart), although most are 1-3 feet apart. Fractures (1) strike North - N 29 degrees W (151-180 degrees) and dip 47-64 degrees E to NE; (2) strike West (260-279 degrees) and dip 81-89 degrees South; and (3) strike N 7-23 degrees W (337-353 degrees) and dip 50-59 degrees SW.	10/10/06	ALG/SMP
MT1060	MCS1	2271+27	41	22	Soda Spring Valley	Qe	To a depth of 2 feet, material is loose, light-yellowish-brown, slightly silty to silty, fine-grained SAND with trace medium and coarse-grained sand (SP-SM).	Not applicable	10/10/06	ALG/SMP
MT1061	MCS1	2372+41	51	22	Gabbs Valley Range alluvial fan	Qao	Exposed in a borrow pit, material is very dense, light-brown, slightly silty, sandy GRAVEL (GP), with abundant cobbles and scattered boulders (to 18 inches in diameter) of volcanic and sedimentary rocks; clasts angular to subrounded, many coated with calcium carbonate. Claim stake on Qao fan.	Not applicable	10/10/06	ALG/SMP
MT1062	MCS1	2416+67	-104	22	Gabbs Valley Range alluvial fan	Qao	Alluvium similar to that at MT1061, with fewer cobbles and rare boulders.	Not applicable	10/10/06	ALG/SMP

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MT1063	MCS1	2416+51	728	22	Gabbs Valley Range alluvial fan	Qao	Fenced-off vertical mine shaft in fan alluvium, on which the Nevada Division of Minerals posted a sign warning that the shaft is dangerous. Gravel with secondary copper mineralization (including turquoise) was found in the road near the mine. This gravel might have come from the shaft, but its source cannot be established with certainty, because similar gravel was not found between the shaft and the road.	Not applicable	10/10/06	ALG/SMP
MT1064	MCS1	NA	NA	22	Gabbs Valley Range	JTrs	Ekren and Byers (1985a) describe the upper part of the Luning Formation as gray, thickly bedded dolomitic limestone and dolomite.	The upper part of the Luning Formation is thrust over itself from east to west. In the lower plate, bedding generally strikes NNW to NW and dips 30-50 degrees SW, but it becomes 70 degrees to overturned approaching the fault. In the upper plate, bedding generally strikes NE and dips 30-50 degrees NW.	10/11/06	ALG/SMP
MT1065	MCS1	NA	NA	22	Gabbs Valley Range	JTrs	A section estimated to be about 33 feet thick consists of interbedded white, light-gray and dark-gray, laminated to thickly bedded, fresh, fine to coarse crystalline, dolomitic limestone and limestone, recrystallized to marble; and shaly, fine-grained, calcareous dolomite. The rock generally has medium-high to very high strength, but thin seams of reddish-orange and yellow-weathering, silty(?) limestone within shaly dolomite intervals have low to moderate strength and have weathered locally to soil.	Bedding strikes N 38-54 degrees W (306-322 degrees) and dips 32-58 degrees SW, becoming steeper to the SE. Fractures are extremely closely to medium-spaced (less than 1 inch to 2 feet apart), with an RQD estimated to be less than 50%. The dominant fracture set strikes N 40-51degrees E and dips 59-79 degrees NW. A second fracture set, on the average, strikes North (164-202 degrees) and dips 56-75 degrees East.	10/11/06	ALG/SMP
MT1066	MCS1	2463+10	144	23	Gabbs Valley Range alluvial fan rimming Soda Spring Valley	Qao	Dense to very dense, light-grayish-brown to brown (with increasing moisture), silty, sandy GRAVEL (GP), with abundant sub-angular to subrounded cobbles and rare boulders (less than or equal to 1 foot in diameter) of volcanic and sedimentary rocks, many coated with calcium carbonate. The fan is dissected by numerous shallow washes.	Not applicable	10/11/06	ALG/SMP
MT1067	MCS1	2634+19	10	24	Soda Spring Valley	Qbf	Unconsolidated to indurated about 1 inch below the top of the deposit, generally loose to medium-dense, brown, silty, fine-grained SAND (SM) with trace medium to coarse-grained sand and gravel; overlain by about 4 inches of eolian loose, yellowish-brown, silty, fine-grained SAND (SM) and soft sandy SILT (ML).	Not applicable	10/11/06	ALG/SMP
MT1068	MCS1	NA	NA	24	Gabbs Valley Range, Volcano Canyon	Ta4	Medium-high to high-strength, dark-gray, porphyritic (plagioclase laths in a finely crystalline groundmass), fresh to slightly weathered (with a thin reddish-brown weathering rind) ANDESITE LAVA FLOWS, about 10 to 20 feet thick; interlayered with much thicker intervals of well-indurated, moderate to high-strength (depending largely on hardness of clasts), light-gray, ANDESITIC LAHARS containing abundant gravel to boulder-sized clasts of diverse volcanic rocks, up to 3 feet in diameter. The predominance of lahars and the tendency of andesite flows to be thin and largely covered by talus makes the flows in this geologic unit unsuitable for ballast.	Andesite flows have very closely to closely spaced fractures (less than or equal to 8 inches apart); lahars appear from photographs to have fractures that, largely, are closely to medium-spaced .	10/11/06	ALG/SMP
MT1068a	MCS1	NA	NA	24	Gabbs Valley Range, Volcano Canyon	Ta4	Medium-high to high-strength, dark-gray, porphyritic (plagioclase laths in a finely crystalline groundmass), fresh to slightly weathered (with a thin reddish-brown weathering rind) ANDESITE LAVA FLOWS, about 10 to 20 feet thick; interlayered with much thicker intervals of well-indurated, moderate to high-strength (depending largely on hardness of clasts), light-gray, ANDESITIC LAHARS containing abundant gravel to boulder-sized clasts of diverse volcanic rocks, up to 3 feet in diameter. The predominance of lahars and the tendency of andesite flows to be thin and largely covered by talus makes the flows in this geologic unit unsuitable for ballast.	Andesite flows have very closely to closely spaced fractures (less than or equal to 8 inches apart); lahars appear from photographs to have fractures that, largely, are closely to medium-spaced .	10/11/06	ALG/SMP
MT1069	MCS1	2779+28	11	24	Soda Spring Valley near Mina, Nevada	Qbf	Medium-dense to dense, reddish-brown, silty, fine-grained SAND (SM) and fine sandy SILT (ML), with trace medium to coarse-grained sand; weakly indurated with calcium carbonate near the surface.	Not applicable	10/11/06	ALG/SMP
MT1070	MCS1	2924+97	41	25	Soda Spring Valley	Qao/Qbf	Dense to very dense, reddish-brown slightly silty, sandy GRAVEL (GW-GM), with scattered cobbles, 18 inches thick (Qao). Dense, reddish-brown, sandy SILT (ML); sand, fine to coarse-grained (Qbf).	Not applicable	10/11/06	ALG/SMP

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MT1071	MCS1	2998+03	118	26	Moderately-well dissected Pilot Mts alluvial fan in Soda Spring Valley near Sodaville, Nev.	Qao	Very dense, brown, slightly silty, sandy GRAVEL (GP) with numerous cobbles and scattered boulders to 2 feet in diameter and thin CALCRETE layers exposed in numerous shallow to moderately deep washes incised into the fan.	Not applicable	10/12/06	ALG/SMP
MT1072	MCS1	3064+70	-1710	26	Pilot Mts alluvial fan in Rhodes Salt Marsh basin near Sodaville, Nevada	Qao	Photograph taken looking SW from a wash estimated to be 10 feet deep by about 50 feet across, one of many such washes incised into the Pleistocene bajada sloping west from the Pilot Mountains and crossed by MCS-1. Sand and gravel layers are exposed in the banks, and cobbles and boulders are abundant in the channels of the wash.	Not applicable	10/12/06	ALG/SMP
MT1073	MCS1	3092+57	-1565	26	Pilot Mts alluvial fan in Rhodes Salt Marsh basin	Qao	Photograph taken looking SW at a cluster of alluvial piles excavated from the fan, suggesting that the fan was prospected for either secondary minerals in alluvium or buried ore veins. Fan alluvium was not examined here, but it appears to contain abundant cobbles and boulders.	Not applicable	10/12/06	ALG/SMP
MT1074	MCS1	3111+44	-202	26	Pilot Mts alluvial fan, in a wash about 15-20 feet deep and 160 feet across, immediately downstream from where two prominent channels converge.	Qao	In the banks of the wash, the fan alluvium is medium-dense to dense, light-grayish-brown, slightly silty, sandy GRAVEL (GW) with abundant angular to rounded, cobble- to boulder-sized clasts of volcanic and sedimentary rocks up to 3 feet in diameter, many of which are coated with calcium carbonate; on land surface, fan alluvium is covered by a well-developed desert pavement consisting mostly of angular volcanic and sedimentary rocks coated with desert varnish; excellent fill material.	In T05N, R35E, S13a, the fan alluvium east of a north-striking fault scarp was uplifted relative to alluvium west of the scarp during the Holocene epoch. MCS-1 runs across the uplifted block, 1,800-2,100 feet east of the fault scarp and sub-parallel to it.	10/12/06	ALG/SMP
MT1074a	MCS1	3103+83	-1550	26	Pilot Mts alluvial fan in Rhodes Salt Marsh basin	Qao	Alluvium in the trench is well-bedded, dense to very dense, brown, slightly silty, sandy GRAVEL (GW) and gravelly SAND (SW), with abundant cobbles and boulders concentrated in the upper two feet; clasts are less than or equal to 3 feet in diameter, angular to subrounded, and commonly coated with calcium carbonate.	Not applicable	10/12/06	ALG/SMP
MT1074b	MCS1	3117+35	3	26	Pilot Mts alluvial fan, in a wash about 15-20 feet deep and 160 feet across, immediately downstream from where two prominent channels converge.	Qao	Wash is approx. 160 ft across and ~20 ft deep; SE bank has ~13-degree slope, NW bank has ~29-degree slope; two washes merge into this larger wash approx. 150 ft. NE of waypoint; see MT1074A for soil description	Not applicable	10/12/06	ALG/SMP
MT1075	MCS1	3350+36	142	27	Pilot Mts alluvial fan in Rhodes Salt Marsh basin	Qao	Medium-dense to dense, brown, gravelly, fine- to coarse-grained SAND (SW) and sandy, fine to coarse GRAVEL (GW), with abundant rounded to sub-angular, calcium carbonate-coated, cobble-sized clasts of sedimentary and volcanic rocks; clasts possibly concentrated in upper part of deposit; excellent fill material.	A NE-striking, high-angle fault uplifted Quaternary-Teriary alluvium east of the fault relative to Quaternary fan alluvium west of the fault. The northern end of the fault is about 1,500 feet east of MCS-1, but the southern end of the fault intersects MCS-1 at station 3385+00. MCS-1 runs across the down-dropped block of the fault.	10/12/06	ALG/SMP
MT1076	MCS1	3444+08	-271	28	Pilot Mts. alluvial fan in Rhodes Salt Marsh basin, in a wash about 10 feet deep and 50 feet across	Qay	In a five-feet-high exposure, the fan alluvium consists of interbedded, unconsolidated to moderately indurated, loose to dense, grayish-brown, reddish-brown, and brown, slightly gravelly, trace to slightly silty, fine to medium-grained SAND (SP to SP-SM) and trace to slightly silty, sandy GRAVEL with scattered cobbles (GW to GW-GM); which is capped with 7 inches of eolian loose, brown, slightly silty, fine-grained SAND with trace gravel (SP-SM); sand and gravel intervals in fan alluvium 4 to 16 inches thick.	Not applicable	10/12/06	ALG/SMP
MT1077	MCS1	NA	NA	27	Rhodes Salt Marsh playa	Qp	The playa deposits (not examined closely) consist of fine-grained sediments interlayered with evaporite deposits, containing halite, thenardite (sodium sulfate), and borate minerals, such as ulexite. Evaporite minerals formerly were mined commercially. Remains of former mining facilities were photographed in the SE and NW parts of the playa, but no active mining was observed. Indicative of a shallow water table, springs issue from playa sediments 2,500 feet NE of waypoint MT1077. A flowing well is present at the waypoint.	No applicable	10/12/06	ALG/SMP

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MT1078	MCS1	NA	NA	Plate 1	Candelaria Hills	Ta4	At the waypoint, two 20- to 30-feet thick andesite lava flows are separated by ledge-forming, ash-flow tuff and slope-forming ash-fall tuff or sedimentary rocks, that are mostly covered with talus. The lower flow, which crops out at road level, consists of very high-strength, medium-gray (weathering reddish-brown), finely crystalline, fresh to slightly weathered ANDESITE. Overlying this flow is a thicker interval of high to very high-strength, purple (weathering olive-brown), crystal-rich, lithic-poor, slightly lithophysal (vesicular), foliated, fresh to moderately weathered, densely welded, dacite (?) ash-flow tuff. The tuff weathers preferentially along fractures and exfoliates, forming rounded outcrops.	Lava flow foliation has a median strike of N 85 degrees W, and a median dip of 18 degrees NE. Dominant fractures in this flow are closely to widely spaced (less than or equal to 4 feet apart) and comprise two sets of columnar joints, one with a mean strike of N31E and a dip of 87 degrees SE to vertical), and the other with a mean strike of N54W and a dip of 75-80 degrees SW. Fractures in the tuff are rectangular and closely to widely spaced (less than or equal to 3 feet apart).	10/12/06	ALG/SMP
MT1079	MCS1	3502+49	-89	28	Pass between Rhodes Salt Marsh and Columbus Salt Marsh	QTf	Thinly interbedded, weakly to well-indurated, loose to dense, orange- to reddish-brown, brown, and gray, sandy SILT (ML); slightly silty to silty SAND and gravelly SAND (SP-SM, SW-SM, and SM); and silty, sandy GRAVEL (GP-GM to GW-GM); capped at the top of a hill where the deposit is well-exposed by boulders of mafic volcanic rock, which might be remnants of a thin lava flow. The hillside where these sediments crop out slopes 320 SW, toward the alignment, and weathers by gullying; the slope might have to be stabilized. The deposit, which is rippable, could be used as fill.	From NW to SE along the outcrop, bedding orientation changes from a strike of N35W (325 degrees) and a dip of 20 degrees NE to a strike of N06E and a dip of 34 degrees NW. A NNW-trending syncline is indicated by by strike and dip measurements.	10/13/06	ALG/SMP
MT1080	MCS1	3526+50	-201	28	Pass between Rhodes Salt Marsh and Columbus Salt Marsh	Tsy	Natural slope weathered to 35 degrees.	Not applicable	10/13/06	ALG/SMP
MT1080a	MCS1	3524+48	-684	28	Pass between Rhodes Salt Marsh and Columbus Salt Marsh	Tsy	Indistinctly bedded, low-strength, banded tan, greenish-gray, olive-green, and pale-red CLAYSTONE, possibly interbedded with siltstone and fine-grained sandstone, largely covered with spongy (soft) to hard, light-brown, silty CLAY (CH) colluvium, that is ≥2 inches thick. Sediments weather into rounded hills and mounds, some of which are gullied. Gravel to boulder-sized clasts of mafic volcanic rocks capping hills pose a potential rockfall hazard where slopes are relatively steep.	Claystone is very closely to closely fractured; yellowish-brown iron oxide and gypsum (as selenite crystals and satin spar) fill some fractures.	10/13/06	ALG/SMP
MT1081	MCS1	3584+66	-352	28	Pass between Rhodes Salt Marsh and Columbus Salt Marsh	Tsy	Moderate-strength, yellowish-brown, indistnctly bedded, sandy SILTSTONE, covered largely by 8 inches of sandy SILT (ML) colluvium containing abundant desert-varnish-coated, gravel to boulder-sized clasts of mafic volcanic rocks.	Very closely to closely spaced fractures on a 16 degree slope	10/13/06	ALG/SMP
MT1082	MCS1	3632+66	-194	29	Monte Cristo Range alluvial fan	Qao	Very stiff, reddish-brown, sandy SILT (ML); overlain by less than or equal to 1 inch of very dense, reddish-brown, silty, fine-grained SAND, well-indurated with limonite; and covered wth a well-developed desert pavement containing numerous desert-varnished basalt boulders.	Not applicable	10/13/06	ALG/SMP
MT1082a	MCS1	3636+79	877	29	Monte Cristo Range alluvial fan	Fill	Old RR grade with weathered 20 to 23 degree side slopes.	Not applicable	10/13/06	ALG/SMP
MT1082b	MCS1	3636+48	1005	29	Monte Cristo Range alluvial fan	Qao	Exposed in a road cut (29 to 32 degree slope) are 8 inches of brownish-red, very dense, silty, fine-grained SAND, well-indurated with limonite, which is overlain by 7 inches of dense, white, slightly gravelly, silty SAND, moderately well-indurated with calcium carbonate (CALCRETE), and 6 inches of loose, grayish-brown, silty, fine-grained SAND with trace gravel; All three intervals are considered to be SM.	Not applicable	10/13/06	ALG/SMP
MT1083	MCS1	3739+40	91	29	Candelaria Hills	Qao	In a shallow wash typical of the many that dissect this alluvial fan, the alluvium exposed is very dense, brown, sandy GRAVEL (GW), that contains abundant cobbles and scattered boulders; clasts angular to surounded, coated with calcium carbonate, and composed of volcanic and sedimentary rocks; excellent fill material.	Not applicable	10/13/06	ALG/SMP
						Tsv	Mottled purple and tan on the west face of a hill between US-95 and MCS-1, rock cropping out on the east side of the hill appears to be a single tuff unit. However, the hillside is covered completely by talus, which might conceal other rock types. The east side of the hill seems to be underlain entirely by high to very high-strength, light-gray to light-green, crystal-rich (plagioclase, hornblende, and biotite phenocrysts in a fine-grained matrix), fresh to slightly weathered (weathering brown), nonwelded dacite (?) ash-flow tuff. Proximity of the non-resistant tuff to MCS-1 poses a potential rockfall hazard.	Fractures in small outcrops appear to be very closely to medium-spaced (less than or equal to 1 foot apart).	10/13/06	ALG/SMP

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT1084	MCS1	3923+90	30	30	Monte Cristo Range alluvial fan above Columbus Salt Marsh	Qao	Very dense, reddish-brown, sandy GRAVEL (GW) with abundant sub-angular to sub-rounded, calcium carbonate-coated cobbles; overlain by 6 inches of eolian, loose, brown, fine to medium-grained SAND, with trace silt and gravel (SP)	Not applicable	10/13/06	ALG/SMP
MT1085	MCS1	4154+63	7	31	Monte Cristo Range alluvial fan above Columbus Salt Marsh	Qao	Very dense, reddish-brown sandy GRAVEL (GW) and gravelly SAND (SW), overlain by 3 inches of very dense, white, gravelly CALCRETE; capped with 4 inches of eolian, loose, brown, fine to medium-grained SAND (SP).	Not applicable	10/13/06	ALG/SMP
MT1086	MCS1	4357+16	247	32	Monte Cristo Range alluvial fan above Columbus Salt Marsh	Tt3	Estimated low to medium-high-strength, interbedded quartz-rich ash-flow tuff, ash-fall tuff, and shale; very weathered lithic-rich tuff in the lower part of the unit; photographed but not visited.	Cut by the same ENE-striking, down-to-the-north fault that offsets unit Ta3	10/13/06	ALG/SMP
						Ta3	Estimated high to very high-strength, dark-gray to brown, fine-grained to moderately porphyritic andesite and dacite lava flows, with subordinate tuff breccia, lahars, and intrusive rocks; flows contain less than or equal to 20% quartz, plagioclase, hornblende, and pyroxene phenocrysts in a fine-grained groundmass; outcrop photographed but not visited.	Broken into numerous blocks by NNW to NNE-striking faults and an ENE-striking fault; foliation strikes N to N17W and dips 17-19 degrees W to SW.	10/13/06	ALG/SMP
						Qao	Interbedded, very dense, reddish-brown gravelly SAND (SW) and sandy GRAVEL (GP), with calcium carbonate layers and cement; overlain by 4 inches of eolian, loose, fine- to medium-grained SAND (SP); carbonate-coated cobbles and boulders common at the land surface but not at depth.	Not applicable	10/13/06	ALG/SMP
MT1088	MCS1	4693+93	-214	33	Big Smoky Valley at Blair Junction, Nev.	Qao	In one of many shallow washes dissecting this alluvial fan is very dense, reddish-brown, slightly silty, sandy GRAVEL (GW) and gravelly SAND (SW) with thin CALCRETE layers and abundant cobbles coated with calcium carbonate, overlain by 4 inches of eolian, loose, brown, slightly gravelly, mostly fine- to medium-grained SAND (SP); well-developed desert pavement.	Not applicable	10/14/06	ALG/SMP
MT1089	MCS1	4618+01	-14	33	Big Smoky Valley	Tsv	Medium-high to high-strength, light-gray, moderately crystal-rich (small phenocrysts of potassium and plagioclase feldspar, quartz, biotite, and hornblende in a fine-grained groundmass), lithic-poor, fresh to slightly weathered (an orange, brown, and white weathering rind up to half-inch thick generally is present), moderately welded, RHYOLITE ASH-FLOW TUFF. Non-resistant, the rock exfoliates, and small outcrops are enveloped in colluvium consisting of medium-stiff, olive-brown, slightly sandy, silty CLAY (CH). The colluvium is covered with patches of angular gravel derived from mafic volcanic rocks.	Very closely to closely spaced fractures	10/14/06	ALG/SMP
MT1090	MCS1	4519+87	539	33	Coaldale outcrop just off north side of US 95; Big Smoky Valley	Tsv	Many of the rock types present in the Esmeralda Formation crop out at this waypoint. The lowest interval examined is ledge-forming, moderate to high-strength, purple, multi-lithic pebble conglomerate. Above this interval is 2 feet of nonresistant, laminated to thinly bedded, low to moderate-strength, light-grayish-green, light-brown, and light-gray claystone, siltstone, and fine- to medium-grained sandstone. Above the fine-grained rock is a 10-feet-thick ledge of high to very high-strength, ochre, green, and purple, indistinctly bedded, multi-lithic boulder conglomerate. The uppermost interval examined consists of about 20 feet of slope-forming, low to moderate-strength, purple (weathering light-gray), crystal-rich, lithic-poor, platy fracturing, partially to moderately welded, rhyolitic ASH-FLOW TUFF.	The Esmeralda Formation is broken into small blocks by numerous, diversely oriented faults. Depending on rock type and proximity to faults, fractures are extremely closely to medium-spaced (less than or equal to 3 feet apart). Continuity of bedding has been disrupted severely by faulting. Bedding measured on top of the lower conglomerate at the waypoint strikes N54W (126 degrees) and dips 9 degrees NW.	10/14/06	ALG
						Tsv	High strength, slightly to moderately weathered, massive, clast supported, coarse grained (sub-rounded to rounded) tuff breccia, Rock fragments are of various lithologies, lapilli tuff and other miscellaneous volcanics. Overlying the conglomerate is a 20 to 30 foot thick sequence of low to very low strength moderately to completely weathered crystal (slightly. lithic) tuff/lapilli tuff. North of Rhodes salt marsh the alignment is on the alluvial fan East of the highway to Mina. Relatively recent debris flows are visible on the fans.	Beds dip: N55W/20-25N	11/15/06	WAH
						Tsv	Coaldale outcrop just off north side of US 95. Very coarse gravel / cobble conglomerate 2/5 ft thick. Overlain by tuff and tuff breccia. Lithic fragments range in layers from sand to boulders.	Beds dip: N55W/20-25N	11/15/06	WTL

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WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT1090a	MCS1	4530+39	824	33	Coaldale outcrop just off north side of US 95; Big Smoky Valley	Tsv	Old RR cut through variable Tsv; north-facing slope weathered to 23-52 degrees (32 degree average), south-facing slope 30-80 degrees (40 degree average)	Not measured	10/14/06	SMP
MT1090b	MCS1	4526+37	711	33	Coaldale outcrop just off north side of US 95; Big Smoky Valley	Fill	Old railroad grade with 18 to 20 degree weathered (eroded) side slopes; embankment soil is loose to medium dense, slightly medium to coarse sandy, slightly silty to silty, fine SAND, trace of gravel; angular to subangular particles; scattered organics; (SP-SM/SM)	Not applicable	10/14/06	SMP
MT1091	MCS1	4484+21	-252	33	NDOT quarry ES 02-03 on Monte Cristo Range alluvial fan	Qao	Damp to moist, moderately to well-indurated, reddish-brown, gravelly, fine- to coarse-grained SAND (SP) with calcium carbonate clots and iron oxide cement; overlain by eolian, loose to medium-dense, yellowish-brown, slightly silty, fine- to medium-grained SAND (SP-SM), with trace coarse-grained sand and gravel.	Not applicable	10/14/06	ALG/SMP
						Tsv	Moderate to medium-high strength, tan and light-gray (weathering orange, brown, and white), slightly to moderately weathered, fine-grained, tuffaceous(?) sandstone.	Very closely to medium-spaced fractures, less than or equal to 3 feet apart	10/14/06	ALG/SMP
MT2001	MN3	696+26	4913	55	North Clayton Ridge, south of Alkali Springs	Ti	GRANODIORITE: medium high strength, gray, coarse crystalline; massive, slightly jointed; slightly weathered	Not applicable	10/5/06	BKR/EAK
MT2002	MN3	721+15	-141	55	North Clayton Ridge, south of Alkali Springs	Ti	GRANODIORITE, not able to sample, too far from road. Same as MT2001	Not applicable	10/5/06	BKR/EAK
MT2003	MN2	7498+47	-204	45	West of US 95, North of Goldfield	Qao	Medium dense, tan, gravelly, silty SAND (SM), dry to moist; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2004	MN2	7403+31	-15	45		Qao	Medium dense, tan, gravelly, silty SAND (SM), dry to moist; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2005	MN2	7229+87	-20	44		Qao	Medium dense, tan, gravelly, silty SAND (SM), dry to moist; occassional scattered surface cobbles to 12 inches; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2006	MN2	7232+62	-14	44		Qao	Medium dense, tan, gravelly, silty SAND (SM), dry to moist; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2007	MN2	7215+97	-641	44	Burrow Pit ES 04-02 (North pit)	Qao	Medium dense, tan, gravelly, silty SAND (SM), dry to moist; occassional cobbles to 12 inches; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2008	MN2	7210+54	-742	44	Burrow Pit ES 04-02 (South Pit)	Qao	Medium dense, tan, silty, sandy GRAVEL (GM), dry, occassional cobbles to 10 inches; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2009	MN2	7180+69	-2	43	Big Wash	Qc	Within wash is: Dense, brown, SAND (SP); moist Around wash is: Medium dense, tan, slightly gravelly SAND (SW); moist; capped by thin silt layer (~2 mm)	Not applicable	10/6/06	BKR/EAK
MT2010	MN2	6971+91	-323	42	Klondyke	Qmw	Medium dense, brown, slightly gravelly SAND (SW); moist; slightly cemented; mine waste piles all around (Qmw)	Not applicable	10/6/06	BKR/EAK
MT2011	MN2	6839+99	2645	42		Not determined	Medium dense, brown, silty, gravelly SAND (SM); dry. (Stockpiled material scraped from surrounding area)	Not applicable	10/6/06	BKR/EAK
MT2013	MN2	6659+06	-220	41		Qao	Medium dense, brown SAND; moist; trace gravel; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2014	MN2	6394+18	394	39		Qao	Medium dense, tan SAND; moist; trace gravel; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2015	MN2	6257+62	2	38		Qao	Medium dense, tan SAND; moist; trace gravel; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2016	MN2	6059+98	479	37		Qao	Medium dense, tan SAND; moist; trace gravel; slightly cemented	Not applicable	10/6/06	BKR/EAK
MT2018	MN2	NA	NA	Plate 1	Lone Mountain	KJg	QUARTZ MONZONITE: moderate strength, light gray, coarse crystalline, massive; slightly to moderately weathered (Lone Moutain Pluton)	Not measured	10/6/06	BKR/EAK
						KJg	Lone Mountain double drainage at foot of range. Quartz monzonite with mafic intrusions. Excellent source of ballast ****1/2 (4 and 1/2 stars), very good rock, existing dirt road to it, but needs upgrade. Drift into face of interfluve.	Not measured	10/7/06	WTL
MT2019	MN2	NA	NA	Plate 1		KJg	QUARTZ MONZONITE and sediment contact Sediments dip 80° to approximately NNE	Metamorphosed sediments at contact	10/6/06	BKR/EAK
MT2020	MN2	NA	NA	36	NDOT Ely NDOT pit ES 02-11	Qao	Large active pit for paving project. Big fan off of Lone Mountain plateau. Good, hard granite clasts.	Not applicable	10/7/06	WTL
						Qao	Dense, tan, sandy GRAVEL (GP); moist; occassional cobbles and boulders. Max size 3.5 feet	Not applicable	10/7/06	BKR/EAK
MT2021	MN2	NA	NA	35	Lone Mtn west promontory	KJg	Lots of mining claim markers. Limestone outcrops on west side of fault, fractured, moderately strong. Closely to moderately closely jointed.	Not measured	10/7/06	WTL
						KJg	DOLOMITE: location high on outcrop. Unable to access. Viewed/tetsed cobbles on surface.	Not measured	10/7/06	BKR/EAK

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MT2022	MN2	5253+29	-543	35	McLeans	Qao	McLeans flat ground, disturbed by former town (?) grading.	Not applicable	10/7/06	WTL
						Qao	Dense, tan, gravelly, silty SAND (SM); dry; slightly cemented. (Heavy surface distrubance due to road making)	Not applicable	10/7/06	BKR/EAK
MT2024	MN2	5267+90	-580	35	East of McLeans.	Fill	RR embankment on old grade. South side of old embankment, 25 degree side slopes, 3 to 6 ft high. Area surrounded by claim stakes all of flat.	Not applicable	10/7/06	WTL
						Qe	Loose, tan SAND (SW); dry. (Slope Measurment of old RR grade ~25°)	Not applicable	10/7/06	BKR/EAK
MT2026	MN2	5312+58	-616	35		Qp	Old RR grade 25 degree side slopes. No claim stakes from here and eastward.	Not applicable	10/7/06	WTL
						Fill	Slope Measurment of old RR grade approx. 25 degrees	Not applicable	10/7/06	BKR/EAK
MT2027	MN2	5341+86	-636	35		Qp	8inch deep test pit in playa. Upper 1 to 2 inches mud cracked silt. Lower 6 to 9 inches pure silt trace fine sand in playa. Embankment is 6 to 7 ft high where it is open (by excavation).	Not applicable	10/7/06	WTL
						Qp	Medium stiff, tan, sandy SILT (ML); dry; mud cracking to 1 inch deep	Not applicable	10/7/06	BKR/EAK
MT2028	MN2	5248+09	-565	35	West of McLeans	Fill	Cut in old RR grade; layered gravelly, silty SAND fill.	Not applicable	10/7/06	WTL
						Qao	0-1.5 feet bgs: Dense, tan, silty, gravelly SAND (SM); dry to moist [FILL] 1.5-2 feet bgs: Medium dense, tan, slightly silty SAND (SW-SM); dry [NATIVE] gravels appear on surface but do not extend deeper	Not applicable	10/7/06	BKR/EAK
MT2029	MN2	5232+83	-449	35		Qao	Small dry water cut 20 inches high. 450 ft north of new alignment. [Stratified layers (1/4 to 3 inches thick) fine to coarse, fine and fine to medium SAND, very scattered fine gravel (upper 16 inches) Bottom 2 inches of this layer is gravelly (trace CaCO3 accum). Lower 4 inches fine sandy SILT.]	Not applicable	10/7/06	WTL
						Qao	Medium dense, tan to brown, silty SAND (SM); dry to moist; 1-inch layer of gravel at 16 feet bgs	Not applicable	10/7/06	BKR/EAK
MT2030	MN2	5221+10	-286	35		Qao	Old mine shaft with wood cribbing approx. 8 ft deep and 15 ft diameter shaft (north side). Stratified silty gravelly SAND in face.	Not applicable	10/7/06	WTL
						Qao	Dense, silty SAND (SM); dry; occasional cobbles. (8 foot deep mine shaft)	Not applicable	10/7/06	BKR/EAK
MT2031	MN2	5187+53	-559	34		Qao/Fill	Dry wash cut through old RR fill embankment and old channel deposit. 0 to 4.5 ft Fill embankment - gravelly, silty SAND. 4.5 to 8 ft Stratified slightly silty, gravelly, fine to coarse SAND. Then, near the alignment, mostly bedded fine to coarse SAND. Bank approx. 1.5 to 2 ft high at alignment. Potential SAND borrow site. [View of SE at SW corner of Lone Mountain showing faulted contact of granite and dolomite.]	Not applicable	10/7/06	WTL
						Qao	0-4.5 feet bgs: Dense, tan, gravelly SAND (SP); dry; [FILL] 4.5-8 feet bgs: Medium dense, tan, gravelly SAND (SP); moist to dry; [NATIVE]; stratified	Not applicable	10/7/06	BKR/EAK
MT2032	MN2	5139+82	166	34		Qao	Dissected fan with relief approx. 6 to 10 ft. Desert pavement on surface. From major dry wash. Desert pavement underlain by tan, silty SAND, scattered gravel.	Not applicable	10/7/06	WTL
						Qao	Medium dense, tan, silty SAND (SM); dry desert pavement gravels on surface	Not applicable	10/7/06	BKR/EAK
MT2033	MN1	5030+07	2539	46	West side of road newar small mesa	Fill	Borrow pit [6 to 8 ft deep, reclaimed], Adjacent small mesa capped with Qb. Pit not on NDOT map, but looks like state operation. Could be county pit. 3 stock piles (gravel; slightly silty sandy GRAVEL; slightly dirty GRAVEL). [Confluence of 2 - 3 drainages (on SSURGO polygon). Excavated cut face NE of stock piles. Mostly silty, fine to coarse SAND, trace fine gravel.]	Not applicable	10/7/06	WTL
						Fill	Three piles of material: (1) dry, tan, silty, gravelly SAND (SM); (2) dry, tan, silty, sandy GRAVEL (GM); (3) dry, multi-colored gravel. (Gravel Pit, worked and seperated product in 3 piles)	Not applicable	10/7/06	BKR/EAK
MT2034	MN1	NA	NA	Plate 1	Weepah Hill	KJg	Hard, white, Quartz monzonite, closely jointed, iron oxide stained on exterior. One old wood post; no claim info, no improvements. Good roads to site already.	Not measured	10/7/06	WTL
						KJg	QUARTZ MONZONITE: medium high strength, white, coarse crystalline, massive; fresh to slightly weathered (Weepah Hills Pluton)	Not measured	10/7/06	BKR/EAK
MT2036	MN1	5238+39	-123	47	Alignment stop north of The Monocline	Tsy	Desert pavement over silt. Rolling hills with 10 to 20 ft relief. Sand dunes approx. 500 ft to east (single ridge).	Not applicable	10/8/06	WTL
						Tsy	Medium dense, tan, slightly gravelly, silty SAND (SP-SM); dry; slightly cemented	Not applicable	10/8/06	BKR/EAK

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MT2037	MN1	5260+30	3	47		Tsy	Airfall ash [welded and non-welded] deposits on and east of alignment. Small ridges 10 to 20 ft high are scattered about. Cuts will be hard and easy. Fill generated may erode (far embankment only). Scattered small dunes.	Not measured	10/8/06	WTL
						Tsy	0-3 feet bgs VOLCANIC BRECCIA: moderate strength, red; massive; slightly weathered OVER 3 feet+ TUFF: low to moderate strength, white, fine grained with lapilli; massive; slightly vesicular; fresh to slightly weathered	Not measured	10/8/06	BKR/EAK
MT2038	MN1	5354+49	-33	48		Tsy	Radial drainage coming off high point to east. Relief 10 to 40 ft Slopes 45 to 20 degrees. Conglomerate approx. 3 ft thick; with siltstone stringers. Siltstone has sandstone lenses. Float indicates shaley beds locally. [Interbedded siltstone, sandstone, and conglomerate dipping south N45E, 45-50S.]	Beds dip: N45E/45-50S	10/8/06	WTL
						Tsy	SANDSTONE and SILTSTONE: low to moderate strength, tan, fine to medium grained; bedded; slightly weathered; occassional 0.5 to 1 foot gravel layers	Beds dip: 25/130	10/8/06	BKR/EAK
						Tsy	Low strength moderately to highly weathered, thinly bedded (approx. 1/2 to 3/4 inches) tan sandstone/siltstone interbedded with low strength, mod to highly weathered coarse to cobble size grained angular conglomerate (argillite and quartzite rock fragments, 1 to 2 ft thick beds).	Not applicable	11/15/06	WAH
MT2039	MN1	5414+47	1162	48		Tsy	Tuffaceous, clayey, siltstone, N90E, 38S. Low unit weight, friable, very thinly bedded to fissile. Very weak, minor vegetation, fossil matter. Thin interbeds of claystone. Joint on face at N0E (N-S). 2 inch layer of dark gray chert.	Beds dip: N90E/38S	10/8/06	WTL
						Tsy	SILTSTONE: weak, gray, fine grained, tuffaceous ; thinly bedded; slightly weathered; with thinly interbedded claystone.	Beds dip: 38/180	10/8/06	BKR/EAK
						Tsy	Very low strength, moderately to highly weathered, white, friable, very thinly bedded to fissile, tuffaceous siltstone/claystone with 2-inch interbeds of chert bedding 80/38 strike/dip. Natural slopes at 26 to 30 degrees.	Beds dip: 080/38 strike/dip	11/15/06	WAH
MT2040	MN1	5471+94	163	48		QTp	Pediment Gravel tongue on alignment. West edge of pediment gravel formation. Cross-bedded Sandstone at lower 8 inches of slope. Sandstone is very weak (low strength) fine and fine to medium grained with scattered gravel lenses (alluvial). Well-bedded, slightly silty, sandy GRAVEL (conglomerate); sub rounded to sub angular clasts. 20 to 30 ft relief on fingers of QTp. (Sketch).	Not applicable	10/8/06	WTL
						QTp	0-15 feet bgs: Medium dense, tan, slightly silty, sandy GRAVEL (GP-GM); dry, pediment gravels 15-30 feet bgs: SANDSTONE:very low strength, tan, medium grained; bedded; slightly weathered	Beds dip: 25/040	10/8/06	BKR/EAK
MT2041	MN1	5653+76	41	49	"The Crater"	Qb	The Crater basalt flow on east side of breached cone, the only intact outcrop of basalt on flow; strong, dark gray, slightly vesicular, highly and randomly jointed BASALT. Probably vesicular and scoriaceous zones. No steeper than 1:1 slopes. greater than 1 ft of tan, fine sandy SILT to silty fine SAND over flow. Good source of ballast could be obtained from cut **** (4 stars). Depends on amount of weak, vesicular, scoriaceous zones.	Not measured	10/8/06	WTL
						Qb	BASALT: medium high to high strength, black, fine crystalline; massive; slightly weathered	Not measured	10/8/06	BKR/EAK
MT2042	MN1	5642+20	30	49		Qb	0-1 foot bgs: tan silty gravelly SAND (SM); dry OVER BASALT Cinders present on ground surface. (View of cinder cone "The Crater")	Not measured	10/8/06	BKR/EAK
MT2043	MN1	5881+50	-6	51	Silver Peak; Lithium Flats access road	Qp	Stiff, tan SILT (ML); dry to moist (Evaporation ponds at Lithium extraction mine)	Not applicable	10/8/06	BKR/EAK
MT2044	MN1	6622+20	-6	54	Start of walking reconn on alluvial fan	Qao	5 degree fan surface. Shaley float desert pavement.	Not applicable	10/8/06	WTL
						Qao	Medium dense, tan, slightly silty, gravelly SAND (SW-SM); dry	Not applicable	10/8/06	BKR/EAK
MT2045	MN1	6620+44	106	54		Qao	West side of dry wash cut 6 ft high. Silty, sandy, GRAVEL, angular. Good sub ballast prospect.	Not applicable	10/8/06	WTL
						Qao	Dense, tan, silty, sandy GRAVEL (GM); dry	Not applicable	10/8/06	BKR/EAK
MT2046	MN1	6606+36	-35	54	Harkless Formation on ridge just south of alignment.	CZs/Tt3	Quartzite, blocky, hard, angular, closely to moderately jointed. Cambrian sediments (meta). Eastward, Tertiary ash/pumice/tuff deposit laid in narrow valley.	Not measured	10/8/06	WTL
						CZs/Tt3	Contact between CZs and Tt3.	Not measured	10/8/06	BKR/EAK

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT2047	MN1	6592+02	-2	54	Dunlap Formation	CZs	(CZs) ridge. Cambrian SS, conglomerate and dolomite. Hard, closely jointed.	Not measured	10/8/06	WTL
						CZs	DOLOMITE: moderate to medium high strength, tan, medium crystalline; strongly cemented, massive, jointed; slightly weathered CONGLOMERATE: moderate strength, multi-colored, coarse grained; strongly cemented, crevase and vein filler within dolomite; slightly weathered	Not measured	10/8/06	BKR/EAK
MT2048	MN1	6590+75	0	54		CZs	Top of ridge outcrop of quartzite and conglomerate. Good joint set on quartzite. Phyllite, fissile medium strength in swale on hillside.	Not measured	10/8/06	WTL
						CZs	QUARTZITE: high strength, gray, coarse crystalline; massive, jointed; fresh PHYLLITE: weak, gray, medium grained; strongly cemented, jointed; slightly weathered	Quartzite joint sets: 74/170, 87/250, 27/135 Phyllite joint sets: 90/140, 90/180, 50/255	10/8/06	BKR/EAK
MT2049	MN1	6585+92	90	54		CZs	Deep ravine in rock approx. 50 ft deep, perpendicular to alignment. Instability in rock slopes; at unfavorable orientation for RR cuts. Harkless rocks dipping 20 degrees toward valley. N40E 20N Overall trend of layers. Contact (fault?) of the units. One has crushed zone 1 ft thick.	Beds dip: N40E/20N	10/8/06	WTL
						CZs	LIMESTONE: high strength, gray, fine crystalline, thinly bedded, jointeed; slightly weathered [Harkless Formation] LIMESTONE: high strength, gray, fine crystalline;massive; slightly weathered [Poleta Formation]	Harkless joint sets: 90/085, 90/020, 90/260 Harkless beds dip: 11/164	10/9/06	BKR/EAK
MT2050	MN1	6582+51	68	54		CZs	LIMESTONE: high strength, gray, fine crystalline;bedded, jointed; slightly weathered [Poleta Formation]	Joint sets: 90/235, 80/200, 90/260 Beds dip: 13/315	10/9/06	BKR/EAK
MT2051	MN1	6580+05	18	54		CZs	LIMESTONE: high strength, gray, fine crystalline;bedded, jointed; slightly weathered [Poleta Formation]	Joint sets: 78/230, 54/203	10/9/06	BKR/EAK
MT2052	MN1	6575+65	-74	54		CZs	LIMESTONE: high strength, gray, fine crystalline;bedded, jointed, calcite veining; slightly weathered [Poleta Formation]	Beds dip: 19/148	10/9/06	BKR/EAK
MT2053	MN1	6573+90	-48	54		CZs	LIMESTONE: high strength, gray, fine crystalline;bedded, jointed, calcite veining; slightly weathered [Poleta Formation]	Joint sets: 81/190, 90/263, 90/245	10/9/06	BKR/EAK
MT2054	MN1	6570+74	101	54		CZs	Sandy LIMESTONE: high strength, tan, fine grained, bedded (algal mats); slightly weathered (Poleta Formation) PHYLLITIC SILTSTONE: high strength, tan, fine to medium grained; massive; slightly weathered (Poleta Formation)	Limestone beds dip: 23/130	10/9/06	BKR/EAK
MT2055	MN1	6561+50	-359	54		CZs	LIMESTONE: high strength, gray, sine crystalline; massive; slightly weathered (Poleta Formation)	Not measured	10/9/06	BKR/EAK
MT2056	MN1	6552+19	40	54		CZs	LIMESTONE: high strength, gray, fine crystalline; bedded; slightly weathered (Poleta Formation)	Beds dip: 20/290 Joint sets: 90/195, 25/065	10/9/06	BKR/EAK
MT2057	MN1	6546+44	38	54		CZs	LIMESTONE (partially marbalized): high strength, gray, medium crystalline; massive; slightly weathered (Poleta Formation)	Not measured	10/9/06	BKR/EAK
MT2058	MN1	6412+38	44	53		Qao	Loose, tan, silty, gravelly SAND(SM); dry; slightly cemented	Not applicable	10/9/06	BKR/EAK
MT2059	MN2	5421+95	-795	36		Qe/Qc/Qp	Qe-Loose, tan, SAND(SW); dry Qc-Medium dense, brown, slightly silty SAND (SW-SM); moist Qp-Medium dense, tan, sandy SILT (ML); dry (old RR alignment washed out)	Not applicable	10/9/06	BKR/EAK
MT2060	MN1	7844+91	732	59		Qc	Medium dense, tan, silty, sandy GRAVEL (GM); moist; slightly cemented (3 inch cemented zone at 3 feet bgs)	Not applicable	10/10/06	BKR/EAK
MT2061	MN1	7857+31	-83	59		Qao	Medium dense, tan, slightly gravelly to gravelly, silty SAND (SM); dry; slightly cemented	Not applicable	10/10/06	BKR/EAK
MT2062	MN1	7881+99	-248	59		Qao	0-3.5 feet bgs: Medium dense, tan, slightly gravelly , silty SAND (SM); dry; slightly cemented 3.5-4.3 feet bgs: 10 inch layer of calcium cementation 4.3 feet bgs+: Medium dense, silty, sandy GRAVEL; dry	Not applicable	10/10/06	BKR/EAK
MT2063	MN1	7890+62	-66	59		Qao	0-6 feet bgs: Medium dense, tan, slightly gravelly , silty SAND (SM); dry; slightly cemented 6 feet bgs: 3-foot layer of calcium cementation	Not applicable	10/10/06	BKR/EAK
MT2064	MN1	7954+62	185	59		Qay	Medium dense to dense, tan, slightly gravelly, silty SAND (SP-SM); dry	Not applicable	10/10/06	BKR/EAK
MT2065	MN1	8008+27	75	60		Qay	Loose, tan, slightly gravlly, silty SAND (SM); dry	Not applicable	10/10/06	BKR/EAK
MT2066	MN1	8031+85	31	60		Qay	Loose, tan, gravelly, silty SAN (SM); dry; cobbles and boulders on surface (rock fall)	Not applicable	10/10/06	BKR/EAK

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MT2067	MN1	8043+58	-273	60		CZs	QUARTZITE: moderate strength, gray, medium grained; massive, jointed; slightly weathered	Joint sets: 82/234, 70/258	10/10/06	BKR/EAK
MT2068	MN1	8080+52	325	60		Cc	LIMESTONE: high strength, gray, fine to medium grained; bedded; slightly weathered (Mule Spring Formation)	Beds dip: 05/165	10/10/06	BKR/EAK
MT2069	MN1	8090+44	178	60		Cc	LIMESTONE: high strength, gray, fine to medium grained; bedded; slightly weathered (Emigrant Formation)	Beds dip: 20/140	10/10/06	BKR/EAK
MT2070	MN1	8121+93	183	60		CZs	SHALE: very weak, tan and green, fine grained; bedded; highly weathered (Harkless Formation)	Beds dip: 11/190	10/10/06	BKR/EAK
MT2071	MN1	8164+95	-44	60		Tt3	TUFF: high strength, tan, medium grained, cemented; massive; slightly weathered	Not measured	10/10/06	BKR/EAK
MT2072	MN1	8201+03	285	60		Qao	Medium dense, tan, gravelly, silty SAND (SM); dry; slightly cemented, beginning at 1.5 feet bgs	Not applicable	10/10/06	BKR/EAK
MT2073	MN1	8224+14	255	60		Qao	0-2.5 feet bgs: Dense, tan, silty sandy GRAVEL (GM); dry 2.5+ feet bgs: Dense, tan, silty SAND (SM); dry; cemented	Not applicable	10/10/06	BKR/EAK
MT2074	MN1	8253+42	-85	60		Qao	Dense, tan, silty SAND (SM); dry; cemented 5-8 feet bgs	Not applicable	10/10/06	BKR/EAK
MT2075	MN1	8275+88	217	60		CZs	LIMEY SANDSTONE: low to moderate strength, red-brown, medium grained, well cemented; bedded; contains fossils; slightly weathered; interbedded with red shale (Harkless Formation)	Beds dip: 15/165	10/10/06	BKR/EAK
MT2076	MN2	NA	NA	Plate 1		KJg	QUARTZ MONZONITE / GRANODIORITE: high to very high strength, pink, coarse crystalline; massive, jointed; fresh to slightly weathered (Lone Mountain Pluton)	Joint sets: 64/165, 44/251, 09/176	10/11/06	BKR/EAK
MT2077	MN2	NA	NA	Plate 1		KJg	GRANODIORITE / QUARTZ MONZONITE: medium high strength, light gray, coarse crystalline; massive, jointed; slightly weathered (Lone Mountain Pluton)	Joint sets: 60/184, 81/210	10/11/06	BKR/EAK
MT2078	MN3	NA	NA	Plate 1		Tb	BASALT: moderate to medium high strength, reddish black, fine crystalline; massive/ multiple flows, modertately vesicular (20-30%) in upper section, slightly cesicular (1-5%) in lower section, columnar jointing in upper flows; fresh to slightly weathered	Not measured	10/11/06	BKR/EAK
MT2079	MN3	NA	NA	Plate 1		Tb	BASALT: moderate to medium high strength, reddish-brown black, fine crystalline; massive/ multiple flows, jointed; slightly weathered; flows separated by very coarse Agglomerate	Not measured	10/11/06	BKR/EAK
MT2080	MN3	NA	NA	Plate 1	Flat-top Mountain	Ti	Outcrop viewed from Flattop Mountain, approx. 0.5 miles away and above outcrop. Inaccessible by vehicle as viewed from maps and roads. Road visible into outcrop but unable to find.	Not measured	10/11/06	BKR/EAK
MT2081	MN2	NA	NA	Plate 1		Tb	Outcrop inaccessible by vehicle within 0.3 miles. Road is tight with no real access for quarry.	Not measured	10/12/06	BKR/EAK
MT2082	MN1	6203+80	6	53		Qbf	Medium dense, tan, silty SAND (SM); dry; trace gravel, slightly cemented	Not applicable	10/12/06	BKR/EAK
MT2083	MN1	6231+33	103	53	Angel Island Wash	Tt3/Qao	Possible faulting	Not measured	10/12/06	BKR/EAK
MT2084	MN1	6236+10	635	53		Tt3	TUFF: weak, tan, fine grained with approx. 2-5% lappili, moderately cemented; bedded; slightly weathered; interbedded with CLAYSTONE: weak, tan, fine grained, slightly cemented; bedded; slightly weathered	Beds dip: 03/033	10/12/06	BKR/EAK
MT2085	MN1	6259+04	251	53		Tt3/Qao	Contact with Tt3 and Qao	Not measured	10/12/06	BKR/EAK
MT2086	MN1	7347+28	-51	57		Tt3	Continued Tt3 unit; see MT2084 description	Not measured	10/12/06	BKR/EAK
MT2088	MN1	7397+16	-79	57		Tt3	Continued Tt3 unit; see MT2084 description	Not measured	10/12/06	BKR/EAK
MT2089	MN1	8303+60	632	60		Tsy	TUFF: moderate strength, red, coarse grained, strongly welded; bedded; slightly weathered	Beds dip: 10/090	10/12/06	BKR/EAK
MT2090	MN1	8448+30	50	61		Tsy	TUFF: moderate to medium high strength, red to gray, fine grained; bedded; slightly weathered	Not applicable	10/12/06	BKR/EAK
MT3004	MN2	7498+47	-1989	45	North of Goldfield	Qao?	NDOT Pit ES04-08 approx. 2 1/2 miles north of Goldfield.	Not applicable	10/4/06	WTL
MT3007	MN2	NA	NA	Plate 1	Lone Mountain	Not determined	Airfall tuff to right and core of intrusion quartz monzonite to left.	Not measured	10/4/06	WTL
MT3012	MCS1	3690+09	609	29		Qao	Looks like asphalt crushing operation.	Not applicable	10/4/06	WTL
MT3015	MCS1	NA	NA	23	South of Luning	Not determined	Alignment on alluvial fan.	Not applicable	10/4/06	WTL
MT3017	S6	NA	NA	1	Wabuska Drainage ditch	Qbf	Water table at 5 ft [Sub ballast fill approx. 3 to 3.5 ft above silt and fine sand.]	Not applicable	10/6/06	WTL

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MT3018	S6	NA	NA	Plate 1	Desert Range	Tb	Thin caps of basalt over Ts, crummy sediments. Typical of thin basalt flow at high elevation	Not measured	10/6/06	WTL
MT3019	S6	NA	NA	Plate 1	Back side of Desert Range	Tb	Cap of basalt over sediments; follows topography and distant from alignment. Thin cap, except at highest elevation. Not good target due to lack of thickness and long distance and higher elevation (Clearer Peak).	Not measured	10/6/06	WTL
MT3020	S6	NA	NA	2	Start of Schurz bypass alternatives. Flat ground. MP49	Tsy/Tb	Fresh ballast approx. 3 ft above desert floor to North. [Mostly Tsy overlain by thin Tb.]	Not measured	10/6/06	WTL
MT3021	S6	NA	NA	Plate 1		Ta4	Andesite on north side of Walker River.	Not measured	10/6/06	WTL
MT3022	S4	10106+76	2	2	North abutment of Walker River crossing.	Tsy	Tertiary lacustrine beds on north side and south side. Dominance of claystone, but probably also contains layers of siltstone and fine sandstone.	Not applicable	10/6/06	WTL
MT3024	S3	NA	NA	5	Dam Quarry Site	KJg	***** (5 stars) [USBR quarry site; just outside tribal land. Used for riprap protection at Weber Dam.]	Not measured	10/6/06	WTL
MT3025	MCS1	NA	NA	Plate 1	East Hawthorne Basalt exposure; start of loop hike	Tb	Garfield Hills quarry site; big face approx. 60 to 80 ft high. Full-height of useful rock. Angular 6 to 8 inch fracture pattern.	Not measured	11/16/06	WTL
MT3025a	MN1	6703+44	412	54		Qay	Alluvial Fan, looking east at hills along alignment	Not applicable	11/16/06	WTL
MT3026	MN1	6711+61	-79	54		Qay	Exposure on west side of dry wash. 10 ft high; tan, gravelly silty SAND. 15-20% silt, 10-15% gravelly. CUT SECTION. Ridge and swale, relief approx. 5 to 20 ft. Amplitude of ridges approx. 100 ft-150 ft.	Not applicable	10/9/06	WTL
MT3027	MN1	6739+49	-51	54	Dry Wash (shows on map)	Qay	4.5 ft high west edge of dry wash. Silty, sandy to sandy, silty GRAVEL (angular clasts). Would need washing for sub ballast. Scattered cobbles, hard clasts. Dry washes only 3 to 5 ft deep and several hundred feet apart.	Not applicable	10/9/06	WTL
MT3028	MN1	6756+82	439	54	Old N-S road.	Qay	On Qay, hill to east to be cut into Harkless Formation. Note green color of Harkless. Ridges of Harkless have bright gray-green shale float. Starts approx. 400 ft south west of hill.	Not applicable	10/9/06	WTL
MT3029	MN1	6764+89	428	54	Edge of green slate hill (off alignment to right).	CZs	Green slate exposure (small exposure) N50E 30S fissile bedding joints N80W 80N (prominent) N12W 60N	Beds dip: N50E/30S Joints: N12W/60N	10/9/06	WTL
MT3030	MN1	6783+51	322	54		CZs	Slate outcrop; dipping south, same as surrounding rocks	Beds dip south	10/9/06	WTL
MT3031	MN1	6792+45	277	55		CZs	Change to thinly bedded sandstone (?), flat-lying almost, still green but more gray, beds 1/4- to 1/2-inch thick. Facies change to silty sandstone, green.	Not measured	10/9/06	WTL
MT3032	MN1	6793+96	93	55	Top of knoll	CZs	Exposure of slate dipping north (north limb of anticline?) Bedding N32W, W16 degrees. Joints N15E Vertical, N85W Vertical, N48W Vertical.	Beds dip: N32W/16W Joints: N15E/90, N85W/90, N48W/90	10/9/06	WTL
MT3033	MN1	6797+20	266	55		CZs	Contact between slate (green) and Quartzite (green, but weathers to red-brown).	Not measured	10/9/06	WTL
MT3034	MN1	6803+06	107	55		CZs	Quartzite outcrop in draw on alignment N5W@50E. Joints: N20E, 56N, N85W, 82S. High side hill fill! 26 degree side slope. Old 4X4 stake approx. 200 east of waypoint; no can, no markings.	Joints: N20E/56N, N85W/82S	10/9/06	WTL
MT3035	MN1	6809+53	30	55		CZs	Quartzite; very brittle	Not measured	10/9/06	WTL
MT3036	MN1	6810+49	-33	55		CZs	Granite intrusion on ridge. Narrow quartz monzonite outcrop (approx. 150 ft wide). Narrow outcrop of Quartz Monzonite looking north at it. Adit in a ridge approx. 1,500 ft to north. Outcrop oriented N15E. Quartzite could be hornfels; very brittle.	Not measured	10/9/06	WTL
MT3037	MN1	6813+84	-196	55		KJg	Quartz monzonite ridge approx. 400 ft wide, oriented N5E. 6 ft deep prospect trench 40 ft long and 18 ft wide dug about 200 ft left of alignment. No stakes, no signs of activity.	Not measured	10/9/06	WTL
MT3038	MN1	6825+98	-212	55		KJg	Granodiorite/Granite outcrop at sharp bend in alignment. Knob approx. 80 ft high. Hard, gray, widely jointed (2 to 6 ft) granodiorite, spheriodally rounded outcrops. Easy to attack hillside. Two old plastic claim markers in swale between KJg and CZs; no can and no signs of activity.	Not measured	10/9/06	WTL
MT3039	MN1	6852+33	1177	55		Qay	On fan. Small test pit in side of dry wash. Gravelly, fine sandy SILT, 4 degree fan surface.	Not applicable	10/9/06	WTL
MT3040	MN3	766+49	520	55		Qay	On edge of dry wash 2 ft high. Test hole with slightly sandy, angular to sub angular GRAVEL, trace silt. Beautiful sub ballast and embankment. Fan surface broken by few dry washes and mostly only 2 to 6 ft deep. Two 10 ft deep.	Not applicable	10/9/06	WTL

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MT3041	MN1	6895+54	23	55	Dry Wash Channel (on map).	Qay	Test hole on north side of wash slightly silty, sandy GRAVEL. Test hole in south side of wash Silty, fine to coarse SAND, trace gravel.	Not applicable	10/9/06	WTL
MT3043	MN1	6932+80	307	54		Qay	Test hole in south side of dry wash approx. 2 ft deep. Brown, slightly silty, sandy GRAVEL, angular to subangular.	Not applicable	10/9/06	WTL
MT3044	MN1	6965+50	658	54		Qay	10 ft bank cut into south side of dry wash slightly silty to silty, gravelly SAND.	Not applicable	10/9/06	WTL
MT3045	MN1	7061+31	129	56	Fan west of Montezuma Range	Qao	8 to 9 ft cut bank in wash on RR alignment. Slightly silty, sandy GRAVEL. Upper 12 to 15 inches is rich in calcrete; weak caliche zone and not continuous.	Not applicable	10/9/06	WTL
MT3046	MN1	7223+10	4	57		Qao	Channel approx. 15 to 18 ft deep (proposed fill). Slightly silty sandy GRAVEL. Dense, old dissected fan, trace angular cobbles. Dry washes 50 to 100 ft wide.	Not applicable	10/9/06	WTL
MT3047	MN1	7264+54	29	57		Qao	Topography on old fan dissected, but rounded off. Test hole on north side of dry wash in silty, gravelly SAND, approx. 10% chunks of calcium carbonate. Relief approx. 15 to 20 ft. Interfluves narrow (5 to 10 ft) between washes. Old fan.	Not applicable	10/10/06	WTL
MT3048	MN1	7313+73	-521	57		Tt3	White, tuff, weak, bedded with fine to coarse sand and pumice fragments. Ash (tuff) outcrop, tuff with gravel (fan) a few feet thick overlying.	Not measured	10/10/06	WTL
MT3049	MN1	7304+39	143	57		Tt3	Well-bedded, ash flow deposit. Layers range from friable pumice and gravel in weak ash matrix to welded tuff layers. Gray. N45W 45S. South-dipping outcrop of welded tuff (typical of area). Looking west from just north of MT3049, ridges on both sides of dry wash are cored by tuff. Veneer of sand and gravel alluvium over tops of ridges. 8 to 10 ft sand and gravel over tuff.	Beds: N45W/45S	10/10/06	WTL
MT3050	MN1	7299+16	-207	57		Tt3	Ridge with welded tuff, gray, most of bulk of rock is platy chunks of limestone 1/4 to 2inches diameter that was incorporated into tuff. Matrix is buff, vesicular tuff. Weak to medium in strength. A small outcrop of welded tuff with limestone chunks (Tuff Breccia). Breccia is localized, back into friable tuff to west, along ridge.	Not measured	10/10/06	WTL
MT3051	MN1	7293+28	532	57		Tt3	Large (60 ft high) outcrop of light gray, weak (locally friable) TUFF. Non-uniform jointing. 3 inches to 2 ft. Local 1 to 2 ft caves and small vugs.	Not measured	10/10/06	WTL
MT3052	MN1	7290+15	116	57		Tt3	Large outcrop on north side of ridge. Tuff, white to buff, very weak, fine grained jointed 3 to 18 inches relatively massive. Northern most outcrop of tuff/tuff breccia. North of this ridge is old fan alluvium. Approx. 6 old plastic pipe claim stakes, on the tuff ridges. none with info or signs of activity. Highly variable strength of tuff; from very weak and friable to medium strength (where welded).	Not measured	10/10/06	WTL
MT3053	MN1	7327+11	-11	57		Tt3	Pass at south end of Montezuma Range; high point. Elevation 6,521 ft benchmark. Mining activity on slope to north of pass.	Not measured	10/10/06	WTL
MT3054	MN1	7332+27	358	57		Tvr	South slope of pass. Unknown metamorphic approx. 1/2 way up hill. Probably zd unit. Overlying Rhyolite unit at top of hill on south side of pass. Dark gray to black, very closely to closely jointed (2 to 6 inches), medium to moderate strength, banded, crumble zones, small cavities (limestone/marble?). Shatters when struck.	Bedding approx. horizontal.	10/10/06	WTL
MT5004	MN1	NA	NA	59		Fill	Old RR fill with bridge out, west of US95	Not applicable	11/14/06	WAH/WTL
MT5005	MN2	7437+48	-2140	45	Old Railroad grade east of US-95	Fill	Old Railroad grade east of US-95, 8 to 10 ft high, 32 degrees. Silty gravelly SAND, (tuff & altered rock: old mine spoils?), local fill, crest 14 ft wide. Existing railroad embank 32 degree slopes on embankment (old railroad embankment next to highway. Embankment material is dense, tan silty gravelly SAND, dry. Embankment material includes angular cobble size tuff slightly to moderately altered.	Not applicable	11/14/06	WAH/WTL
MT5007	MN1	NA	NA	Plate 1	Top south Malpais Mesa	Qb	Porphyritic andesite, medium size plagioclase surface outcrop has 6- to 24-inches-wide joint spacing, lichen covered, very strong. High strength, slightly weathered to fresh (1 to 2 ft joint spacing) porphyritic andesite some feldspar phenocrysts are weathered.	Not measured	11/14/06	WAH/WTL
MT5008	MN2	6963+95	-128	42	Klondike Siding N & E of Alkali Flat. Crossing of existing road and old railroad grade & new railroad grade.	Qao	Crossing of existing road and old railroad grade & new railroad grade. 1 to 2 ft fill at Klondike siding site.	Not applicable	11/14/06	WAH/WTL

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MT5010	MN1	6590+47	-183	54	Clayton Ridge	CZs	Clayton Ridge cut; Dolomite dipping NE, N75W 20N, rough surface. Outcrop of med-high to high strength, slightly. Weathered, 1 to 2 ft bedding thickness (rough and undulating), 20 to 30 ft persistence Dolomite (CZs) bedding N75W, 20N (strike/dip) one joint is N28E/90 10 to 20 ft persistence. 4 to 5 ft spacing rough/undulating 3rd joint N75W, 80S rough/planar 1 to 2 ft spacing, persistent for 730 feet. Bedding is dip direction is nearly parallel to.	Beds dip: N75W/20N Joints: N28E/90, N75W/80S	11/14/06	WAH/WTL
MT5011	MN1	6586+20	-107	54		CZs	Plane of Dolomite (high strength, slightly. Weathered thickly bedded (2 to 3 ft) Dolomite bedding (compositional weathering) is rough/planar to undulating, persistence greater than or equal to 70 ft orientation N75E, 18N. No accumulation of rockfall debris below this and similar areas. Evidence suggests that sliding of debris is a weathering phenomena (i.e. rock blocks break off from down slope faces and eventually break down to gravel size material. øj of bedding greater than or equal to 35 degrees	Beds dip: N75E/18N	11/14/06	WAH
						CZs	Big slab failure in Cambria Limestone/Dolomite N75E, 18N. Rough sliding surface, undulating contact between failing, overlying rock and underlying in-situ is tight. Medium high to high strength, fresh to slightly weathered thinly bedded (less than 1/4 inch) closely jointed (less than 12 inches), Slate (CZs).	Beds dip: N75E/18N	11/14/06	WTL
MT5014	MN1	5699+24	-2131	50		Qmw	White silt, thickly bedded, parallel to fan, underlain by alluvial fan silty sandy GRAVEL 5 degree slope. Overlain by fine to medium gravel, at lower elevation of fan. Sluiced mine tailings - previously mapped as aeolian deposits, medium dense, white, silt planar bedding inclined at approx. 5 degrees; No crossbedding. Overlying (infrequently interbedded) silty sandy GRAVEL/silty gravelly SAND; dry (Qao) silt deposit is approx. 1 ft thick. Re-evaluated and found to be sluiced mine waste.	Not applicable	11/14/06	WAH/WTL
MT5015	MN1	5647+26	0	49		Qmw	Top of flow is strewn with coarse gravel, cobble, to smaller boulder size ballast ejecta bombs of various characteristics, and pumice / scoria material. Although not exposed, a more intact ballast flow may…	Not applicable	11/14/06	WAH/WTL
MT5016	MN1	5752+23	-580	50		Qmw	Lake bed area dissected, flat lying, conformable with underlying alluvial fan possible quarter ….. From pluvial lake. Medium dense, silty fine SAND Quaternary lake bed deposits, Horizontally bedded previously mapped as QE but likely Q1. Re-evaluated and found to be sluiced mine waste.	Not applicable	11/14/06	WAH/WTL
MT5017	MN2	NA	NA	36	NDOT pit ES 02-11	Qao	NDOT pit ES 02-11 Pit reclaimed after paving operation. 2:1 slopes, partly knocked down and partly filled with screening left-overs.	Not applicable	11/15/06	WAH/WTL
MT5018	MN2	NA	NA	35		Not determined	Looking East - note contact between moraine-like fan deposits and gently sloping fan deposits below. Active gullying observed.	Not applicable	11/15/06	WAH/WTL
MT5020	MCS1	NA	NA	Plate 1	Gabbs Range quarry NE of Luning.	KJg	High strength, slightly to moderately weathered, closely jointed, (1 to 3 ft spacing) coarse grained quartz monzonite; plagioclase feldspars are weathering.	Not measured	11/15/06	WAH/WTL
MT5021	MCS1	4520+81	21	33		Ql	Point on the alignment in a cut. The rock is described as medium to high strength, slightly to highly weathered light pink, crystal welded tuff; numerous coarse sand size glass fragments, outcrop weathers to gravelly sand/sandy gravel with platy gravel size fragments of tuff. Weathered slope inclination is 25 degrees.	Not applicable	11/15/06	WAH
						Tsv	Mapped by Albers and Stewart as Ts2 ("sedimentary unit 2 - Tuffaceous shale and sandstone 12.7 million years).	Not measured	11/15/06	WTL
MT5022	MCS1	4516+74	28	33	Coaldale cut	Ql	At Hawthorne near beginning of project material is ancestral Walker Lake deposits. Medium dense, tan silty sand with interbeds of SILT. Horizontally bedded. Existing railroad embankment inclined at 22 to 24 degrees. View of town of Walker Lake, town is built on an alluvial fan - debris flow hazards.	Not measured	11/16/06	WAH
MT5022a	MCS1	4520+13	400	33		Tsv	Top of hill for Coaldale cut (metal stake at top). Layers of all grain sizes, from silt (shaley) to boulders (conglomerate), but all matrix is tuff.	Not measured	11/16/06	WTL

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MT5023	S3	10611+53	2705	7		Qe	Loose brown silty fine to medium SAND; Qe dune deposits cut slope in road is approx. 4 ft high and inclined at approx. 22 degrees.	Beds dip: N45E/10N	11/16/06	WAH
						Qbf	Road cut, very weakly lithified, gravelly SAND, silty gravelly SAND, silty SAND N45E, 10N = 220 degrees/10 degrees, Slope 28 degrees. N60E, 35N 35-40 degree slope. In channel cut slope approx. 100 ft east of first strike/dip. Soil is loose to very dense, depending on cementation. Schurz Bypass route area. Sand dune cut at 22 degrees, loose, brown, silty fine to medium SAND.	Beds dip: N45E/10N	11/16/06	WTL
MT5024	S2	10729+82	3225	5		Tsy	Dense light brown, medium-grained SAND with 1/4 interbeds of plastic clay. Beds of similar material dips to SW at 10 degrees. Lacustrine beds of quaternary age.	Not applicable	11/16/06	WAH
						Tsy	Lacustrine beds (Tertiary) composed of interbedded clean fine sand and plastic silty clay: med dense.	Not applicable	11/16/06	WTL
MT5025	S2	10715+09	2898	5	Webber Dam	Tsy	Crest of Weber Dam looking at a thick interbedded sequence of pink, green, and brown, dense, silty gravelly SAND, silty sand, and sandy gravel, may be caped with Lacustrine deposits observed at MT5024.	Not applicable	11/16/06	WAH
						Tsy	Photo stop from top of Weber Dam Looking east. Interbedded sand and silt beds with gravel and gravelly layers… bordinate. Upper 10 to 15 ft is Pleistocene/Quaternary lacustrine deposit.	Not applicable	11/16/06	WTL
MT5026	S2	10700+67	2070	5		Tsy	Hard, light gray to white, brown one horizon, clay (CH) (fluvial) high plasticity and dense brown silty fine SAND with small gravel clay clasts. Drawing - Road to 10 ft Hard, light gray CLAY high plasticity, 15 ft Dense, brown, silty, fine SAND with clay nodules, then an angular gravel layer, 10 ft Hard, light gray CLAY, high plasticity, top -cross bedded sand to gravel, dense brown fine gravelly, fine to med SAND.	Not applicable	11/16/06	WAH
						Tsy	Lacustrine beds east of Weber Dam. 10 ft fine gravelly, brown, fine to coarse sand; cross bedded (alluvium). 15 ft light gray, silty CLAY, trace fine sand very plastic. (swelling) montmorillonite? Brown soil horizon approx. 1 ft thick, patchy. 1 to 12 inches gravelly layer (angular). 20 ft clay, silt and fine sand; interbedded. All desiccated at surface. Lower 35 ft is lacustrine.	Not applicable	11/16/06	WTL
MT5027	S6	10078+37	-4630	2	Approx. 1 mile west of bridge over Walker River	Tb	Basalt/andesite flow over the Tertiary lake beds about a mile west of bridge abutment. Shows the relationship of basalt and lake sediments and confirms hypothesis (1) at MT1018.	Not applicable	11/16/06	WAH/WTL
MT5028	S6	NA	NA	Plate 1		Tsy	Thrust fault and angular unconformity in Tertiary lake bed (lacustrine) deposits; approx. 15 degree angle of fault.	Thrust fault inclined at ~15 degrees	11/16/06	WAH/WTL
MT7001	MN1	8280+39	1383	60	NDOT Pit ES 03-08	Qao	Old abandoned gravel pit/quarry.	Not applicable	2/18/07	WTL/SAS
MT7002	MN1	7503+42	1289	58		Tt3	Top of welded tuff, 3-4%, Knob ~500' south of alignment, all ground around is light colored tuffaceous rock.	Not measured	2/18/07	WTL/SAS
MT7003	MN1	7501+60	525	58		Tt3	Eastern edge of Tt3. Buff/pink (unweathered), weak TUFF, 1/8" - 1/2 " vugs, sand to gravel size pumice fragments, scattered glass fragments thoughout in 6' high outcrop. Rounded pebbles in matrix. Contact with Qao runs straight north along drainage.	Random joints 2" - 8" wide.	2/18/07	WTL/SAS
MT7004	MN1	7510+91	-5	58		Tt3/Qao	Tt3/Qao contact. Qao tongue to west; Tt3 to east. Tuff breccia. Very shallow swale at waypoint, but more outcrop exposure to east	Not measured	2/18/07	WTL/SAS
MT7005	MN1	7531+89	4	58		Tt3	Far east edge of Tt3. Outcropping tuff all along edge of dry wash. Change in topography obvious east and west of this point. Contact follows NW wash. All ground to east is Qao.	Not measured	2/18/07	WTL/SAS
MT7006	MN1	7679+04	37	58		Qao	On alignment; 3-4% S to N, relatively undissected fan (Qao). Gravelly, silty SAND.	Not applicable	2/19/07	WTL/SAS
MT7007	MN2	7368+23	-3496	45	NDOT Pit ES 04-01, east side of US 95, north of Goldfield.	Qao	Excavation ~10' - 12' deep, 400' - 500' in plan view with stockpile. Brown, slighly silty, gravelly, f-c SAND, trace clay, trace cobbles.	Not applicable	2/19/07	WTL/SAS
MT7008	MN2	7402+40	756	45	Silver Peak Road near US 95. "Notice of Intent" area.	Qao	Level ground in Qao, no signs of mining claim markers or ground disturbance.	Not applicable	2/19/07	WTL/SAS
MT7009	MN3	421+15	66	44	Silver Peak Road Crossing MN3.	Qao	Higher fan surface than to the east. Fan to east is unbroken; higher fan is dissected. Brown, sl. silty, gravelly SAND. 12 degree cut slopes in road.	Not applicable	2/19/07	WTL/SAS

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MT7010	MN3	418+43	-2834	44	NDOT Pit ES 04-09, ~1/4 mile west of Silver Peak Road	Qao	Not used much. Drifted into side of higher fan deposit. Brown, slightly silty to silty, gravelly SAND, scattered cobbles. ~ 1/4 of clasts are caliche crusted.	Not applicable	2/19/07	WTL/SAS
MT7011	MN3	396+68	-532	44		Tt3	Large knob in middle of Alkali Flats. Bedrock knob. Moderately hard (strong), pink, welded TUFF, 1/16" - 1/8" glass frags. ~40' - 50' high knob. Should be able to discern on colored aerial photos.	Not measured	2/19/07	WTL/SAS
MT7012	MN3	493+69	-22	55		Qao	Intersection of alignment MN3 and power line; on Qao	Not applicable	2/19/07	WTL/SAS
MT7013	MN3	490+83	-121	55		Qao	Edge of dry wash. Red-brown slightly silty, sandy fine GRAVEL, trace clay, scattered cobbles. Calichefied zones, many of the clasts have carbonate crust.	Not applicable	2/19/07	WTL/SAS
MT7014	MN3	485+01	-86	55		Qao	Dry wash with 5' - 6' channel deposit and 5' side slopes ~50' wide. Qao test pit in west bank. Red-brown and white, slighly silty, gravelly SAND, caliche covered clasts.	Not applicable	2/19/07	WTL/SAS
MT7015	MN3	505+50	-3	55		Qao	Dry wash with ephemeral channel. 2 - 3%. Side slope ~2' - 3' high. Wash 20' - 30' wide and active channel 3' - 12' wide. Slighly silty, sandy GRAVEL. Very dense from calcium carbonate. Clasts are mostly coated with calcium carbonate.	Not applicable	2/19/07	WTL/SAS
MT7016	MN3	515+01	-79	55		Qc	Channel deposit (Qc), 15' - 18' wide, 2' side slopes. Sandy gravel in channel.	Not applicable	2/19/07	WTL/SAS
MT7017	MN3	537+53	73	55		Qao	Western edge of very wide dry wash (channel at eastern edge). 3' - 4' high side slope. Brown, slightly silty, gravelly SAND, most clasts have carbonate coatings. Very dense from calcium carbonate.	Not applicable	2/19/07	WTL/SAS
MT7020	MN3	728+22	145	55	North Clayton Quarry	KJg/Qao	SE edge of granite outcrop at KJg/Qao contact.	Not measured	2/19/07	WTL/SAS
MT7021	MN3	727+15	107	55		KJg/Qao	KJg/Qao contact, ~ 30' east of sloping part of pluton. Direction of sub crop unknown, but a slight knob to north.	Not measured	2/19/07	WTL/SAS
MT7022	MN3	732+15	293	55		KJg/Qc/Qao	KJg/Qc/Qao contact. Old prospect excavation at base of hill.	Not measured	2/19/07	WTL/SAS
MT7023	MN3	722+49	59	55		KJg/Qao	KJg/Qao contact based on float.	Not measured	2/19/07	WTL/SAS
MT7024	MN3	719+13	181	55		KJg/Qao	East edge of KJg/Qao contact; then heads north along drainage swale.	Not measured	2/19/07	WTL/SAS
MT7027	MN3	427+47	568	44	Just north of Silver Peak Road	Tt3	Outcrop of Siebert Tuff in dry wash. Somewhat welded, medium strong. Adjacent ridges 10' - 15' high are fan deposits over tuff.	Jointed NW 3' - 4' wide, SW 1' - 2' wide	2/19/07	WTL/SAS
MT7028	MN2	NA	NA	42	Alkali Flats, on Tonopah-Silver Peak Road.	Qp	Ruts in playa deposit in Alkali Flats. Shows susceptiblilty to moisture of fine grained playa deposits.	Not applicable	2/20/07	WTL/SAS
MT7030	MN3	706+91	-35	55		Qao	Top of ridge of Qao. Relief 30' - 40' from drainages to top of linear ridges. 6-8% up fan.	Not applicable	2/20/07	WTL/SAS
MT7031	MN3	704+49	-186	55		Tt3	Dry wash with small TUFF (100ft2) exposure. Friable, very weak, overlain by fan alluvium.	Not measured	2/20/07	WTL/SAS
MT7032	MN3	683+33	22	55		Qao	Small dry wash ~6' deep. Qao, Brown, slightly silty, gravelly SAND, scattered cobbles (angular - sub-angular) ~1/4 of clasts are tuff. Clasts are mostly tuffs.	Not applicable	2/20/07	WTL/SAS
MT7033	MN3	669+99	157	55		KJg	Granite outcrop. GRANITE: Gray, strong (high strength, 25 - 30k psi), medium-grained, moderately weathered, 20 - 30% quartz, 10 - 15% mafics. Rounded boulders in outcrop.	1' - 3' wide joints: N70W 70S; N20E vert; N50E 15S.	2/20/07	WTL/SAS
MT7034	MN3	670+98	334	55		KJg	NW corner of granite outcrop; milky quartz vein on west side of dry wash.	Not measured	2/20/07	WTL/SAS
MT7035	MN3	670+26	-319	55		KJg	SW corner of granite area. Granite boulders continue from fan area into mountain foothills, which are granite, based on rounded outcrops. Ground surface at waypoint has no outcrop, but has only granite float and boulders.	Not measured	2/20/07	WTL/SAS
MT7036	MN3	650+34	-32	55		KJg/Qao	Granite subcrop at shallow depth (?) with small outcrops poking through. Scattered rounded granite boulders on surface. Very few and shallow drainages. Grus surface of clean to slighly silty f-m SAND, trace gravel, scattered cobbles. Metamorphics (float) in dry wash complex to east.	Not measured	2/20/07	WTL/SAS
MT7037	MN3	634+35	-127	55		KJg	Metamorphic/Granite contact. Back into level fan with numerous granite boulders, some agglomerations which could be shallow granite subcrop.	Not measured	2/20/07	WTL/SAS
MT7038	MN3	622+08	-410	55		Tt3	Airfall tuff with pumice fragments, medium size ~ 1/4". Ash matrix. Soft outcrop (slighly to moderately weathered). In dry wash, surrounded by Qao.	Not measured	2/20/07	WTL/SAS
MT7039	MN3	600+70	-491	55		Tt3	Northern toe of Tuff hill. Qao to north. Light gray, moderately strong, welded TUFF, trace mafics.	Joints: N25W, vert; N50E, 78 - 80 S. Bedding: N55E, 20-25 N.	2/20/07	WTL/SAS
MT7040	MN3	600+04	-695	55		Tt3	On welded Tuff knob. Tt3 outcrop.	Not measured	2/20/07	WTL/SAS

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MT7041	MN3	596+03	-17	55		Qao	Qao, shallow (3') dry wash. Brown gravelly SAND, tr. silt, scattered cobbles. Moist in upper 1', dry below.	Not applicable	2/20/07	WTL/SAS
MT7043	MN2	4826+53	105	34	NDOT Pit ES 2-06	Qao	Pit is 2' - 4' deep.	Not applicable	2/20/07	WTL/SAS
MT7044	MCS1	4273+21	1610	32	NDOT Pit ES 05-02	Qao	15' - 20' deep; 300' X 100', recently worked. VERY GOOD.	Not applicable	2/20/07	WTL/SAS
MT7045	MCS1	NA	NA	30		Not determined	Borrow pit (community?) ~30' deep, 50' wide, 200' long. Vertical face on west and east. Also used for water storage. Horizontally bedded sandy gravel and gravelly sand with silt beds ~ every 5'.	Horizontally bedded	2/20/07	WTL/SAS
MT7046	MCS1	NA	NA	Plate 1	NDOT Pit MI 01-03	Not determined	Very large area, shallow depth (5' - 6'); 1000' X 500'.	Not applicable	2/20/07	WTL/SAS
MT7047	MCS1	NA	NA	25	NDOT Pit MI 01-04	Not determined	50' wide, 200' long, ~ 6' - 7' deep. Just south of Mina. Marginal/Mixed.	Not applicable	2/20/07	WTL/SAS
MT7048	MCS1	NA	NA	24	NDOT Pit MI 01-06A	Not determined	Good; 300' X 1000' big pit, multiple working areas, many stockpiles.	Not applicable	2/20/07	WTL/SAS
MT7049	MCS1	NA	NA	23	NDOT Pit MI 01-08	Not determined	Good; 100' X 150', 6' - 12' deep. West of Hwy; south of Luning.	Not applicable	2/20/07	WTL/SAS
MT7050	MCS1	NA	NA	22	NDOT Pit MI 01-09	Not determined	Good; 300' X 200', 6' - 15' deep.	Not applicable	2/21/07	WTL/SAS
MT7051	S6	11043+50	-1942	12	NDOT Pit CH 08-04	Not determined	Disturbed area east of US 95 and ~20' below highway, north of Terrill Mtn Road. Disturbed area ~600' X 200'. Active excavation ~30' X 60'. Random, small stockpiles.	Not applicable	2/21/07	WTL/SAS
MT7052	S6	10235+74	1814	10		Tsy	East of corral; and off 2-track trail; west edge of narrow channel. Clean, sandy GRAVEL.	Not applicable	2/21/07	WTL/SAS
MT7053	S5	10212+35	1748	10		Tsy	Level ground, very scattered cobbles and boulders. Brown, silty, fine SAND.	Not applicable	2/21/07	WTL/SAS
MT7054	S5	10194+37	1206	10		Tsy	Level to south, 5% - 8% up fan. On dirt road. Bedrock (?) outcrop.	Not applicable	2/21/07	WTL/SAS
MT7055	S5	10196+97	613	10		Tsy	Tsy @ 22 degrees on remnant Tertiary hill, capped by basalt/basalt float (?). 1' laminated silty fine SAND and fine sandy SILT over clean f-c SAND. Basalt float-covered Tsy. Flat ground, fan (5% - 8%) and slope (40%) are all slope variants of Tsy.	Not measured	2/21/07	WTL/SAS
MT7056	S6	10882+34	-430	12		Ta4/Qao	Contact between Ta4 and small Qao from small valley.	Not measured	2/22/07	WTL/SAS
MT7057	S6	10880+14	-352	12		Ta4	Contact at toe of andesite flow with 18 degree slope.	Not measured	2/22/07	WTL/SAS
MT7058	S6	10876+87	-388	12		Ta4	Contact at base of andesite flow; 23 degree slope.	Not measured	2/22/07	WTL/SAS
MT7059	S6	10895+55	-870	12		Qc	Channel of Qc. Road in channel side slope on south ~15.	Not applicable	2/22/07	WTL/SAS
MT7060	S6	11035+06	-1961	11		Qay	Qay alluvial fan, silty fine SAND, fine sandy SILT, locally clayey with patches of basalt float	Not applicable	2/22/07	WTL/SAS
MT7061	S6	11031+39	-1463	12		Qc	Qc channel - gravelly, fine-coarse SAND. Anastomosing channels in 75' - 100' wide channel area: cut down into debris flow fan (Qay).	Not applicable	2/22/07	WTL/SAS
MT7062	S6	11029+59	-1392	12		Tsy	Horizontally bedded silty fine SAND and fine sandy SILT, some layers rich with 1/4" Ø snail shells (white), buff colored deposit. Debris flow potential from valley to west. Covers fine grained Tsy.	Horizontally bedded	2/22/07	WTL/SAS
MT7063	S6	11021+88	-1140	12		Qay	Qay debris flow, brown, clayey, silty, sandy GRAVEL, with cobbles and boulders (1' - 4' on top of flow). Channel 6' - 8' deep incised into fan. Channel 8' - 12' wide gravelly f-c SAND in bottom.	Not applicable	2/22/07	WTL/SAS
MT7064	S6	11016+20	-1015	12		Qay	Base of sand hill. Contact beween Qay and Qay2 (older, but not too old) higher terrace alluvium.	Not applicable	2/22/07	WTL/SAS
MT7065	S6	11010+07	-1024	12		Qay	Top of high sand hill (higher terrace alluvium, Qay2). Clean, f-m SAND, scattered rounded gravel.	Not applicable	2/22/07	WTL/SAS
MT7066	S6	11012+38	-1456	12		Ta4	Ta4 at base of slope overlain by Qay. Qc on channel to south.	Not measured	2/22/07	WTL/SAS
MT7067	S6	11020+09	-1428	12		Ta4/Qay	Debris flow contact.	Not measured	2/22/07	WTL/SAS
MT7068	MCS1	NA	NA	18	~300' SE of intersection of UPRR and Thorne Rd.	Ql/Qay	2% gradient south to north. Ø gradient on alignment. Pea gravel lag @ surface. Slightly fine gravelly, silty, fine SAND/fine sandy SILT (Ql); scattered gravel float.	Not applicable	2/23/07	WTL/SAS
MT7069	MCS1	NA	NA	18		Ql/Qay	6' - 8' wide channel in Ql. Gravelly, silty fine SAND. Ground surface rise abruptly to NW in linear fashion immediately adjacent to channel.	Not applicable	2/23/07	WTL/SAS
MT7070	MCS1	NA	NA	18	~150 NW of road	Qay	Qay: 2% upfan, Ø% on alignment. Desert pavement comprised of 1/4" - 1 1/2" angular gravel. Light brown, slightly silty, sandy GRAVEL (angular), tr. cobbles.	Not applicable	2/23/07	WTL/SAS

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MT7071	MCS1	NA	NA	18		Qay/Ql	5-1/2' incision into fan deposit: 0 - 3' sandy angular GRAVEL with cobbles (Qay); 3' - 4.5' laminated silty, fine SAND, fine sandy SILT and SILT (Ql); 4.5' - 4.8' gravel/cobble (Qay); 4.8' - 5.5' laminated silty fine SAND and SILT layers (Ql), most white silt layers are level. Ql layers pinch out ~30' upchannel and spotty down channel (channel ~3' wide). Interbedded Ql and Qay.	Not applicable	2/23/07	WTL/SAS
MT7072	MCS1	NA	NA	18		Qay/Ql	10' deep, 3' - 5' wide (at bottom) channel, 22 - 24 degree side slopes. 0' - 4' Qay, sandy, angular gravel. 4' - 10' Ql silty to slightly silty fine and fine-medium SAND, laminated, v. loose surface layer is denser due to dessication, but very runny when the cap is broken. No cohesion. Lesson: Do not break surface layer of Qay, because underlying sand is so loose and cohesionless.	Not applicable	2/23/07	WTL/SAS
MT7073	MCS1	NA	NA	18		Qay/Ql	Qay/Ql surface. 3% upfan; 1% on alignment, up to NW. Light brown, slightly silty, gravelly, fine SAND; scattered cobbles. Moderate desert pavement.	Not applicable	2/23/07	WTL/SAS
MT7074	MCS1	NA	NA	18		Qay/Ql	Channel 12' - 14' wide incised into Qay. South side slope. 0 - 0.7' sandy, f-c GRAVEL (Qay), angular to subangular tr cobbles. 0.7' - 1.6' horizontally bedded, brown, sl. silty f-m SAND (Ql). 1.6' - 3' sandy, f-c GRAVEL, tr. cobbles (Qay).	Not applicable	2/23/07	WTL/SAS
MT7075	MCS1	NA	NA	18		Qay	Small pile from 3' deep excavation. Gravelly SAND, tr. silt. Qay between UPRR tracks and road. Excellent subballast.	Not applicable	2/23/07	WTL/SAS
MT7076	MCS1	NA	NA	18		Qay/Ql	12' wide incised channel into Qay/Ql deposit. Log of SSE bank: 0 - 0.8' sl. silty, gravelly SAND (Qay). 0.8' - 1.6' sl. silty, f-m SAND (Ql). 1.6' - 1.8' sandy, fine GRAVEL (Qay). 1.8' - 2.8' bedded, sl. silty, fine SAND, and SILT layers (Ql). 2.8' - 4.5' sandy, f-c GRAVEL, tr. cobbles (angular to subangular), Qay. 4.5' - 5' laminated silty, fine SAND and fine sandy SILT with silt lenses (Ql).	Not applicable	2/23/07	WTL/SAS
MT7077	MCS1	NA	NA	18		Qay/Ql	Old borrow pit in Qay/Ql, 8' - 14' deep, excavated over broad area (100' X 200'). Shows interbedded and cut-and-fill relationship between Ql and Qay. Face logged in NW corner of pit: 0 - 0.5' silty sandy GRAVEL with lag. 0.5' - 6.5' stratified slightly silty fine SAND, sl. silty f-m SAND, SILT with 2 ea. 1/2" - 3/4" thick CaCO3 zones. Beds 1/8" - 6" thick (mostly 1/8" - 1/4"). 6.5' - 6.7' sandy GRAVEL.	Not applicable	2/23/07	WTL/SAS
MT7078	MCS1	NA	NA	18		Qay	Test trench ~10' X 100' X 3' deep. Probably for gravel exploration. Qay: gravelly SAND, max size ~10".	Not applicable	2/23/07	WTL/SAS
MT7079	MCS1	NA	NA	18		Qay	UPRR track; 4' high embankment fill with 1.5' ballast over embankment. Embankment fill looks like Qay. 25 degree slope in fill.	Not applicable	2/23/07	WTL/SAS
MT7080	MCS1	NA	NA	18		Ql	Small borrow pit ~75' X 75', 4' - 6' deep. Mostly Ql: sl. silty, fine SAND and fine sandy SILT. Test hole on east bank. 0 - 1' gravelly SAND, with roots. 1' - 4' stratified sl. silty, f and f-m SAND and fine sandy silt. 4' - 5' laminated SILT and fine sandy SILT; SHELL FRAGMENTS IN THIS EXPOSURE. Evidence of Ql beach. Other parts of pit have gravel layers.	Not applicable	2/23/07	WTL/SAS
MT7081	MCS1	NA	NA	18		Qay/Ql	Borrow pit ~150' X 300', 6' - 10' deep. 0 - 4' laminated, stratified silty SAND, trace gravel (mixed Qay and Ql), 4' - 5' sandy GRAVEL, tr cobbles (Qay), 5' - 6' fine sandy SILT and SILT (Ql).	Not applicable	2/23/07	WTL/SAS
MT8001	S6	10663+09	204	11	Northern Long Valley	Qe	On flank of sand dune (Qe). Dune slopes steeply (29%) to northeast towards valley floor. Valley floor is relatively level and covered in places by sand dunes. Sediment is comprised of slightly silty, fine to medium SAND (SP-SM/SP).	Not applicable.	2/22/07	PHZ/NMB
MT8002	S6	10667+84	15	11	Northern Long Valley	Qe/Qao	Contact with eolian sand (Qe) and older alluvium (Qao). Alluvium to southeast is in places covered with eolian dunes. Surface is composed of silty fine SAND (SM) with weathered volcaniclastic gravel and cobbles. Surface slope is variable from nearly horizontal to 10%.	Not applicable.	2/22/07	PHZ/NMB
MT8003	S5	10675+91	0	11	Northern Long Valley	Qao/Qe	Contact with older alluvium (Qao) and eolian sand (Qe). Dunes extend to southeast of this point. Possible blowing sand hazard and possible need for sand fences along this stretch of alignment.	Not applicable.	2/22/07	PHZ/NMB
MT8004	S5	10743+57	-255	11	Northern Long Valley	Qe	On relatively level ground covered by eolian sand (Qe). Slightly silty, fine to medium SAND (SP-SM), capped by 4 inches of silty fine SAND (SM). Scattered volcaniclastic pebbles litter the surface (rhyolite and scoria).	Not applicable.	2/22/07	PHZ/NMB
						Qe	Sand blown onto and up ridge from valley, prevailing winds from south.	Not applicable	2/22/07	WTL/SAS

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MT8005	S5	10747+92	-309	11	Northern Long Valley	Qp	Water well located adjacent to several low-lying, flat areas (playa-like) that are periodically covered with water. There are mud cracks on the surface as well as scattered pebbles and cobbles. At least one of the playa-like areas appears to be used for watering cattle. Others nearby appear natural.	Not applicable.	2/22/07	PHZ/NMB
MT8006	S5	10749+04	-249	11	Northern Long Valley	Qe/Qao	Contact between eolian sand (Qe) and older alluvium (Qao). Distal fan deposits. Silty fine to medium SAND (SM) and scattered volcaniclastic gravel and cobbles. Slope of 1 to 3%.	Not applicable.	2/22/07	PHZ/NMB
MT8007	S6	10759+83	82	11	Northern Long Valley	Qao	On older fan deposit (Qao) at margin of bouldery area on fan surface. Boulders are positioned on surface in approximately linear form leading to fan head. Heavy varnish on boulders suggests they are possibly associated with old debris flow deposit. Slope of fan surface about 5%.	Not applicable.	2/22/07	PHZ/NMB
MT8008	S6	10791+12	-489	11	Northern Long Valley	Qao	Along road in between fans that coalesce from either side of valley. At this point, fans are dissected by old channel that extends eastward. Channel has left terrace of older alluvium (Qao) on either side. Channel bottom filled with silty fine SAND (SM) and scattered, small playa-like areas.	Not applicable.	2/22/07	PHZ/NMB
MT8009	S5	10807+15	18	12	Northern Long Valley	Qao	On surface of older alluvial fan (Qao). Material is silty fine to medium SAND with scattered gravel, cobbles, and boulders (SM). Slope is about 4 to 5%.	Not applicable.	2/22/07	PHZ/NMB
MT8010	S6	10823+29	-194	12	Northern Long Valley	Ta4/Qao	Contact between older alluvium (Qao) and andesitis bedrock (Ta4). At edge of steep slope consisting of boulders and scattered outcrops of dacite and/or andesite with large Ca-plagioclase phenocrysts. Some boulders are coated in tan, cement-like rock; flow breccia? Slope is about 40%.	Not measured.	2/22/07	PHZ/NMB
MT8011	S6	10825+52	-144	12	Northern Long Valley	Ta4/Qao	Contact between andesitic bedrock (Ta4) and older alluvium (Qao). Outcrop of fissile, porphyritic, vesicular andesite. 48% slope. Possible rockfall hazard along this slope.	Not measured.	2/22/07	PHZ/NMB
MT8012	S6	10829+60	58	12	Northern Long Valley	Ta4	Near of contact of bedrock (Ta4) with older alluvium (Qao). Where alignment cuts across bedrock slope. Rock is andesite. At this location, rock is fissile and presents possible planar sliding hazard. Medium strength, fissile, fresh, porphyritic andesite, surficial weathering. 50% slope.	N45E/10to26S	2/22/07	PHZ/NMB
						Ta4	Rock knob on alignment. Porphyritic ANDESITE (Ta4): Slaty, 1/2" - 1" bedding (?); medium strong (10-15K psi); brittle; ~100' cut (?), probable rubble zones (sketch). Scattered large blocks could be rock fall hazard.	Bedding: N45E 10-25 S	2/22/07	WTL/SAS
MT8013	S6	10827+16	392	12	Northern Long Valley	Qao	Test pit dug into side of chanel incised into older alluvium (Qao). Material is gravelly, silty SAND, cobbles and scattered boulders (SM).	Not applicable.	2/22/07	PHZ/NMB
MT8014	S6	10848+10	178	12	Northern Long Valley	Qc	Channel incised into older alluvium (Qao) surface. Material in base of channel is gravelly, fine to coarse SAND, trace silt, scattered cobbles (up to 3-inches [diameter], loose (SW). Channel is about 20 feet wide, with banks approx. 3 to 4 feet high, with approx. 20 to 25% slopes.	Not applicable.	2/22/07	PHZ/NMB
MT8015	S6	10864+20	-374	12	Northern Long Valley	Ta4/Qao	Contact between andesitic bedrock (Ta4), channel, and older alluvium (Qao). Bedrock forms steep slope. Variety of volcanic rock types, but mostly dacite.	Not measured.	2/22/07	PHZ/NMB
MT8016	S6	10870+67	-497	12	Northern Long Valley	Ta4/Qao	Bedrock (Ta4) slope (channel forms base of slope). Slope is 30 to 35%. Volcaniclastic boulders common but no visible outcrop. Small colluvial fans formed at base of slope to west.	Not measured.	2/22/07	PHZ/NMB
MT8017	S6	10902+16	-1430	12	Northern Long Valley	Ta4/Qc/Qao	Contact channel (Qc) and older alluvium (Qao) with bedrock (Ta4). Bedrock forms very steep slope approx. 60%. Slope is covered with volcaniclastic boulders - dacite and rhyodacite. Channel is about 100 feet wide at base of slope. Channel is slightly gravelly SAND, trace of silt (SW).	Not measured.	2/22/07	PHZ/NMB
MT8018	S6	10908+84	-1460	12	Northern Long Valley	Ta4/Qao	Contact bedrock (Ta4) and older alluvium (Qao). Bedrock forms very steep slope strewn with volcaniclastic boulders (dacite and andesite). Slope is about 50%.	Not measured.	2/22/07	PHZ/NMB
MT8019	S6	10910+77	-1643	12	Northern Long Valley	Ta4	Bedrock (Ta4) on ridge.	Not measured.	2/22/07	PHZ/NMB
MT8020	S6	10948+31	-1613	12	Northern Long Valley	Ta4	Area of lower slope (17%) in andesitic bedrock (Ta4) still covered with cobbles and boulders of andesite and dacite. Slope steepens to west. To east, are knobs of intact, heavily weathered, porphyritic rhyolite. Slope here is incised by several small rills.	Not measured.	2/22/07	PHZ/NMB

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MT8021	S6	10952+71	-1153	12	Terrill Mountains west of I-90	Ta4	On exposure at heavily weathered dacite. Forms cliff (20 to 25 feet at 80°) that faces north. Bedrock forms jagged knobs surrounded by more subdued topography and covered with grus and cobbles. In low swales, exposures of less weathered rock are visible.	Not measured.	2/22/07	PHZ/NMB
MT8022	S6	10961+01	-756	12	Terrill Mountains west of I-90	Ta4	On knob of heavily weathered bedrock. Surface is weathered to the point of appearing as soil and gravel. In some spots ground is quite soft (silty fine SAND (SM)).	Not measured.	2/22/07	PHZ/NMB
MT8023	S6	10965+20	-634	12	Terrill Mountains west of I-90	Qc	In small channel that appears to have had some recent activity. Channel is about 15 feet wide with side slopes of up to 2 feet tall, but active portion is in 5-foot swath within channel. Sediment is gravelly, fine to coarse SAND, trace of silt (SW).	Not applicable.	2/22/07	PHZ/NMB
MT8024	S6	11127+68	14	12	East front of Terrill Mountains	Qay/KJm	At margin of recent channel incised into younger alluvium (Qay). Channel is 5 to 10 feet wide with 4- to 6-foot high slopes. Channel deposits are sandy GRAVEL to gravelly SAND (GP/SW). Surface of Qay is gravelly SAND (SW) with scattered cobbles and boulders. Slope of Qay surface is 10%. Waypoint is at mouth of valley incised into rock. Adjacent hills are comprised of gabbro (KJm) overlain by a welded tuff (Tt3). Slopes that lead down to the fan apron are alignment are steep, variable 40 to 80%. Potential for rock fall hazard along the rock slopes, potential for debris flow in channel.	Not measured.	2/23/07	PHZ/NMB
MT8025	S6	11137+50	51	12	East front of Terrill Mountains	KJm/Tt3/Qay	Contact of mafic bedrock (KJm), rhyodacitic bedrock (Tt3), and younger alluvium (Qay). Alignment is running across Qay east of waypoint. Qay is gravelly SAND with surface slope of 8 to 10%. Waypoint is on edge of debris apron (Qay) where material shed from upper rock slope has accumulated. KJm pinches out here. Rock slope above is comprised of reddish welded tuff (Tt3). Apron gradually steepens from 40% at waypoint to 80% westward to base of overhanging cliff. Large boulders have rolled from slopes above down onto Qay surface. Possible rock fall hazard.	None due to weathering.	2/23/07	PHZ/NMB
MT8026	S6	11144+18	194	12	East front of Terrill Mountains	Tt3	Lithified lahar deposit on steep slope above younger alluvium (Qay). Rock froms 40% slopes to overhanging cliffs.	Not measured.	2/23/07	PHZ/NMB
MT8027	S6	11146+98	-161	12	East front of Terrill Mountains	Qay	Margin of alluvial fan (Qay) emanating from valley to southwest. Fan surface is channelized in places and appears to have experienced flow in recent past. Some channels have vertical cut banks. Surface of fan is sandy GRAVEL with scattered boulders (GP). Potential debris flow hazard, potential erosion and scour hazard.	Not applicable.	2/23/07	PHZ/NMB
MT8028	S6	11176+02	-71	12	East front of Terrill Mountains	KJm/Qay	Contact of mafic bedrock (KJm) and younger alluvium (Qay). KJm (gabbro with some evidence of hydrothermal alteration to serpentenite) forms near vertical slopes in outcrop (10 to 15 feet tall) which lead to down to steep (40%) slopes. Scree slope at base.	N20W/60E, N55E/59W, N45E/25W	2/23/07	PHZ/NMB
MT8029	S6	11180+05	-328	12	East front of Terrill Mountains	Qay	Test pit dug into surface of younger alluvium (Qay). Brown, silty, sandy GRAVEL (GM). Fan surface is 12 to 13%.	Not applicable.	2/23/07	PHZ/NMB
MT8030	S6	11184+97	-443	12	East front of Terrill Mountains	Qay/Qc	At south margin of fan apex with evidence of recent erosion/deposition. Surface of fan apex is channelized with numerous rills. Scattered large (greater than 3 feet diameter) boulders and small levees suggest possible debris flows. On south side of channel from apex is outcrop of very heavily weathered mafic intrusive rock (KJm). Potential debris flow hazard, potential erosion and scour hazard.	Not applicable.	2/23/07	PHZ/NMB
MT8031	S6	11195+28	-124	12	East front of Terrill Mountains	Qay/Tt3	Test pit in younger alluvium (Qay). Wayoint along south edge of channel incised into Qay. Channel does not appear recently active. In few places, bedrock (rhyodacite tuff) crops out near base of channel. Rock is buried by at least 7 to 8 feet of alluvium.	Not measured.	2/23/07	PHZ/NMB
MT8032	S6	11212+22	-351	14	East front of Terrill Mountains	Tt3	Mafic dike intruded into rhyodacitic bedrock (Tt3). Rock of dike is high strength, ultramafic rock (gabbro) with medium-sized mafic crystals. Rock unit appears mostly as subdued, boulder-covered hill with scattered small outcrops of dike in Tt3. Other nearby small outcrops are of heavily weathered rhyodacite.	Joints in dike: N70W/80E, N80W/45S	2/23/07	PHZ/NMB

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MT8033	S6	11216+03	-280	14	East front of Terrill Mountains	Tt3/Qay	South side of hill composed of ultramafic dike. Rock is probably more resistant to weathering than rhyodacite which it intrudes. Rhyodacite (Tt3) buried by younger alluvium (Qay) to variable depths. Here, Tt3 is sometimes level with fan surface (not buried at all). In these places, the rock is grusified and can be dug into with a shovel.	Not measured.	2/23/07	PHZ/NMB
MT8034	S6	11231+99	-235	14	East front of Terrill Mountains	Tt3	Bedrock (Tt3) shallowly buried by alluvium. Channels up to 15 feet deep with side slopes of 60% incised into rock and alluvial fans. Scattered outcrops of rhyodacite that extend up to 4 feet above fan surface.	Joints: N76W/80S, N72E/50S, N40E/60S	2/23/07	PHZ/NMB
MT8035	S6	11245+75	-543	14	East front of Terrill Mountains	Qc	Channel incised into rhyolitic bedrock (Tt3) buried shallowly by alluvium. Channel is 30 to 40 feet wide with steep side slopes of approimately 60% or vertical where bedrock is present. Channel material is slightly silty to silty, sandy GRAVEL (GM/GP-GM). Recent flow is evident by rilling. Bedrock is rhyodacite tuff. Fan surface slope is 8 to 12%, channel thalweg slopes 8%. Alluvium at top of channel walls is silty, sandy GRAVEL (GM).	Not measured.	2/23/07	PHZ/NMB
MT8039	S6	11274+65	-882	14	East front of Terrill Mountains	Qay	On younger fan surface (Qay) with evidence of recent water flow in rills. Rills are 2 to 3 feet wide and ~1 foot tall. Test hole dug into surface revealed silty, sandy GRAVEL (GM) to silty, gravelly SAND (SM) with scattered cobbles and few boulders. Fan surface slopes about 6%. Surface is littered with metal cans and parts from Camp Terrill.	Not applicable.	2/24/07	PHZ/NMB
MT8040	S6	11288+53	-252	14	East front of Terrill Mountains	Tt3/Qay	Prospect pit and contact of rhyolitic bedrock (Tt3) veneered by younger alluvium (Qay). Pit is located in slightly elevated area that resembles Tt3 surfaces to north. Surface appears to be remnant that is bounded by Qay to south and east. Pit is about 10 to 12 feet in diameter and 8 feet deep. Rock is heavily weathered rhyodacite. Pit too deep to measure joints, but strikes of prominent joints are estimated. Second pit is located ~140 feet NW of first pit. Pit is ~ 5 feet deep with heavily weathered rhyodacite with no clear joints.	Joints: N28W (118 degrees), N8E/20S (352 degrees). Lat: 39 degrees, 5', 12622" N, Long: 118 degrees, 41', 28457" W. Elevation: 1291 M, WGS84, DOP: 1.4	2/24/07	PHZ/NMB
MT8041	S6	11289+52	-326	14	East front of Terrill Mountains	Qc	Small active channel 5 to 6 feet wide with 1 to 2 foot high, vertical cut banks. Channel sediment is sandy, fine to medium gravel (GP).	Not applicable.	2/24/07	PHZ/NMB
MT8042	S6	11302+53	-638	14	East front of Terrill Mountains	Qay, Qc	Alluvium (Qay) at edge of active channel (Qc). Test pit dug into channel wall into Qay reveals silty, gravelly SAND (SM) with scattered cobbles and boulders on surface. Channel bottom is composed of slightly silty, gravelly SAND (SP-SM). Bars (or levees?) within channel are covered in angular cobbles and few boulders. Fan surface here is sloping about 6% to 7%.	Not applicable.	2/24/07	PHZ/NMB
MT8043	S6	11315+23	-411	14	East front of Terrill Mountains	Qay	Adjacent to broad (100 feet) very shallow (0.5 to 1 foot deep) network of small channels. Material in channels is slightly silty, sandy gravel to gravelly sand (SW-SM). Fan surface is silty, gravelly SAND (SM) with scattered cobbles and few boulders.	Not applicable.	2/24/07	PHZ/NMB
MT8044	S6	11322+77	-491	14	East front of Terrill Mountains	Qao/Qay	Contact of older alluvium (Qao) and younger alluvium (Qay). Fan surface of Qao is dissected in places by younger channels, leaving elevated remnants of Qao. A few of these higher Qao remnants can be seen up to 200 feet to north. Surface of Qao has well-developed desert pavement with heavily varnished clasts. Test hole reveals silty, sandy GRAVEL to silty, gravelly SAND (GM/SM). Soil B horizon is better developed than that seen in Qay deposits to north.	Not applicable.	2/24/07	PHZ/NMB
MT8045	S6	11336+92	-296	14	East front of Terrill Mountains	Qao	Older alluvium (Qao) remnants between channels and patches of younger alluvium. Waypoint is on Qay patch. Test hole reveals silty, gravelly SAND (SM) with scattered boulders. Fan surface is sloping 7% to 8%. Less well developed soil B horizon than at MT8044.	Not applicable.	2/24/07	PHZ/NMB
MT8046	S6	11340+50	-214	14	East front of Terrill Mountains	Qc	Channel incised into alluvium. Channel is 20 feet wide and 1 to 2 feet deep with slightly silty, gravelly SAND to sandy GRAVEL (SP-SM/GP-GM) with scattered, fresh cobbles.	Not applicable.	2/24/07	PHZ/NMB
MT8047	S6	11349+66	193	14	East front of Terrill Mountains	Qao	Well developed desert pavement with heavily varnished rocks on older fan surface. Slope of surface is about 5%.	Not applicable.	2/24/07	PHZ/NMB

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MT8048	S6	11357+53	211	15	East front of Terrill Mountains	Qc/Qao	Channel (Qc) incised into older alluvium (Qao). Waypoint at convergence of several channels. Main channel is ~70 feet wide but only portions of it appear recently active. Linear northwest-trending feature appears control channelization locally.	Not applicable.	2/24/07	PHZ/NMB
MT8049	S6	11378+86	42	15	East front of Terrill Mountains	Qao	North side of significant and active channel incised into older alluvium (Qao). Channel is 80 to 100 feet wide and ~ 15 to 20 feet deep. Channel bottom is composed of sandy GRAVEL (GW), trace of silt. Erosion has exposed earlier channel deposits in channel bottom. Forming vertical cut banks up to 4 feet tall. Soil in cut banks consists of bedded sand and gravel.	Not applicable.	2/24/07	PHZ/NMB
MT8050	S6	11380+20	-15	15	East front of Terrill Mountains	Qc	South channel wall.	Not applicable.	2/24/07	PHZ/NMB
MT8051	S6	11403+94	-95	15	East front of Terrill Mountains	Qao/Tt3	Contact of older alluvium (Qao) and rhyolite and/or rhyotitic tuff (Tt3), very low strength (due to weathering), vesicular, light tan, with quartz and feldspar phenocrysts. Rock is exposed as smooth, grus-covered, knob-like hills in channelized area of fan (badlands-like topography). Apparently, Qao buries rock to variable depths of 0 to >20 feet. Qao consists of silty, gravelly SAND (GM) with well-developed desert pavement and heavy rock varnish. Fan slope of ~ 5%. Joints were not observed.	Not measured.	2/24/07	PHZ/NMB
MT8052	S6	11425+68	-1	15	Pass between Terrill Mountains and Red Ridge	Tt3	In heavily weathered rhyolitic tuff hills (Tt3) dug test holes into hill side. Upper 8" consists of grus which digs like soil (silty, sandy GRAVEL (GM)). Digging becomes difficult below 8".	Not measured.	2/24/07	PHZ/NMB
MT8053	S6	11444+07	-113	15	Pass between Terrill Mountains and Red Ridge	Tt3	In heavily weathered rhyolitic tuff hills (Tt3). Waypoint in low area (erosional gully) between hills. Test hole in base of gully reveals silty, sandy gravel (GM) to a depth of 1.2 feet above bedrock. Multi-colored layers of tuff, as seen in grus coating on bedrock. Hillsides vary in slope between 20 to 32%. Hills are covered in gravel-sized clasts of weathered rock that vary little in size. Gravel on tuffaceous hills are generally 1/2 to 1 inch diameter. Gravel on more rhyolitic hills is 2 to 4 inches in diameter. Gravel clasts are highly angular.	Not measured.	2/24/07	PHZ/NMB
MT8054	S6	11456+60	-158	15	Pass between Terrill Mountains and Red Ridge	Tt3	Rhyodacite unit forms more resistant hills and bedrock exposures. Rock is grus-covered at surface, like tuff exposures, but is higher strength. Rock is medium strength, medium gray, porphyritic rhyodacite with biotite, hornblend, and feldspar phenocrysts. Soil between bedrock hills consists of slightly gravelly, silty SAND (SM) - alluvium.	Prominent joint sets: strike and dip. N10W/80S, N65W/68N	2/24/07	PHZ/NMB
MT8055	S6	11464+32	-46	15	Pass between Terrill Mountains and Red Ridge	Tt3/Qao	Contact of rhylitic tuff bedrock (Tt3) and older alluvium (Qao) - Older alluvium buries rhyolitic tuff to variable depths.	Not measured.	2/24/07	PHZ/NMB
MT8056	S6	11471+38	-75	15	Pass between Terrill Mountains and Red Ridge	Tt3/Qao/Qay	South contact of rhyolitic tuff bedrock (Tt3) covered by older alluvium (Qao). Younger alluvium (Qay) occupies valleys between bedrock ridges. Qao is silty, sandy gravel (GM) with heavily varnished clasts and desert pavement. Qay is slightly silty to silty, sandy gravel (GW-GM/GM).	Not measured.	2/24/07	PHZ/NMB
MT8057	S6	11477+23	-53	15	Pass between Terrill Mountains and Red Ridge	Tt3/Qay/Qao	Contact of rhyolitic bedrock (Tt3) and alluvium (Qay/Qao).	Not measured.	2/24/07	PHZ/NMB
MT8058	S6	11491+18	-61	15	Pass between Terrill Mountains and Red Ridge	Qay	Surface of younger alluvium (Qay) - Test hole revealed silty, gravelly SAND (SM). Fan surface in vicinity consists of patches of Qao surrounded by Qay. Fan surface slopes 4 to 5%. Test hole dug next to fence line that trends N47°E. Four-wire, barbed wire fence is in good condition. Channel to south is 6 feet wide, 3 to 4 feet deep with relatively steep walls (70% to vertical).	Not applicable.	2/24/07	PHZ/NMB
MT8059	S6	11517+34	123	15	Pass between Terrill Mountains and Red Ridge	Qay	Test hole in surface of younger alluvium (Qay). Soil is silty, gravelly SAND (SM). Fan surface slopes at about 5%. Surface is overlain by eolian sand layer ~ 4" thick.	Not applicable.	2/24/07	PHZ/NMB
MT8060	S6	11553+61	4	16	Pass between Terrill Mountains and Red Ridge	Qay	Younger alluvium (Qay) with thin eolian sand cover of 1 to 2 feet (estimated). Test hole reveals silty SAND to sandy SILT; scattered gravel. Suspect this Qe cover because surface still has fan morphology, with few, subdued, old channels. Fan surface is 3 to 4 degree slope.	Not applicable.	2/24/07	PHZ/NMB

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT8061	S4	11019+96	105	6	Southern Long Valley	QTg	Remnant alluvial fan deposits (QTg) - surface of basin between Calico Hills and Terrill Mountains. Surface slope is generally 0 - 3% in slope. Surface is covered in silty fine SAND with scattered gravel (SM). Test hole revealed ~4 inches of loose, silty SAND (eolian sand) covered with scattered gravel, underlain by dense to very dense, silty, fine SAND (SM). At depth of 1 foot encountered top of B horizon (FeO stained to orange-red color).	Not applicable.	2/25/07	PHZ/NMB
MT8062	S4	11033+61	-11	6	Southern Long Valley	QTg	Test hole reveals medium dense to dense, silty, fine SAND (SM). Rocks nearby are covered in CaCO3 rind on their undersides. Rocks are heavily varnished.	Slope is 3'10 to NE	2/25/07	PHZ/NMB
MT8063	S4	11040+70	100	6	Southern Long Valley	QTg	Small channel incised into remnant alluvial fan deposits (Qtg). Channel is subdued; walls slope ~15 to 20% and sandy bottom is ~6 feet wide. Channel sediment is loose, slightly gravelly SAND (SW), trace of silt. Channel is similar to others in the vicinity.	Not applicable.	2/25/07	PHZ/NMB
MT8064	S4	11045+31	132	6	Southern Long Valley	QTg	Test hole dug into wall of channel incised into remnant alluvial fan deposits (QTg). Soil is dense, tan to white, slightly gravelly, silty, fine SAND to fine sandy SILT (SM/ML), undersides of gravel clasts are coated in CaCO3. Clasts are mixed volcaniclastic. Possible ash mixed in soil. Surface is thinly veneered by varnished gravel and cobbles and desert pavement.	Not applicable.	2/25/07	PHZ/NMB
MT8065	S4	11051+30	13	6	Southern Long Valley	QTg/Qay	Contact remnant alluvial fan deposits (QTg) with younger alluvium (Qay) and several small recently active channels.	Not applicable.	2/25/07	PHZ/NMB
MT8066	S4	11052+61	61	6	Southern Long Valley	Qay	Channel incised into Qay. Channel is ~25 feet wide with vertical cut banks of 2 to 3 feet. Channel bed is loose, brown, slightly silty, sandy GRAVEL to gravelly SAND (GP-GM/SW-SM). Qay in channel wall is medium dense, brown, silty, sandy, fine GRAVEL (GM). Channel gradient is 4 to 5%.	Not applicable.	2/25/07	PHZ/NMB
MT8067	S4	11056+84	11	6	Southern Long Valley	Qay/Qtg	Contact younger alluvium (Qay) and remnant alluvial fan deposits (QTg).	Not applicable.	2/25/07	PHZ/NMB
MT8068	S5	11258+74	-3	6	Southern Long Valley	QTg	Remnant alluvial fan deposits (QTg) buried by loose, silty, fine SAND (eolian) (SM) to unknown depth. Morphology (lack of obvious dune forms) suggests eolian is probably shallow here, but test hole dug into surface to depth of 1.3 feet did not find QTg surface. Slope of surface is 5 to 6%. Note: Possible blowing sand hazard due to presence of eolian sand.	Not applicable.	2/25/07	PHZ/NMB
MT8069	S4	11072+25	5	6	Southern Long Valley	QTg	At margin of where remnant alluvial fan deposits (QTg) becomes incised by narrow "V"-shaped erosional gulleys. Gulleys are 20 to 40 feet deep and expose bedding in QTg. Slopes of gulley sides are 50 to 60%. Sediment exposed in gulley walls consists of bedded, silty, sandy, GRAVEL and gravelly, silty SAND, and sandy SILT (GM/SM/ML). Sediments may represent distal fan deposits. Erosion and scour hazared extends from this waypoint southward beyond gulleys.	Not applicable.	2/25/07	PHZ/NMB
MT8070	S5	11272+33	-191	6	Southern Long Valley	QTg	Remnant alluvial fan deposits (QTg) to south is incised and reworked by channel networks mantled by loose, slightly gravelly, silty fine-medium SAND (SM) to gravelly SAND, trace of silt (SW) in channel beds.	Not applicable.	2/25/07	PHZ/NMB
MT8071	S4	11096+76	83	6	Southern Long Valley	Qay	Approximately 300 foot wide swath of younger alluvium (Qay) between hills of remnant alluvial fan deposits. Surface is characterized by shallow, braided channels that range in width from 2 to 15 feet. Test hole revealed loose, slightly silty, sandy, GRAVEL (GP-GM).	Not applicable.	2/25/07	PHZ/NMB
MT8072	S5	11302+40	-234	6	Southern Long Valley	QTg/Qay	Contact of remnant alluvial fan deposits (QTg), younger alluvium (Qay), and channel. QTg here forms steep-sloped hill (45%) armored with varnished gravel and cobbles. Test hole in QTg revealed tan, gravelly, silty SAND (SM). Channel is 30 to 50 feet wide with 50% to vertical, 3 to 5 foot high walls. Sediment is loose, gravelly SAND to sandy GRAVEL. Potential Erosion Hazard along channel.	Not applicable.	2/25/07	PHZ/NMB

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MT8073	S5	11318+10	606	6	Southern Long Valley	Tt3/QTg	Contact of rhyolitic bedrock (Tt3) and remnant alluvial fan deposits (QTg) separated by 40 to 80 feet wide channel (Qc). Rock of Tt3 is well exposed here. Rock here consists of 2 types: 1) Moderate to high strength, phorphyritic rhyodacite, light gray with biotite, hornblend, and quartz phenocrysts, moderately to strongly fractured and jointed. 2) Moderate to high strength, green-gray, welded tuff, moderately to strongly fractured and jointed. Joint sets are similar in both types of rock. Three dominant joint orientations. Channel sediment consists of slightly silty, gravelly SAND (SP-SM). Potential erosion and scour hazard.	1) N80W/30S 2) N70W/70NE 3) N20E/59W. Contact of rhyodacite and tuff: N20E/70W.	2/25/07	PHZ/NMB
MT8074	S5	11319+24	161	6	Southern Long Valley	QTg/Tt3	Contact between QTg and Tt3 (both capped by older alluvium). Top of hills of Tt3 are gravelly and sandy (grus-covered) due to weathering. Incised QTg hills form steep slopes (60% to vertical).	Not measured.	2/25/07	PHZ/NMB
MT8075	S5	11334+12	-99	6	Southern Long Valley	QTg/Tt3	Contact remnant alluvial fan deposits (QTg) and rhyolitic tuff (Tt3). Grus-covered, rhyolitic vesicular rock with hornblend phenocrysts. Joints not exposed. Topography/geology here consists of complex geometry of QTg and Tt3, with Tt3 forming high ridges (more resistant) and QTg forming low ridges within ancestral channels incised into Tt3.	Not measured.	2/25/07	PHZ/NMB
MT8076	S5	11338+07	-48	6	Southern Long Valley	Qc	Recently active channel incised into remnant alluvial fan deposits (QTg). Channel is 10 to 20 feet wide with vertical cutbanks. Slope of ~5%. Loose, slightly silty, slightly gravelly SAND (SP-SM) in channel bottom. Possible Erosion Hazard.	Not applicable.	2/25/07	PHZ/NMB
MT8077	S4	11146+43	0	6	Southern Long Valley	Tt3/QTg	Contact Tt3 and incised QTg. Tt3 forms 55%-slope hill covered in green rhyolite gravel.	Not measured.	2/25/07	PHZ/NMB
MT8078	S5	11349+65	-65	16	Southern Long Valley	Tt3	Bedrock (Tt3) here consists of moderate to low strength, light tan, lithic tuff. Rock is heavily weathered to grus. In places, Tt3 is shallowly buried by heavily varnished mafic rocks transported downslope from adjacent hill (possible dike).	Not measured.	2/25/07	PHZ/NMB
MT8079	S4	11162+56	121	16	Southern Long Valley	Tt3	Small pit (5' X 4' X 2') possibly dug by rock collectors or prospectors? Banded chert (white and black) excavated from pit. Several other, similar-sized pits were also observed nearby.	Not applicable.	2/25/07	PHZ/NMB
MT8080	S4	11164+12	36	16	Southern Long Valley	Tt3/Qay	Contact Bedrock (Tt3) and younger alluvium (Qay).	Not measured.	2/25/07	PHZ/NMB
MT8081	S5	11363+32	-26	16	Southern Long Valley	Qc/Qay	Channel incised into younger alluvium (Qay). Channel is braided and 30 to 50 feet wide with near vertical cut slopes. Channel bottom material is loose, slightly silty, gravelly SAND; moist (SW-SM). Test hole in Qay is silty, gravelly SAND (SM).	Not applicable.	2/25/07	PHZ/NMB
MT8082	S4	11170+57	41	16	Southern Long Valley	Qc	East wall of channel described in MT8081.	Not applicable.	2/25/07	PHZ/NMB
MT8083	S5	11369+42	-63	16	Southern Long Valley	Qay/Qao	Contact of younger alluvium (Qay) and older alluvium (Qao). Qao is silty sand gravel with scattered to abundant, heavily varnished cobbles.	Not applicable.	2/25/07	PHZ/NMB
MT8084	S5	11374+98	-33	16	Southern Long Valley	Qao	Older alluvial fan surface (Qao) surface sloping ~3% to south. Surface is deeply incised by "V"- shaped channels up to 20 feet deep.	Not applicable.	2/25/07	PHZ/NMB
MT8085	S5	11385+89	-10	16	Southern Long Valley	Qao/Qc	Contact of older alluvium (Qao) and channel. Channel is ~100 feet wide and is recently active, as evidenced by washed-out road. Channel is braided and sediment in bottom consists of loose, slightly silty, gravelly SAND (SM). Possible erosion and scour hazard. Possible debris flow hazard.	Not applicable.	2/25/07	PHZ/NMB
MT8086	S5	11386+61	-9	16	Southern Long Valley	Qc/Qao	Contact channel (Qc) and older alluvium (Qao).	Not applicable.	2/26/07	PHZ/NMB
MT8087	S4	10856+30	-16	13	East side of Calico Hills in Long Valley	QTg	Test hole dug into surface revealed dense to very dense, tan to white, fine sandy SILT (ML) with CaCO3 horizon and scattered fine to medium gravel. Few CaCO3 cobbles on surface. Surface here is covered in slightly gravelly, silty, fine SAND (SM) (eolian deposit) to depth of 3 inches at test pit. Slope of surface ~3%.	Not applicable.	2/26/07	PHZ/NMB
MT8088	S4	10864+03	-2	13	East side of Calico Hills in Long Valley	QTg/Qe	Contact remnant alluvial fan deposits (QTg) and eolian sand (Qe). Test hole in Qe: loose, slightly silty, fine to medium SAND (SP-SM). Qe forms rolling, gently sloped dunes with 2 to 5% slopes. Ripple marks observed on surface strike N20°W with lee side dipping to NE. Possible blowing sand hazard. Small depression to west of waypoint consists of very soft, fine sandy SILT (ML). Surface is heavily trampled by livestock. Abundant mudcracks. QTg crops out in places between duneforms of Qe.	Ripples ridges strike N20W Steep (lee) side dips to NE (SW dominant wind)	2/26/07	PHZ/NMB

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MT8089	S4	10876+89	127	13	East side of Calico Hills in Long Valley	Qe/QTg	Contact of eolian sand (Qe) and remnant alluvial fan deposits (QTg). Surface coated in ~4" of eolian fine sand capping medium dense to dense, slightly gravelly, fine sandy SILT (ML).	Not applicable.	2/26/07	PHZ/NMB
MT8090	S4	10886+69	152	13	East side of Calico Hills in Long Valley	Qp	Edge of small playa-like area. Depression appears periodically filled with water to shallow depths. Scattered mudcracks. Soil is fine sandy SILT (ML).	Not applicable.	2/26/07	PHZ/NMB
MT8091	S4	10888+94	92	13	East side of Calico Hills in Long Valley	Qp/QTg	Contact playa depositis (Qp) and remnant alluvial fan deposits (QTg)	Not applicable.	2/26/07	PHZ/NMB
MT8092	S4	10905+00	-63	13	East side of Calico Hills in Long Valley	QTg	Test hole: 6" of loose, brown, silty fine SAND (SM) (eolian) with scattered gravel overlying dense to very dense, tan, fine sandy SILT to silty fine SAND (ML/SM). Surface is level. Adjacent to unmapped road that may provide future access for equipment.	Not applicable.	2/26/07	PHZ/NMB
MT8093	S4	10916+43	-9	13	East side of Calico Hills in Long Valley	QTg	Remnant alluvial fan deposits (QTg) at margin of subtle area of channelization. Channelized area (30 to 40 feet wide) consists of very shallow, meandering rills with very little incision. Rills are ~6" deep or less with mudcracks in bottom.	Not applicable.	2/26/07	PHZ/NMB
MT8094	S4	10931+48	84	13	East side of Calico Hills in Long Valley	QTg/Qe	Contact remnant alluvial fan deposits (QTg) and eolian sand (Qe). Qe buries QTg to variable depths (1 foot or more). Several dunes lie to south. Test hole: loose, brown, fine SAND, trace of silt (SP). Dunes are ~15 to 20 feet high with slopes of up to 20%.	Not applicable.	2/26/07	PHZ/NMB
MT8095	S4	10944+25	71	13	East side of Calico Hills in Long Valley	Qe/QTg	Eolian sand (Qe) over remnant alluvial fan deposits (QTg). Qe forms subtle dune field to west.	Not applicable.	2/26/07	PHZ/NMB
MT8096	S4	10958+51	44	13	East side of Calico Hills in Long Valley	Qe/QTg	Eolian sand (Qe) likely buries remnant alluvial fan deposits (QTg) to unknown depth (estimated at several feet). Test hole: loose, slightly silty (to trace silt) fine SAND (SM). Surface slope varies from nearly horizontal to ~ 10% along subtle dune forms.	Not applicable.	2/26/07	PHZ/NMB
MT8097	S4	10963+90	74	6	East side of Calico Hills in Long Valley	Qe/QTg	Remnant alluvial fan deposits (QTg) exposed between eolian dunes and sheets. Dunes are ~5 to 10 feet high	Not applicable.	2/26/07	PHZ/NMB
MT8098	S4	10987+72	-233	6	East side of Calico Hills in Long Valley	Qe/QTg	Eolian sand (Qe) burying remnant alluvial fan deposits (QTg) to variable depths. Test pit in Qe revealed loose, slightly silty fine SAND (SP-SM/SM). Surface features ripples and duneforms.	Not applicable.	2/26/07	PHZ/NMB
MT8099	S5	11213+80	-68	6	East side of Calico Hills in Long Valley	Qe/QTg	Contact eolian sand (Qe) and remnant alluvial fan deposits (QTg). Qe to north forms fine sand sheets and dunes with variable heights. QTg to south is covered in heavily varnished rocks forming a desert pavement. Clasts are coated with CaCO3 on undersides. Test pit in QTg revealed dense, slightly gravelly to gravelly, sandy SILT to silty SAND (ML/SM). Qe surface slopes 0 to 2%. QTg surface slopes 3 to 4%.	Not applicable.	2/26/07	PHZ/NMB
MT8100	S5	11195+05	48	6	West side of Terrill Mountains in Long Valley	Qe	Test hole in eolian sand (Qe) revealed loose, brown, fine SAND, trace of silt (SP). Eolian sand deposit here is at least 2 feet thick.	Not applicable.	2/26/07	PHZ/NMB
MT8101	S5	11184+70	-14	6	West side of Terrill Mountains in Long Valley	Qe	Eolian sand (Qe) intercalated with distal fan (Qao/Qay) as observed in wall of small channel. Sandy GRAVEL unit forms approximately 6-inch to 1-foot thick bed. Adjacent channel is 3 to 5 feet wide with 2 to 3 foot high walls.	Not applicable.	2/26/07	PHZ/NMB
MT8102	S5	11182+23	-8	6	West side of Terrill Mountains in Long Valley	Qe/QTg	Contact eolian sand (Qe) and remnant alluvial fan deposits (QTg). QTg extends to north and is covered in places by thin (~6" thick) layer of eolian sand. Blowing SAND Hazard.	Not applicable.	2/26/07	PHZ/NMB
MT8103	S5	11147+06	50	13	West side of Terrill Mountains in Long Valley	QTg	Remnant alluvial fan deposits (QTg) buried by eolian sand to depth of ~1 foot. Surface slopes 0 to 1%.	Not applicable.	2/26/07	PHZ/NMB
MT8104	S5	11139+29	-33	13	West side of Terrill Mountains in Long Valley	Qc	Channel incised into remnant alluvial fan deposits (QTg) covered to variable thickness by eolian sand. Channel is ~15 feet wide with side slopes ~3 feet tall. North side of channel incised into QTg (dense to very dense, tan and white, slightly gravelly to gravelly, sandy SILT with CaCO3 horizons. Cobbles are coated in CaCO3. South side of channel exposes ~3 feet of loose, fine SAND (eolian sand over QTg). Channel material is slightly silty, sandy GRAVEL with fresh looking clasts (little to no varnish). Channel slope is ~3 to 4%. Channel looks recently active.	Not applicable.	2/26/07	PHZ/NMB
MT8105	S5	11124+18	5	13	West side of Terrill Mountains in Long Valley	QTg	Alignment crosses unmapped road that runs west to U.S. Highway 95. Remnant alluvial fan deposits (QTg) capped by eolian sand.	Not applicable.	2/26/07	PHZ/NMB

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MT8106	S5	11114+97	-18	13	West side of Terrill Mountains in Long Valley	QTg/Qay	Contact remnant alluvial fan deposits (QTg) and younger alluvium (Qay) (both partially buried by Qe to depths of >2 feet in places) adjacent to channel deposits. Qay appears as bouldering/cobbly deposits poking up out of Qe. Morphology of deposits suggest that the deposits may be debris flows that filled older channels. Surface slope is ~ 2%.	Not applicable.	2/26/07	PHZ/NMB
MT8107	S5	11110+54	200	13	West side of Terrill Mountains in Long Valley	Qay	North edge of debris flow deposit. Younger alluvium (Qay) is buried to variable depths by eolian sand to north.	Not applicable.	2/26/07	PHZ/NMB
MT8108	S5	11102+00	57	13	West side of Terrill Mountains in Long Valley	Qay	On debris flow deposit from flow that likely followed a pre-existing channel. Sandy GRAVEL with cobbles and scattered boulders. Debris flow occurs in area of younger alluvium (Qay), but much of these deposits appear shallowly buried by eolian sand.	Not applicable.	2/26/07	PHZ/NMB
MT8109	S5	11090+33	-17	13	West side of Terrill Mountains in Long Valley	Qay	Younger alluvium (Qay). Test hole reveals 4" eolian sand (Qe) over brown, medium dense, slightly gravelly, silty fine to medium SAND (SM).	Not applicable.	2/26/07	PHZ/NMB
MT8110	S5	11078+05	23	13	West side of Terrill Mountains in Long Valley	Qay	Test hole in younger alluvium (Qay) revealed dense, brown, silty, gravelly sand to silty, sandy GRAVEL (SM/GM). Fan surface is gently sloping (5 to 6%) and has subtle channelization. Surface is covered in scattered cobbles and gravel.	Not applicable.	2/26/07	PHZ/NMB
MT8111	S5	11069+17	49	13	West side of Terrill Mountains in Long Valley	Qay	Debris flow filled channel. Channel incised into younger alluvium (Qay). Channel ~20 to 30 feet wide with side slopes ~ 3 feet hight. Alluvium in channel wall is silty, gravelly SAND to silty, sandy GRAVEL (SM/GM). Debris flows in channel are sandy, cobbly, and bouldery ridges bounded by recently active rills. Channel gradient 5%.	Not applicable.	2/26/07	PHZ/NMB
MT8112	S5	11067+56	111	13	West side of Terrill Mountains in Long Valley	Qay/QTg	Contact younger alluvium (Qay) with remnant alluvial fan deposits (QTg).	Not applicable.	2/26/07	PHZ/NMB
MT8113	S5	11045+72	54	13	West side of Terrill Mountains in Long Valley	QTg	Gently sloping surface of remnant alluvial fan deposits (QTg) covered in desert pavement comprised of heavily varnished clasts.	Not applicable.	2/26/07	PHZ/NMB
MT8114	S5	11024+56	-7	13	West side of Terrill Mountains in Long Valley	QTg	Test hole: Very dense, tan, gravelly, sandy SILT. QTg here forms topographically higher surfaces incised by :V"-shaped erosional gulleys (25 feet deep). Slope of surface varies from 2% on surface to 25% at gulleys. Strong pavement, desert varnish on rocks, and CaCO3 coatings on undersides of clasts.	Not applicable.	2/26/07	PHZ/NMB
MT8115	S5	11019+10	-4	13	West side of Terrill Mountains in Long Valley	Qao/QTg	Contact older alluvium (Qao) with remnant alluvial fan deposits (QTg). Qao deposits occur between ridges (erosional remnants) of QTg. Test hole in Qao: medium dense, silty, gravelly SAND (SM). Less well developed CaCO3 horizon and desert pavement than in QTg. Variety of clast types with low to moderate varnish and CaCO3.	Not applicable.	2/26/07	PHZ/NMB
MT8116	S5	11016+69	21	13	West side of Terrill Mountains in Long Valley	Qao/QTg	Contact older alluvium (Qao) with remnant alluvial fan deposits (QTg).	Not applicable.	2/26/07	PHZ/NMB
MT8117	S5	11005+36	23	13	West side of Terrill Mountains in Long Valley	QTg/Qao	Contact remnant alluvial fan deposits (QTg) and older alluvium (Qao). In portion of valley between Terrill Mountains and Calico Hills where toes of fans coalesce in middle of Long Valley. Slope of fan is ~ 2 to 3 %. Material is loose to medium dense, silty, gravelly SAND (SM).	Not applicable.	2/26/07	PHZ/NMB
MT8118	S5	10989+58	-35	13	West side of Terrill Mountains in Long Valley	Qao	Test hole revealed loose to medium dense, brown, slightly gravelly, silty SAND to sandy SILT (SM/ML). Surface slopes ~4 to 5%.	Not applicable.	2/26/07	PHZ/NMB
MT8119	S4	10849+39	338	13	Unnamed valley on north side of Calico Hills	QTg	Test hole in remnant alluvial fan deposits (QTg) revealed medium dense to dense, slightly gravelly, fine sandy SILT (ML) buried by ~3" of loose, slightly silty, fine SAND (SP-SM). Slope of surface is ~10 to 11%. QTg forms remnant hills between ancient erosional gulleys that feed downslope into ancestral stream that occupied Long Valley. Low gully areas partially filled by eolian sand. Less well developed varnish and pavement than typical for QTg is probably the result of local creep or colluvial deposition.	Not applicable.	2/27/07	PHZ/NMB
MT8120	S4	10838+96	463	13	Unnamed valley on north side of Calico Hills	QTg	Steep colluvial side slope of remnant alluvial fan deposits (QTg). Slope cover is mixture of colluvium from QTg and eolian sand. Test hole revealed loose to medium dense, slightly gravelly, sandy SILT to silty SAND (ML/SL). Scattered, heavily varnish cobbles on surface. Slope is ~40%.	Not applicable.	2/27/07	PHZ/NMB

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MT8121	S4	10837+44	386	13	Unnamed valley on north side of Calico Hills	Ta4	Moderate to high strength, medium gray-green, vesicular, dacite, heavily weathered, heavily fractured, FeO stained. Rock forms small hills with slopes of 25 to 35%. Rock is exposed in places at tops of hills, but otherwise is surrounded by regolith (red, loose, silty, gravelly SAND). Few visible joints.	Joints: N30E/72S, N50W/72SW	2/27/07	PHZ/NMB
MT8122	S4	10835+98	52	13	Unnamed valley on north side of Calico Hills	Ta4/Qay	Contact of andesitic bedrock (Ta4) and younger alluvium (Qay). On flat area (terrace) at break in slope of Ta4. Test hole revealed medium dense, slightly silty (to trace silty) slightly fine gravelly, fine-coarse SAND (SW-SM/SW). Bedded, with beds 1 to 8 inches thick.	Not measured.	2/27/07	PHZ/NMB
MT8123	S4	10834+71	-235	13	Unnamed valley on north side of Calico Hills	Qay	Test hole revealed medium dense, slightly fine gravelly, fine-coarse SAND, trace of silt (SW).	Not applicable.	2/27/07	PHZ/NMB
MT8124	S4	10827+48	-137	13	Unnamed valley on north side of Calico Hills	Ta4	Bedrock knob (Ta4) located within valley floor and bounded by alluvium and channel. Knob appears heavily disturbed by construction and/or quarrying. Knob consists principally of boulders and regolith (silty, sandy GRAVEL). Rock is high strength, fine grained (aphanitic) mafic rock (possible dike). Cut slope on south side has slope of 75%.	Not measured.	2/27/07	PHZ/NMB
						Qay	Channel incised into younger alluvium (Qay). Channel is ~ 8 feet wide and 2 to 3 feet deep with side slopes of 50% to vertical. Channel walls expose bedded, medium dense to dense, slightly silty to silty, gravelly SAND (SP-SM/SM). Channel floor is loose, slightly gravelly, SAND, trace of silt (SP). Channel appears recently active. Black, 2" PVC pipe crosses channel.	Not applicable.	2/27/07	PHZ/NMB
MT8125	S4	10828+86	-644	13	Unnamed valley on north side of Calico Hills	QTg/Ta4	Remnant alluvial fan deposits (QTg) ~50 feet east of contact with intermediate volcanic bedrock (Ta4). QTg shallowly buries Ta4 (to depths ranging 0 to 30 feet).	Not measured.	2/27/07	PHZ/NMB
MT8126	S4	10823+29	-561	13	Unnamed valley on north side of Calico Hills	Ta4	Shear zone in intermediate volcanic bedrock (Ta4) - Rock is distinctly sheared, low strength, fine grained DACITE. Orientation of shearing measured. Hillside is covered in slaty gravel weathered out of rock exposures. Bedrock outcrops form scattered angular knobs.	Shear plane: N0E/53W	2/27/07	PHZ/NMB
MT8127	S4	10812+88	-293	13	Unnamed valley on north side of Calico Hills	QTg	Remnant alluvial fan deposits (QTg) on incised platform north of road. Surface covered in desert pavement and varnished and CaCO3-coated clasts. Test hole revealed very dense, silty sandy gravel with scattered cobbles and boulders. Slope leading down towards alignment to south is very steep (65%) and approximately 100 feet tall. Few scattered boulders. Clasts are angular to sub-rounded.	Not applicable.	2/27/07	PHZ/NMB
MT8128	S4	10805+49	632	13	Unnamed valley on north side of Calico Hills	Qao	Older alluvium (Qao)	Not applicable.	2/27/07	PHZ/NMB
MT8129	S4	10807+18	-412	13	Unnamed valley on north side of Calico Hills	Tt3	Isolated exposure of rhyolitic tuff (Tt3). Dipping sequence of pumice and ash deposits. Beds vary in thickness from approximately 10 feet to several inches. Exposed in saddle between ridges of QTg. Orientation of beds measured. Low strength, tan and gray, ash and pumice.	Beds: N55E/39W	2/27/07	PHZ/NMB
MT8130	S4	10800+22	-108	13	Unnamed valley on north side of Calico Hills	QTg/Qay	Contact remnant alluvial fan deposits (QTg) and younger alluvium (Qay) adjacent to small channel. Channel appears recently active with loose, gravelly SAND, trace of silt.	Not applicable.	2/27/07	PHZ/NMB
MT8131	S4	10772+41	0	13	Unnamed valley on north side of Calico Hills	Qay	Test hole revealed loose to medium dense, trace to slightly silty, slightly gravelly, fine to medium SAND (SP-SM/SP).	Not applicable.	2/27/07	PHZ/NMB
MT8132	S4	10770+97	246	13	Unnamed valley on north side of Calico Hills	Qao/Qay	Older alluvium (Qao) contact with younger alluvium (Qay) and channel. Qao is covered here by as much as 1 foot of Qe (loose, fine SAND).	Not applicable.	2/27/07	PHZ/NMB
MT8133	S4	10616+93	-10	4	Walker River Basin	Qbf	Quaternary basin fill (Qbf) (probably shallowly burying Tertiary sedimetary rocks (Tsy)). In distal part of fans is gently sloping area (2%). Test hole: dense, slightly fine gravelly, silty, fine to medium SAND (SM).	Not applicable.	2/27/07	PHZ/NMB
MT8134	S4	10680+13	630	4	Walker River Basin	Tsy/Qbf	Tertiary sedimentary rock (Tsy) contact with Quaternary basin fill (Qbf). Test hole dug into poorly consolidated sandstone. Breaks into discrete clasts that can be broken by hand. Rock is tan, and composed of equigranular medium-grained SAND with trace of silt. Surface is covered in well varnished gravel. Surface slopes 2 to 5%.	Not measured.	2/27/07	PHZ/NMB
MT8135	S4	10683+34	2	4	Walker River Basin	Qay	Test hole revealed medium dense to dense slightly gravelly, slightly silty to silty, fine to medium SAND (SP-SM). Surface slopes ~2%.	Not applicable.	2/27/07	PHZ/NMB

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WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT8136	S4	10689+14	-1019	4	Walker River Basin	Qao/Qay	Contact older alluvium (Qao) and younger alluvium (Qay). Older alluvium (Qao) forms higher surfaces above Qay to west. Slopes of 2 to 3%. Test hole revealed dense, silty gravelly SAND (SM) with poorly developed desert pavement and some CaCO3 coating on cobbles.	Not applicable.	2/27/07	PHZ/NMB
MT8137	S4	10724+10	-679	4	Walker River Basin	Qao	Test hole revealed dense to very dense, slightly gravelly, silty SAND (SM) capped by eolian fine sandy SILT (dense to very dense). Moderate desert pavement and slight CaCO3 on clasts.	Not applicable.	2/27/07	PHZ/NMB
MT8147	S6	11813+96	-28	17	Basin north of Gillis Range	Qe	Eolian sand cap here consists of fine SAND with scattered gravel (SP).	Not applicable.	3/1/07	PHZ/NMB
						Qc/Qbf	Contact channel and Quaternary basin fill deposits (Qbf). Basin fill deposits (Qbf) covered in eolian sand of variable thickness (up to 5 feet). Qbf is exposed in channel ~30 ft. wide with side slopes ~8 feet tall. Channel appears recently active as evidenced by braided rills in channel bed (3-4% slope). Qbf here consists of dense to very dense, silty, gravelly, fine to medium SAND (SM) with faint bedding.	Bedding is approximately horizontal (probably distal fan deposits).	3/1/07	PHZ/NMB
MT8148	S6	11787+15	-126	17	Basin north of Gillis Range	Qbf	Eolian sand over Quaternary basin fill (Qbf). Test hole to 2 feet revealed loose, fine SAND (SP) and surface is littered with scattered fine gravel. Eolian sand to unknown depth, but dune forms were not observed. Surface slope approximately 3%	Not applicable.	3/1/07	PHZ/NMB
MT8149	S6	11762+01	-41	17	Basin north of Gillis Range	Qe/Qbf	Contact of eolian sand (Qe) in sheet-like deposits over Quaternary basin fill (Qbf) with eolian dunes. Dunes are hundreds of feet long and tens of feet wide, ~15 to 20 feet tall, with maximum slopes of ~12 to 15%. Loose, fine SAND, trace silt (SP); wind ripples on surface of dunes.	Not applicable.	3/1/07	PHZ/NMB
MT8150	S6	11745+70	49	17	Basin north of Gillis Range	Qe/Qbf	Contact of eolian sand (Qe) and basin fill (Qbf) between dune forms. Area of Qbf is ~50 feet wide (not shown on map). Test hole shows approximately 1 foot of fine SAND with scattered gravel (SP) (Qe) over dense, slightly gravelly, silty SAND (SM) (Qbf). Surface is littered with gravel.	Not applicable.	3/1/07	PHZ/NMB
MT8151	S6	11721+41	-483	17	Basin north of Gillis Range	Qe/Qao	Older alluvium (Qao) exposed in patches between eolian (Qe) sand dunes. Predominant unit is Qe. Underlying surface is fan emanating from hills to east. Contact with basin fill (Qbf) buried by Qe to south. Surface covered in scattered gravel and few cobbles. Slope is 7%. Surface is shallowly dissected by older gulleys. Test hole revealed dense to very dense, tan, slightly gravelly, silty SAND (SM).	Not applicable.	3/1/07	PHZ/NMB
MT8152	S6	11711+88	-447	16	Basin north of Gillis Range	Qe/Qao	Contact of older alluvium (Qao) and eolian sand (Qe). Qao forms a topographic depression surrounded by eolian dunes. Surface slopes of 6-8%. Very dense, slightly gravelly, silty SAND; moderate desert pavement.	Not applicable.	3/1/07	PHZ/NMB
MT8153	S6	11856+96	-84	17	Basin north of Gillis Range	Qbf	Quaternary basin fill (Qbf) adjacent to channel and old railroad grade. Test hole in Qbf revealed medium dense to dense, slightly fine gravelly, silty SAND (SM). Slope of surface is 2-3%. Thin (<3") cover of fine SAND (eolian). Channel is 8-10 feet wide with shallowly sloping walls (5-20%) generally 6 inches to 2 feet tall, channel soil is slightly silty, fine gravelly SAND (SW-SM). Probably active in Holocene. Railroad grade appears as straight path that resembles old abandoned road. Locally, cuts to 1 foot deep (3H:1V) and fills to 3 feet (3H:1V). Fills appear to be comprised of native material (eolian sand and Qbf). Sections of fill are in poor condition, and appear to have been modified by wind and water erosion.	Not applicable.	3/1/07	PHZ/NMB
MT8154	S6	11842+32	-173	17	Basin north of Gillis Range	Qbf	Test hole revealed medium dense to dense, slightly gravelly, silty SAND (SM). Fan slope is approximately 3%.	Not applicable.	3/1/07	PHZ/NMB
MT8155	S4	11705+71	93	17	Basin north of Gillis Range	Qbf	Basin fill (Qbf) exposed in channel wall. Soil is dense, tan, slightly gravelly, silty SAND (SM) interbedded sandy and gravelly beds. Channel is about 25-30 feet wide filled with loose, sandy GRAVEL, trace silt. Slope of surfcae is about 3%.	Bedding is nearly horizontal.	3/1/07	PHZ/NMB
MT8156	S6	11909+43	-24	17	Basin north of Gillis Range	Old railroad grade	Railroad fill. Fill here is 25 feet wide with slopes 3H:1V to 4H:1V and ~4 feet tall. Test hole in surface of fill revealed loose to medium dense, silty SAND, trace fine gravel (SM). Surface is littered with gravel clasts.	Not applicable.	3/1/07	PHZ/NMB

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MT8157	S6	11900+16	-34	17	Basin north of Gillis Range	Qbf	Basin fill (Qbf) at intersection with old railroad grade and channel. Railroad grade here is level with Qbf surface. Channel is ~8 feet side with ~1 foot high walls. Channel is slightly silty, gravelly SAND (SW-SM). Qbf consists of slightly gravelly, silty SAND (SM).	Not applicable.	3/1/07	PHZ/NMB
MT8158	S6	11953+23	-69	8	Basin north of Gillis Range	Qbf	Basin fill (Qbf) at intersection with small wash and railroad grade. Test hole in Qbf revealed dense, tan, silty, gravelly SAND (SM). Surface slopes approximately 2 to 3%. Channel is ~5 feet wide and ~1 to 3 feet deep with ~20% sloping walls and ~1-3 ft. tall. Channel is filled with eolian fine SAND. Fill constructed over wash for railroad grade. Fill is loose, slightly gravelly, silty SAND (SM). Channel has eroded notch into railroad grade.	Not applicable.	3/1/07	PHZ/NMB
MT8159	S4	11806+69	16	8	Basin north of Gillis Range	Qbf	Basin fill (Qbf) blanketed by layer of eolian sand >1.5 ft. thick. Surface covered in scattered fine gravel. Test hole revealed slightly silty SAND, trace of gravel (SM). Surface slopes approximately 3%.	Not applicable.	3/1/07	PHZ/NMB
MT8160	S4	11824+90	50	8	Basin north of Gillis Range	Qbf	Surface of Quaternary basin fill (Qbf) here is approximately level and covered in eolian fine SAND to depth of >1.5 ft. Gravel litters surface.	Not applicable.	3/2/07	PHZ/NMB
MT8161	S5	11526+88	-73	16		QTg	Test hole in road cut revealed very dense, slightly gravelly, silty SAND to sandy SILT (SM/ML) with scattered to abundant heavily varnished gravel and cobbles on surface; desert pavement and well-developed CaCO3 soil horizon. Tufa clasts on surface of deposit. Surface slopes approximately 3 to 4%. Thin eolian sand cover in places (~3"). Channels in vicinity are generally small, sand-filled gulleys 5-6 ft. wide and 1-2 ft. wide.	Not applicable.	3/2/07	PHZ/NMB
MT8162	S4	11316+55	68	16		QTg	On ridge of remnant alluvial fan deposits (QTg) coated in heavily varnished cobbles and boulders. Test hole in crest of ridge shows loose to medium dense, silty, fine SAND. These features (ridges) may be covered in older eolian sand or lacustrine deposits judging by high silt content.	Not applicable.	3/2/07	PHZ/NMB
MT8163	S4	11308+16	126	16		QTg	Channel incised into remnant alluvial fan deposits (QTg). Typical of channels that have incised QTg locally to form elongate ridges of QTg. Channel is 6-12 ft. wide with walls of 1-2 ft. Erosional ridges are 6-12 ft. tall. Channel filled with loose, slightly silty, fine gravelly, SAND (SW-SM).	Not applicable.	3/2/07	PHZ/NMB
MT8164	S4	11289+42	392	16	South side of Terrill Mountains	QTg	Margins of channel incised into remnant alluvial fan deposits (QTg). Surface covered in very well-developed desert pavement.	Not applicable.	3/2/07	PHZ/NMB
MT8165	S4	11273+70	230	16	South side of Terrill Mountains	QTg/Qao	Exposure of QTg/Qao contact in channel wall. Exposure reveals bedded gravelly, silty fine SAND and sandy GRAVEL (abundant boulders). Intercalated debris flows and channel deposits. Surface here is coated by as much as 2 ft. of silty fine SAND to find sandy SILT (SM/ML) which in turn is covered by desert pavement.	Not applicable.	3/2/07	PHZ/NMB
MT8166	S4	11268+95	186	16	South side of Terrill Mountains	Qao	Older alluvial fan (Qao) surface. Test hole revealed ~10" of loose to medium dense, slightly gravelly, silty SAND over dense, slightly gravelly, silty fine SAND. Surface slope is approximately 5-6%. Weak desert pavement in places. Scattered fine gravel and few cobbles on surface. Clasts range from weakly to moderately varnished.	Not applicable.	3/2/07	PHZ/NMB
MT8167	S4	11253+56	26	16	South side of Terrill Mountains	Qe/Qao/Qc	Eolian sand and older alluvium contact exposed in channel wall. Dense, silty, gravelly SAND bedded with silty, sandy GRAVEL in beds 1-inch to 1-foot thick. Channel is 20 ft. wide with vertical walls. Channel bottom filled with gravelly SAND. Channelized area (Qc) is ~300 ft. wide with numerous shallow (1-2 ft.) rills and gravel bars.	Not applicable.	3/2/07	PHZ/NMB
MT8168	S4	11250+04	49	16	South side of Terrill Mountains	Qao/Qc	Older alluvium (Qao) and channel contact.	Not applicable.	3/2/07	PHZ/NMB
MT8169	S4	11232+48	234	16	South side of Terrill Mountains	Qay	Test hole revealed loose to medium dense, silty, gravelly SAND (SM). Surface slopes approximately 6%.	Not applicable.	3/2/07	PHZ/NMB
MT8170	S4	11225+26	273	16	South side of Terrill Mountains	Qay/Qao	Contact of older alluvium (Qao) and younger alluvium (Qay) (adjacent to Qc). To east, Qay is channelized by major channels, but also is modified by smaller rills (1 ft. deep max) that fan over the surface. Qao here is island-like exposure between Qay deposits.	Not applicable.	3/2/07	PHZ/NMB

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MT8171	S5	11545+61	148	16	Basin west of Red Ridge	Qay	Test hole shows medium dense to dense, slightly gravelly, silty SAND (SM). Surface slopes approximately 2%.	Not applicable.	3/2/07	PHZ/NMB
MT8172	S5	11563+39	-48	16	Basin west of Red Ridge	Qay/Qe	Contact younger alluvium (Qay) and eolian sand (Qe). Eolian sand (Qe) forms dunes to south that range 10-15 ft. tall with side slopes of 10-25%. Qe consists of loose, fine SAND, trace of silt (SP). There are small, recent rills along this contact (few feet wide and ~6" tall). Dune field forms isolated patch.	Not applicable.	3/2/07	PHZ/NMB
MT8173	S5	11582+53	-25	16	Basin west of Red Ridge	Qay	Test hole shows medium dense to dense, slightly gravelly, silty SAND. Surface slopes approximately 3-4%.	Not applicable.	3/2/07	PHZ/NMB
MT8174	S5	11586+66	-88	16	Basin west of Red Ridge	Qe/Qay	Contact of eolian sand (Qe) and younger alluvium (Qay). Along this stretch of alignment, Qay occurs in patches between dunes. Dune frequency increases to south.	Not applicable.	3/2/07	PHZ/NMB
MT8175	S5	11599+75	19	16	Basin west of Red Ridge	Qao/Qe	Edge of patch of older alluvium (Qao) exposed between eolian dunes (Qe). Test hole shows dense to very dense, slightly fine gravelly, silty SAND (SM). Fan surface slopes approximately 2-3%. Surface is locally shallowly rilled.	Not applicable.	3/2/07	PHZ/NMB
MT8176	S6	11638+03	-50	16	Basin west of Red Ridge	Qao/Qe	Edge of older alluvium (Qao) exposure between eolian dunes (Qe).	Not applicable.	3/2/07	PHZ/NMB
MT8177	S6	11616+59	43	16	Basin west of Red Ridge	Qay	Edge of younger alluvium (Qay) and eolian dunes (Qe).	Not applicable.	3/2/07	PHZ/NMB
MT8178	S6	11596+86	-158	16	Basin west of Red Ridge	Ql	Strandline of former lake. Surface is littered with rounded and subrounded pebble- and gravel-sized clasts. Test hole revealed tan, dense to very dense, sandy SILT to silty SAND (ML/SM). Strandline forms wave-cut terraces on northeast side of basin. Surface slopes ~11% to to southwest.	Not applicable.	3/2/07	PHZ/NMB
MT8179	S6	11562+83	151	16	Basin west of Red Ridge	Ql	Upper lacustrine strandline in series of two. Ql is exposed in stream cut. At one exposure, upper part of Ql is very poorly graded coarse SAND to fine GRAVEL cemented by CaCO3. At a second exposure, Ql is sandy GRAVEL with abundant rounded pebble-sized clasts. Channel is 40-50 ft. wide with ridge slopes ~15 ft. high with slopes of ~35%. Active portion of channel is an approximately 7-foot-wide sandy bed.	Not applicable.	3/2/07	PHZ/NMB
MT8181	S5	10929+57	21	12	Western Long Valley	Tt3	Bedrock (Tt3) is exposed in channel as very broken and fractured outcrop. Rock is medium to high strength, medium gray, porphyritic dacite and rhyodacite; moderately weathered (FeO stained). On top of bedrock ridges incised by channels, rock is weathering to gravelly grus.	Prominent joint sets: N45W/49SW, N20E/87NW	3/3/07	PHZ/NMB
						Tt3/Qao	Contact rhyolitic bedrock (Tt3) and older alluvium (Qao). As observed in channel walls, Qao here shallowly buries Tt3 to depths of up to 8 ft. (estimated). Qao is incised by young channels with widths of 40-60 ft., depths of up to 30 ft., and side slopes of ~45%. Qao ridges slope ~5-6%. Test hole in Qao revealed dense to very dense, slightly gravelly to gravelly, silty SAND (SM). Moderate desert pavement on surface and desert varnish on clasts.	Not measured.	3/3/07	PHZ/NMB
MT8182	S5	10937+34	-105	12	Western Long Valley	Qao	Alignment crosses active channel incised into older alluvium (Qao). Active portion is ~10-15 ft. wide and 1 ft. deep. Material in channel is gravelly SAND, trace SILT.	Not applicable.	3/3/07	PHZ/NMB
MT8183	S5	10944+54	36	12	Western Long Valley	Qao/Tt3	Contact older alluvium (Qao) and rhyolitic bedrock (Tt3). Qao probably shallowly buries bedrock to north. Tt3 here forms prominent ridge covered in gravel and cobbles derived from Tt3 exposures. Slope is 25-35%.	Not measured.	3/3/07	PHZ/NMB
MT8184	S5	10961+22	606	12	Western Long Valley	Qao/Tt3	Contact bedrock (Tt3) and older alluvium (Qao). Bedrock here forms hill with slope of ~35%, covered in gravel- and cobble-sized pieces of pinkish porphyritic rhyolite (low to medium strength). Waypoint is adjacent to active channel filled with loose, slightly silty, gravelly SAND. Channel gradient is 4%. Qao to south is blanketed by thin (<1 ft.) cover of eolian sand.	No visible outcrop from which to make joint measurements.	3/3/07	PHZ/NMB
MT8186	S5	10905+02	83	12	Western Long Valley	Not determined	Well with new road dead ends at this point. Road leads to main dirt road to east. Large drill pad.	Not applicable.	3/3/07	PHZ/NMB

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MT8187	S5	10899+38	249	12	Western Long Valley	Qao/Tt3	Older alluviul fan (Qao) and bedrock (Tt3) contact. Older alluvium (Qao) here forms ridges (erosional remnants) along ancient and modern channels. Ridges have slopes up to 30% and are covered in moderately varnished gravel, cobbles, and few boulders. Test hole revealed dense to very dense, gravelly, silty SAND (SM).	Not measured.	3/3/07	PHZ/NMB
						Tt3	Bedrock (Tt3) here forms heavily weathered ridges probably consisting of several volcanic lithologies. Rocks are seen as gravelly cover on hillside with no exposures. Rock is medium to high strength, green-gray, porphyritic rhyolite to rhyolitic tuff, moderately fractured with no dominant joint sets, moderately weathered in outcrop, heavily weathered at surface.	Not measured.	3/3/07	PHZ/NMB
MT8188	S5	10891+69	214	12	Western Long Valley	Qay	Loose to medium dense, silty, gravelly, SAND (SM). Surface is rilled in a few places by recent wash. Scattered small knobs (including one granitic knob) rise above younger alluvium (Qay) surface.	Not applicable.	3/3/07	PHZ/NMB
MT8189	S5	10883+68	186	12	Western Long Valley	Qao	Test hole revealed medium dense to very dense, silty, gravelly SAND (SM). Surface slopes approximately 6-7%.	Not applicable.	3/3/07	PHZ/NMB
MT8190	S6	10927+48	150	12	Western Terrill Mountains	Ta4/Qao	On edge of hill comprised of intermediate volcanic bedrock (Ta4). Slope is 50% along channel incised into Ta4. Older alluvium (Qao) onlaps Ta4 on hill to northeast. Bedrock here is expressed as hill of angular cobbles and boulders (up to 3 ft. in diameter). Did not observe clearcut bedrock exposure. However, ridge of bedrock observed in channel approximately 800 ft. upstream. Rock is high to very high strength porphyritic andesite. Some boulders have evidence of flow structure.	Not measured.	3/3/07	PHZ/NMB
MT8191	S6	11029+56	-56	12	Western Terrill Mountains	Tt3	On high bedrock ridge. Topography here is complex and dramatic. Bedrock hills form high knobs with very few outcrops. Rock instead is weathered to grus surrounding small patches of highly fractured rock. Moderate strength rhyodacite to rhyolite and rhyolitic tuff. Hillsides are very steep (70% commonly). Few lacustrine strandlines form steeper areas of bedrock hills in vicinity and are typically mantled with rounded pebbles (thin beach deposits).	No obvious joints to measure locally	3/3/07	PHZ/NMB
MT8192	S6	11023+80	-260	12	Western Terrill Mountains	Ql, Qay	Small patch of loose/soft, light tan, slightly clayey, slightly fine sandy SILT; abundant gastropod shells (ML). Lake beds here crop out in patches. However, just upslope of waypoint, lake beds are buried by younger alluvium (Qay) (as observed in channel wall). Qay thickens to the east, but is generally >5 ft. thick. Qay consists of loose, slightly gravelly, silty SAND (SM).	Not applicable.	3/3/07	PHZ/NMB
MT8193	S6	11016+12	-83	12	Western Terrill Mountains	Tt3	Bedrock (Tt3) on ridge adjacent to exposure of rhyodacite. Rock is highly fractured and of moderate strength.	One prominent joint set: N85W/82S	3/3/07	PHZ/NMB
MT8194	S6	11007+47	-84	12	Western Terrill Mountains	Tt3	Bedrock (Tt3) forms talus-like slope here. No visible outcrops. Slope is approximately 40%. Surface covered by gravel- and cobble-sized angular clasts.	Not measured.	3/3/07	PHZ/NMB
MT8195	S6	10998+52	16	12	Western Terrill Mountains	Qao	Test hole shows dense to very dense, silty, gravelly SAND (SM). Surface slopes ~4-5%.	Not applicable.	3/3/07	PHZ/NMB
MT8196	S6	10996+76	-314	12	Western Terrill Mountains	Not determined	Flood control ditch constructed for the highway. Ditch is approximately 5 ft. deep with 2H:1V slopes. Ditch ends at culvert under I-95.	Not applicable.	3/3/07	PHZ/NMB
MT8197	S6	10361+42	104	10	Valley south of Desert Mountains	Ta4	Bedrock (Ta4) on saddle of hill comprised of porphyritic basaltic andesite. Rock is high to very high strength, dark gray-brown, moderately vesicular, with Ca-plagioclase phenocrysts, moderately fractured with poorly developed joints, highly to moderately weathered. Locally, slope of hill is 28 to 35%. Hill is expressed primarily as boulder-covered hill with scattered outcrops and accumulations of eolian sand in saddles. To east, hill steepens to 45%. Potential for rock fall on this slope.	One joint set observed: strike: N5W/78E	3/4/07	PHZ/NMB
MT8198	S6	10372+96	47	10	Valley south of Desert Mountains	Qay	Younger alluvium (Qay). Test hole revealed loose, slightly gravelly to gravelly, silty SAND (SM). Prominent canyon incised into bedrock to north is crossed by alignment. Channel extends into Qay where it is incised as much as 25 ft. with walls ~45%.	Not applicable.	3/4/07	PHZ/NMB
MT8199	S6	10382+64	-77	10	Valley south of Desert Mountains	Ta4	Vantage point looking east over alignment into area where bedrock is in places shallowly buried by younger alluvium (Qay) and incised deeply by channels.	Not measured.	3/4/07	PHZ/NMB

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MT8200	S6	10385+73	187	10	Valley south of Desert Mountains	Ta4	Channel incised in younger alluvium (Qay) thinly covering porphyritic dacite (Ta4) with Ca plagioclase and biotite phenocrysts, fresh to moderately weathered in channel, heavily weathered to grus where exposed at surface. Channel walls are 45% to vertical and ~30 ft. high. Active portion of channel is ~3.5 ft. wide and comprised of loose, slightly silty, sandy GRAVEL (GW-GM).	Joint sets in rock: N72W/73E, N65E/74S	3/4/07	PHZ/NMB
MT8201	S6	10397+21	116	10	Valley south of Desert Mountains	Qao	Older fan (Qao) on east side of deeply incised channels. Test hole revealed dense to very dense, silty, gravelly SAND (SM). Surface covered in scattered gravel and few pebbles. Surface slopes approximately 5%.	Not applicable.	3/4/07	PHZ/NMB
MT8202	S6	10425+00	93	10	Valley south of Desert Mountains	Qay	Test hole in channel wall incised into younger alluvium (Qay). Soil is loose to medium dense, silty, gravelly SAND to gravelly, silty SAND (SM). Channel is approximately 15 ft. wide with side slopes of 35%. Qay surface here slopes 5-6%.	Not applicable.	3/4/07	PHZ/NMB
MT8203	S6	10439+69	150	10	Valley south of Desert Mountains	Qay	Test hole shows loose to medium dense, trace to slightly gravelly, silty SAND (SM). Surface slopes approximately 8%. Adjacent to subtle channel ~6 ft. wide and 6 inches deep with sandy GRAVEL in channel bottom.	Not applicable.	3/4/07	PHZ/NMB
MT8204	S5	10335+77	-84	10	Valley south of Desert Mountains	Qay	Younger alluvium (Qay) at edge of significant channel. Test pit in Qay revealed loose to medium dense, slightly gravelly to gravelly, silty SAND (SM). Scatered boulders adjacent to channel. Cobbles and boulders are also evident in channel wall. Channel is approximately 35-40 ft. deep with steep walls (55%). Thalweg of channel is narrow (2 ft. wide) and filled with gravelly SAND.	Not applicable.	3/4/07	PHZ/NMB
MT8205	S6	10318+35	45	10	Valley south of Desert Mountains	Qay	Test hole revealed loose to medium dense, gravelly, silty SAND (SM); scattered boulders on surface. Surface slopes approximately 8-10%.	Not applicable.	3/4/07	PHZ/NMB
MT8206	S5	10305+71	-36	10	Valley south of Desert Mountains	Ta4	Bedrock hill comprised of basaltic andesite (Ta4). Rock is high strength, dark gray-brown, moderately vesicular basaltic andesite. Slope is covered in boulders (generally 1-3 ft. diameter), but a discrete outcrop was not observed. Slope of surface approximately 45-60%.	Not measured.	3/4/07	PHZ/NMB
MT8207	S6	10289+83	155	10	Valley south of Desert Mountains	Ta4/Qay	Bedrock (Ta4) contact with younger alluvium (Qay) along channel. Bedrock (Ta4) here is comprised of boulders of basaltic andesite on hills with variable slopes that are in places covered by a thin layer of eolian sand. Channel is up to 15 ft. deep, 30 ft. wide, with side slopes of ~35%. Thalweg is very narrow (~1 ft.)	Not measured.	3/4/07	PHZ/NMB
MT8208	S5	10272+53	-219	10	Valley south of Desert Mountains	Qc	Channel is about 100 ft. wide and consists of a network of bars and an active stream channel with a width of approximately 15 feet. Material in channel bottom consists of loose, sandy GRAVEL.	Not applicable.	3/4/07	PHZ/NMB
						Qay/Qc	Younger alluvium (Qay) and channel (Qc) contact. Test hole in channel wall of Qay revealed loose to medium dense, silty, gravelly SAND; abundant cobbles and few boulders (SM).	Not applicable.	3/4/07	PHZ/NMB
MT8209	S5	10257+18	83	10	Valley south of Desert Mountains	Qay	Test hole revealed loose to medium dense, slightly gravelly, silty SAND (SM). Fan surface slope is approximately 5%.	Not applicable.	3/4/07	PHZ/NMB
MT8210	S5	10199+76	122	10	Valley south of Desert Mountains	Tsy	Tertiary sedimentary rocks (Tsy) blanketed by layer of older alluvium (Qao). On elevated bench. Slope is 5-6%, gravel and cobbles of various volcanic lithologies litter the surface. Test hole reveals dense to very dense, silty, gravelly SAND (SM), and desert pavement is on surface.	Not measured.	3/4/07	PHZ/NMB
MT8211	S5	10189+70	94	10	Valley south of Desert Mountains	Tsy	Tertiary sedimentary rocks (Tsy) exposed in channel wall. Weakly cemented, weak to moderate strength, bedded sandstone. Capped by Qao to thickness of few feet	No joints.	3/4/07	PHZ/NMB
MT8212	S6	10615+87	-73	11	Valley south of Desert Mountains	Ta4	Test hole on colluvium on east side of bedrock knob. Colluvium probably shallowly buries bedrock. Surface is bounded to the north by a sand dune (Qe) about 10 ft. high. Test hole revealed dense to very dense, silty, sandy GRAVEL; scattered to abundant cobbles and boulders on surface (GM). Slope of colluvial surface here is 14%.	Not applicable.	3/5/07	PHZ/NMB
MT8213	S6	10610+09	-536	11	Valley south of Desert Mountains	Ta4	Bedrock (Ta4) in exposure near top of bedrock hill. Rock is high to very high strength, dark gray-brown, basaltic andesite; moderately to heavily fractured with few poorly defined joints; moderately weathered. Rock forms vertical to overhanging faces in outcrop that are approximately 8 ft. tall and 25 ft. long.	Dominant joints: N50E/75NW, N65W/50NE	3/5/07	PHZ/NMB

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT8214	S6	10595+92	-34	11	Valley south of Desert Mountains	Ta4	Waypoint is representative of character of slopes and geology in area. Hills here have variable slopes from vertical at outcrops to as low as 10% in passes and shallow side slopes. Slope at waypoint is approximately 17%. Bedrock outcrops at top of most hills as "bouldery cap". On hillsides, bedrock appears to be mantled by layer of colluvium and/or regolith of unknown thickness. Test hole here revealed dense to very dense, silty, sandy GRAVEL, abundant cobbles and scattered boulders (GM). Lithologically, rock is vesicular basaltic andesite with few cobbles of quartz vein rock. Eolian sand occurs in patches, usually on northeast sides of slopes, and covers underlying bedrock to unknown thicknesses.	Not measured.	3/5/07	PHZ/NMB
MT8215	S6	10584+79	88	11	Valley south of Desert Mountains	Qe	Test hole revealed loose, fine to medium SAND (SP) on crest of dune with slope ~30%.	Not applicable.	3/5/07	PHZ/NMB
MT8216	S5	10578+32	84	11	Valley south of Desert Mountains	Ta4, Qe	Channel bed incised into bedrock (Ta4). South side of channel consists of eolian sand (Qe) burying Ta4 to unknown depth. North side of channel consists of Ta4 covered in colluvium or regolith. Slopes are ~50%. Channel bottom is ~2 ft. wide.	Not measured.	3/5/07	PHZ/NMB
MT8217	S6	10532+08	153	11	Valley south of Desert Mountains	Ta4	Bedrock outcrop (Ta4). Bedrock here forms very low-slope ridges incised by channels with localized accumulations of alluvium. At waypoint, bedrock is exposed on surface with slope of approximately 5%. Rock is medium to high strength, altered volcanic breccia/conglomerate, moderately weathered, heavily fractured.	No clear joints.	3/5/07	PHZ/NMB
MT8218	S6	10525+27	182	10	Valley south of Desert Mountains	Qay	Recently active channel incised into younger alluvium (Qay). Qay here is exposed in channel walls as medium dense, silty, sandy GRAVEL (GM). Channel is ~4-6 ft. wide and filled with loose, sandy GRAVEL. Appears to have experienced recent flow. Slopes of fan and channel ~5%. Scattered boulders and abundant cobbles in Qay.	Not applicable.	3/5/07	PHZ/NMB
MT8219	S5	10509+86	20	10	Valley south of Desert Mountains	Qay	Younger alluvium (Qay) along boulder-lined channel. Bouldery deposits probably represent Holocene or late Quaternary debris flows. Fan slope is approximately 5%.	Not applicable.	3/5/07	PHZ/NMB
MT8220	S6	10503+39	-31	10	Valley south of Desert Mountains	Ta4	On flank of hill comprised of andesitic bedrock (Ta4). Predominantly, hill consists of silty, sandy GRAVEL-mantled slope (colluvium or regolith) with slope of ~25%. At waypoint is small outcrop associated with quartz vein that appears to have been more resistant to weathering. Vein is bounded by porphyritic andesite. Andesite is moderate to high strength, dark red-brown, highly fractured, moderately weathered (FeO stained).	No distinct jointing.	3/5/07	PHZ/NMB
MT8221	S6	10485+65	-146	10	Valley south of Desert Mountains	Qay	Test hole revealed loose to medium dense, silty, gravelly SAND (SM). Fan slope is approximately 6%.	Not applicable.	3/5/07	PHZ/NMB
MT8222	S6	10568+22	-217	11	Valley south of Desert Mountains	Qe	Eolian deposits here form scattered sand dunes and sand sheets. On hillside, Qe appears to cover bedrock or Qay to unknown depth. Test hole revealed loose, fine to medium SAND. Slope is approximately 20%.	Not applicable.	3/5/07	PHZ/NMB
MT8223	S6	10594+13	576	11	Valley south of Desert Mountains	Ta4	Terrace-like surface near crest of hill. Surface and test hole are similar to older alluvium in character. Test hole shows dense to very dense, silty, gravelly SAND (SM). These surfaces likely represent Ta4 covered by colluvium and regolith.	Not measured.	3/5/07	PHZ/NMB
MT8224	S5	10604+31	22	11	Valley south of Desert Mountains	Ta4	Test hole near saddle of andesitic bedrock (Ta4) revealed ~1 ft. medium dense, silty, gravelly SAND over very dense, silty, sandy GRAVEL.	Not measured.	3/5/07	PHZ/NMB
MT8225	S6	10623+37	327	11	Valley south of Desert Mountains	Ta4	bedrock (Ta4) covered by colluvium and eolian sand to unknown depths. Bedrock here is expressed as scattered boulders and cobbles of basaltic andesite with veins of quartz or other silicate minerals. Slope of surface is approximately 25%.	Not measured.	3/5/07	PHZ/NMB
MT8226	S6	10651+20	-429	11	Valley south of Desert Mountains	Qbf	Test hole revealed medium dense to dense, slightly silty, slightly gravelly, SAND. Surface is approximately level.	Not applicable.	3/5/07	PHZ/NMB
MT8227	S6	10949+86	118	12	Valley south of Desert Mountains	Qay	Younger alluvium (Qay) exposed in stream cut is dense, silty, sandy GRAVEL (possible debris flow deposit) which locally appears to overlie loose, sandy SILT (lacustrine deposits - Ql). Slope of stream cut ranges from vertical to about 55%.	Not applicable.	3/5/07	PHZ/NMB
						Qc/Qao	Contact of channel (Qc) and older alluvium (Qao). Channel is about 80 ft. wide and consists of braided rills with channel bed material of loose, sandy GRAVEL, scattered cobbles and boulders. Channel leads to culvert (~3' OD) that crosses under highway. Channel gradient is approximately 5%.	Not applicable.	3/5/07	PHZ/NMB

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT[4] SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT8228	S6	11275+45	72	14	Northeast side of Terrill Mountains	Qay	Younger alluvium (Qay) here is exposed in channel cut. Channel is ~15 ft. wide with vertical slopes up to 2.5 ft. tall. Channel bed material is loose, sandy GRAVEL to silty, gravelly SAND. Surface slopes about 9% locally. Channel appears recently active.	Not applicable.	3/6/07	PHZ/NMB
						Tt3/Qay	Bedrock (Tt3) and younger alluvium (Qay) contact adjacent to channel. Bedrock here is moderate strength, medium gray, porphyritic rhyodacite (Ca-plagioclase phenocrysts); moderately to heavily fractured, heavily weathered at surface where rock is weathering to grus.	Several clear joint sets: N65W/7SW, N90W/89W, N75W/75E	3/6/07	PHZ/NMB
MT8229	S6	11286+50	-142	14	Northeast side of Terrill Mountains	Qao/Tt3	Older alluvium (Qao) and bedrock (Tt3) contact. Test hole in Qao shows dense to very dense, silty, gravelly SAND, moderate desert pavement on surface and distinctly varnished clasts. Surface slopes ~6-7%.	Not measured.	3/6/07	PHZ/NMB
						Tt3	Rhyolitic bedrock (Tt3) forms badlands-like topography comprised of grus-covered slopes. Variable slopes in hills up to 30%. Surface material consists of very dense, sandy GRAVEL. Older alluvium (Qao) is onlaps Tt3 locally. Qao buries Tt3 to unknown depth.	Not measured.	3/6/07	PHZ/NMB
MT8230	S6	11290+95	280	14	Northeast side of Terrill Mountains	Qao/Qay	Older alluvium (Qao) and younger alluvium (Qay) contact. Qay forms sandy GRAVEL surface covered in cobbles and boulders.	Not applicable.	3/6/07	PHZ/NMB
MT8231	S6	11306+20	384	14	Northeast side of Terrill Mountains	Qay	Younger alluvium (Qay) consists of medium dense to dense, silty, sandy GRAVEL to silty, gravelly SAND (GM/SM). Surface slopes = 8%.	Not applicable.	3/6/07	PHZ/NMB
MT8232	S6	11269+44	-343	14	Northeast side of Terrill Mountains	Not determined	Camp Terrill Mines. Series of 3 mine shafts within 30 ft. of each other and surrounded by barbwire fence. Mines appear to be more or less vertical mine shafts. Scattered remnants of wooden structures in vicinity. Abundant rusty cans and metal pieces litter the surface. Rusty water tank is adjacent to mines. Rock exposures in mine shafts are inaccessible, but spoils suggest rock is medium strength, tan-white, welded tuff (rhyolite).	Not applicable.	3/6/07	PHZ/NMB
MT8233	S6	11270+65	-470	14	Northeast side of Terrill Mountains	Not determined	Mine shaft to SW of set of three observed at MT8232	Not applicable.	3/6/07	PHZ/NMB
MT8234	S6	11251+03	-10	14	Northeast side of Terrill Mountains	Ta3	Dacite (plug?): low to high strength, green-brown, coarse-grained rock with Ca-plagioclase and biotite crystals, heavily weathered (to grus). Rock forms grus-covered hills with variable slopes in vicinity of waypoint. Up to 60% slopes.	Few prominent joints: N85W/89SW, N18E/82SW	3/6/07	PHZ/NMB
MT8235	S6	11179+93	152	12	Northeast side of Terrill Mountains	KJm	Bedrock exposure (KJm) about 150 ft. west and 50 ft. above alignment and proposed cut. Rock is medium to very high strength, medium-grained GABBRO; moderately fractured with several joints; fresh to moderately weathered. Possible rock fall hazard to alignment below. Slope of hill at base of vertical outcrop is approximately 65%.	Joints: N89E/85N, N6W/86SE	3/6/07	PHZ/NMB
MT8236	S6	11180+21	2	12	Northeast side of Terrill Mountains	Qay/KJm	Younger alluvium (Qay) over gabbro bedrock (Kjm) to unknown (but likely shallow) depth. Test hole shows medium dense to very dense, silty, sandy GRAVEL. Possible rock at depth similar to what is observed at MT8235. Slope is 25%. Probably represents colluvium (debris apron) below bedrock exposed above. Small bench to west is lake (beach) deposit.	Not measured.	3/6/07	PHZ/NMB
MT8238	S6	11100+07	23	12	Northeast side of Terrill Mountains	Tt3	Outcrop of medium to high strength, porphyritic rhyolite, heavily weathered at surface (weathering to grus). Outcrop is near crest of hill and on northwest side of narrow valley between ridges of Tt3. Valley bottom is partially eroded and is covered by thin veneer of alluvium over Tt3. Bedrock outcrop slopes 47 degrees. Slope of colluvial material at base of outcrop slopes 38%.	Moderately fractured, few smooth, linear joints: N70W/70E, N10E/60E	3/6/07	PHZ/NMB
MT8239	S6	11098+26	21	12	Northeast side of Terrill Mountains	Tt3	On ridge of bedrock with view of mountains to northwest.	Not applicable.	3/6/07	PHZ/NMB
MT8240	S6	11094+08	43	12	Northeast side of Terrill Mountains	Ql	Small patch of lacustine deposits (Ql) (~100 ft. x 100 ft.) near bottom of valley. Test hole revealed loose, tan, slightly clayey, slightly fine sandy SILT (ML); scattered gastropod shells. Nearby exposures of rock suggest Ql cover is thin.	Not applicable.	3/6/07	PHZ/NMB

TABLE 5
SUMMARY OF FIELD OBSERVATIONS

WAYPOINT	ALIGNMENT SEGMENT	STATION[1] (FEET)	OFFSET[2] (FEET)	FIGURE 3 SHEET[3]	LOCATION DESCRIPTION	GEOLOGIC MAP UNIT SYMBOL	GENERAL OBSERVATIONS	STRUCTURAL OBSERVATIONS[4]	DATE	OBSERVER
MT8241	S6	11089+86	38	12	Northeast side of Terrill Mountains	Tt3	South margin of vertical to overhanging cliff mantled at base by talus slope with slope of 85%. Outcrop is inaccessible, but talus is comprised of high strength, white, porphyritic rhyolite (Tt3). Talus slope is bounded by channel 15 ft. wide with loose, sandy GRAVEL, abundant cobbles in bed. Slope is ~8%. From another vantage point, lithified lahar deposit appears to cap rhyolite by as much as 8 ft. or more.	Not measured.	3/6/07	PHZ/NMB
MT8242	S6	11077+55	116	12	Northeast side of Terrill Mountains	Tt3	On north edge of alluvial valley filled with older alluvium (Qao) and colluvium from adjacent hillsides. Waypoint at exposure of rhyolitic bedrock (Tt3) where it is evident that formation is tilted to SE. Point marks contact between two types of rock in of Tt3: 1) low to medium strength, white, lithic rhyolitic TUFF, hightly fractured, highly weathered (to grus); variable slopes of 30-80% and 2) low to high strength, volcaniclastic conglomerate; moderately weathered. Rock of type 1 can be seen cropping out of hillside to south. Narrow swath of Qay and channels in middle of valley (channel bed material is loose, sandy GRAVEL)	Not measured.	3/6/07	PHZ/NMB
MT8243	S6	11068+74	68	12	Northeast side of Terrill Mountains	Tt3	In terrain primarily comprised of grus-covered rhyolitic tuff hills and minor conglomerates	Not measured.	3/6/07	PHZ/NMB
MT8245	S6	11105+62	-169	12	Northeast side of Terrill Mountains	Qay/Tt3	Contact Qay (debris apron) and bedrock (Tt3). Bedrock forms vertical cliffs above (rock fall hazard). Large boulders litter the surface. Debris apron has slope at 60%.	Not measured.	3/6/07	PHZ/NMB

NOTES:
1. Station and offset are not shown for those waypoints that are not adjacent to an alignment segment. Station and offset are not shown for those waypoints that are greater than one mile from any alignment segment.
2. When shown, offset distance is the minimum distance in feet from the closest point on the alignment to the waypoint. When viewed upstation, a negative offset indicates that the waypoint is to the left of the alignment; a positive offset indicates that the waypoint is located to the right of the alignment.
3. Denotes the sheet number of Figure 3 on which the waypoint is plotted. Also indicates those waypoints plotted only on Plate 1.
4. A "Not applicable" designation is used for soil deposits or rock deposits that have soil properties. A "Not measured" designation is used for rock deposits where rock discontinuities were either not recorded or not observed.

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TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
MCS1	1000+00	1077+17	1.46	18								✓		Ql	5	10		3:1	3:1	Conventional	Relatively flat-lying lacutrine deposits
MCS1	1077+17	1157+13	1.51	18, 19							✓		✓	Qay	5	20		2:1	2:1	Conventional	Gently sloping alluvial fan and eolian deposits
MCS1	1157+13	1377+86	4.18	18, 19										Qe	---	20		2:1	2:1	Conventional	
MCS1	1377+86	1549+49	3.25	19, 20	✓				✓		✓			Qbf	20	10		2:1	3:1	Conventional	Gently sloping basin fill deposits
MCS1	1549+49	1557+84	0.16	20	✓									TrPvs	20	---		1:1	2:1	Drilling and Blasting	Cut through metamorphosed sedimentary and volcanic rocks, basin fill deposits surrounding
MCS1	1557+84	1560+67	0.05	20							✓			Qbf	15	---		2:1	3:1	Conventional	
MCS1	1560+67	1570+76	0.19	20	✓									TrPvs	20	---		1:1	2:1	Drilling and Blasting	
MCS1	1570+76	1619+49	0.92	20							✓			Qbf	5	10		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
MCS1	1619+49	1720+93	1.92	20				✓				✓		Qp	---	10		4:1	4:1	Conventional	Relatively flat-lying playa deposits with basin fill deposits locally
MCS1	1720+93	1734+77	0.26	20				✓			✓			Qbf	---	10		2:1	3:1	Conventional	
MCS1	1734+77	1754+18	0.37	20				✓				✓		Qp	---	10		4:1	4:1	Conventional	
MCS1	1754+18	1828+30	1.40	20, 21										Qao	10	10		2:1	2:1	Ripping	Gently sloping distal alluvial fan deposits
MCS1	1828+30	1863+84	0.67	21							✓			Qbf	5	5		2:1	3:1	Conventional	
MCS1	1863+84	1910+43	0.88	21										Qao	---	5		2:1	2:1	Ripping	
MCS1	1910+43	2172+43	4.96	21, 22							✓			Qbf	5	20		2:1	3:1	Conventional	
MCS1	2172+43	2259+37	1.65	22										Qao	---	10	✓	2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of the Gabby Valley Range, sand dunes locally; alluvial fan incised by shallow to deep washes; bridge/separation over SR 361
MCS1	2259+37	2366+00	2.02	22							✓		✓	Qe	20	20		2:1	2:1	Conventional	
MCS1	2366+00	2425+20	1.12	22					✓	✓				Qao	10	15		2:1	2:1	Ripping	
MCS1	2425+20	2452+47	0.52	22		✓			✓	✓				Qay	10	10		2:1	2:1	Conventional	
MCS1	2452+47	2454+75	0.04	22, 23		✓				✓				Qao	---	15		2:1	2:1	Ripping	
MCS1	2454+75	2461+76	0.13	22, 23		✓				✓				Qay	---	15		2:1	2:1	Conventional	
MCS1	2461+76	2465+46	0.07	23		✓				✓				Qao	---	---		2:1	2:1	Ripping	
MCS1	2465+46	2525+64	1.14	23		✓				✓				Qay	5	10		2:1	2:1	Conventional	
MCS1	2525+64	2529+63	0.08	23						✓				Qc	---	10		2:1	2:1	Conventional	
MCS1	2529+63	2598+95	1.31	23						✓				Qay	15	15		2:1	2:1	Conventional	
MCS1	2598+95	2701+04	1.93	23, 24							✓			Qbf	---	15		2:1	3:1	Conventional	Gently sloping basin fill deposits with channel deposits locally
MCS1	2701+04	2709+16	0.15	24										Qc	---	5		2:1	2:1	Conventional	
MCS1	2709+16	2713+81	0.09	24							✓			Qbf	---	5		2:1	3:1	Conventional	
MCS1	2713+81	2748+11	0.65	24										Qc	---	5		2:1	2:1	Conventional	
MCS1	2748+11	2960+48	4.02	24, 25							✓			Qbf	10	5		2:1	3:1	Conventional	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
MCS1	2960+48	3307+72	6.58	25, 26, 27		✓				✓				Qao	15	45		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of the Pilot Mountains, pediment gravel and fluvial deposits locally; alluvial fan incised by shallow to deep washes
MCS1	3307+72	3312+57	0.09	27										QTp	---	20		2:1	2:1	Ripping	
MCS1	3312+57	3318+07	0.10	27						✓				Qao	---	20		2:1	2:1	Ripping	
MCS1	3318+07	3321+18	0.06	27										QTp	---	20		2:1	2:1	Ripping	
MCS1	3321+18	3327+77	0.12	27						✓				Qao	---	25		2:1	2:1	Ripping	
MCS1	3327+77	3329+52	0.03	27										QTp	---	30		2:1	2:1	Ripping	
MCS1	3329+52	3402+89	1.39	27, 28						✓				Qao	15	45		2:1	2:1	Ripping	
MCS1	3402+89	3477+41	1.41	28							✓			Qay	10	20		2:1	2:1	Conventional	
MCS1	3477+41	3504+21	0.51	28				✓			✓			QTf	25	20		2:1	2:1	Conventional	
MCS1	3504+21	3602+14	1.85	28, 29	✓			✓				✓		Tsy	20	30		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock
MCS1	3602+14	3625+40	0.44	28, 29							✓			QTf	25	---		2:1	2:1	Conventional	Moderately sloping alluvial fan deposits of the Monte Cristo Range, fluvial deposits locally; alluvial fan incised by shallow to deep washes
MCS1	3625+40	3730+00	1.98	29				✓		✓				Qao	25	10		2:1	2:1	Ripping	
MCS1	3730+00	3745+00	0.28	29	✓			✓		✓				Qao	---	10		2:1	2:1	Ripping	
MCS1	3745+00	4293+20	10.38	29, 30, 31, 32				✓		✓				Qao	---	25		2:1	2:1	Ripping	
MCS1	4293+20	4339+63	0.88	32	✓									Tt3	20	15		1:1	2:1	Drilling and Blasting	Cut through tuffaceous volcanic rocks
MCS1	4339+63	4484+62	2.75	32, 33						✓				Qao	30	20		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of the Monte Cristo Range; incised by shallow to deep washes
MCS1	4484+62	4486+76	0.04	33										Tsv	---	20		1:1	2:1	Drilling and Blasting	
MCS1	4486+76	4500+79	0.27	33				✓						Qao	---	20		2:1	2:1	Ripping	
MCS1	4500+79	4503+00	0.04	33				✓						Tsv	---	15		1:1	2:1	Drilling and Blasting	Cut and fill through fine-grained to boulder-conglomerate sedimentary rock; alluvial fan deposits surrounding
MCS1	4503+00	4512+46	0.18	33				✓						Qao	---	20		2:1	2:1	Ripping	
MCS1	4512+46	4575+49	1.19	33	✓									Tsv	65	5		1:1	2:1	Drilling and Blasting	
MCS1	4575+49	4583+43	0.15	33						✓				Qao	---	5		2:1	2:1	Ripping	
MCS1	4583+43	4589+64	0.12	33										Tsv	---	5		1:1	2:1	Drilling and Blasting	
MCS1	4589+64	4593+50	0.07	33						✓				Qao	---	5		2:1	2:1	Ripping	
MCS1	4593+50	4596+30	0.05	33										Tsv	---	---		1:1	2:1	Drilling and Blasting	
MCS1	4596+30	4600+76	0.08	33						✓				Qao	---	---		2:1	2:1	Ripping	
MCS1	4600+76	4603+71	0.06	33										Tsv	---	---		1:1	2:1	Drilling and Blasting	
MCS1	4603+71	4612+43	0.17	33						✓				Qao	---	---		2:1	2:1	Ripping	
MCS1	4612+43	4630+17	0.34	33										Tsv	---	20		1:1	2:1	Drilling and Blasting	
MCS1	4630+17	4632+62	0.05	33						✓				Qao	---	15		2:1	2:1	Ripping	
MCS1	4632+62	4636+76	0.08	33										Tsv	---	15		1:1	2:1	Drilling and Blasting	
MCS1	4636+76	4742+25	2.00	33, 34										Qao	15	20		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of the Monte Cristo Range; incised by shallow to deep washes

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
MN1	4776+52	4868+44	1.74	34				✓						Qao	---	20	✓	2:1	2:1	Ripping	Relatively flat-lying distal alluvial fan deposits; channel deposits locally; bridge/separation over US 6/95
MN1	4868+44	4873+82	0.10	34					✓					Qc	---	20		2:1	2:1	Conventional	
MN1	4873+82	4896+94	0.44	34, 46				✓						Qao	---	20		2:1	2:1	Ripping	
MN1	4896+94	4901+11	0.08	46										Qc	---	20		2:1	2:1	Conventional	
MN1	4901+11	4942+47	0.78	46				✓						Qao	---	20		2:1	2:1	Ripping	
MN1	4942+47	4946+95	0.08	46										Qc	---	20		2:1	2:1	Conventional	
MN1	4946+95	5194+99	4.70	46, 47										Qao	15	25		2:1	2:1	Ripping	
MN1	5194+99	5199+89	0.09	47										Qc	---	20		2:1	2:1	Conventional	
MN1	5199+89	5429+60	4.35	47, 48	✓				✓					Tsy	30	35		1:1	2:1	Drilling and Blasting	Cut and fill through fine-grained sedimentary and volcanic (tuff to breccia) rocks
MN1	5429+60	5449+17	0.37	48				✓						Qc	---	30		2:1	2:1	Conventional	Gently sloping channel deposits intersected locally by steeply sloping pediment gravel deposits
MN1	5449+17	5459+61	0.20	48										QTp	---	25		2:1	2:1	Ripping	
MN1	5459+61	5460+27	0.01	48										Qc	---	20		2:1	2:1	Conventional	
MN1	5460+27	5461+97	0.03	48										QTp	---	15		2:1	2:1	Ripping	
MN1	5461+97	5463+72	0.03	48										Qc	---	15		2:1	2:1	Conventional	
MN1	5463+72	5464+40	0.01	48										QTp	---	15		2:1	2:1	Ripping	
MN1	5464+40	5536+26	1.36	48, 49				✓						Qc	30	15		2:1	2:1	Conventional	
MN1	5536+26	5540+90	0.09	49	✓									Qb	50	---		1:1	2:1	Drilling and Blasting	Cut through young bassalt; channel deposits surrounding
MN1	5540+90	5547+55	0.13	49	✓									Qc	40	---		2:1	2:1	Conventional	
MN1	5547+55	5548+14	0.01	49	✓									Qb	70	---		1:1	2:1	Drilling and Blasting	
MN1	5548+14	5566+05	0.34	49										Qc	---	20		2:1	2:1	Conventional	Flat-lying to gently sloping channel and distal alluvial fan deposits
MN1	5566+05	5575+03	0.17	49										Qao	---	20		2:1	2:1	Ripping	
MN1	5575+03	5615+68	0.77	49				✓						Qc	---	15		2:1	2:1	Conventional	
MN1	5615+68	5639+78	0.46	49					✓					Qao	15	5		2:1	2:1	Ripping	
MN1	5639+78	5652+57	0.24	49	✓				✓					Qb	25	15		1:1	2:1	Drilling and Blasting	Cut and fill through young bassalt
MN1	5652+57	5682+27	0.56	49, 50					✓					Qao	---	15		2:1	2:1	Ripping	Gently sloping alluvial fan deposits; scattered mine waste
MN1	5682+27	5689+63	0.14	50					✓					Qmw	---	10		2:1	2:1	Conventional	
MN1	5689+63	5695+02	0.10	50					✓		✓		✓	Qe	5	5		2:1	2:1	Conventional	
MN1	5695+02	5753+25	1.10	50			✓		✓					Qao	10	20		2:1	2:1	Ripping	
MN1	5753+25	5768+89	0.30	50			✓		✓					Qmw	---	10		2:1	2:1	Conventional	
MN1	5768+89	6046+96	5.27	50, 51, 52			✓	✓	✓			✓		Qp	---	25		4:1	4:1	Conventional	Relatively flat-lying playa deposits
MN1	6046+96	6209+62	3.08	52, 53			✓		✓		✓			Qbf	20	15		2:1	3:1	Conventional	Flat-lying to gently sloping basin fill and distal alluvial fan deposits
MN1	6209+62	6233+39	0.45	52, 53			✓							Qao	20	20		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of Clayton Ridge; incised by shallow to deep washes
MN1	6233+39	6262+00	0.54	52, 53										Tt3	---	25		1:1	2:1	Drilling and Blasting	
MN1	6262+00	6508+66	4.67	53, 54					✓					Qao	30	55		2:1	2:1	Ripping	
MN1	6508+66	6519+45	0.20	54										Qc	---	20		2:1	2:1	Conventional	
MN1	6519+45	6539+04	0.37	54						✓				Qao	---	30		2:1	2:1	Ripping	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
MN1	6539+04	6559+51	0.39	54	✓				✓					CZs	95	30		1:1	2:1	Drilling and Blasting	Cut and fill through sedimentary, metamorphic, and volcanic rocks; alluvial fan deposits surrounding
MN1	6559+51	6563+66	0.08	54						✓				Qao	---	35		2:1	2:1	Ripping	
MN1	6563+66	6593+15	0.56	54	✓				✓					CZs	45	60		1:1	2:1	Drilling and Blasting	
MN1	6593+15	6595+25	0.04	54						✓				Qc	---	45		2:1	2:1	Conventional	
MN1	6595+25	6597+81	0.05	54					✓					Tt3	---	70		1:1	2:1	Drilling and Blasting	
MN1	6597+81	6607+45	0.18	54						✓				Qao	---	70		2:1	2:1	Ripping	
MN1	6607+45	6611+75	0.08	54	✓				✓					Tt3	---	60		1:1	2:1	Drilling and Blasting	
MN1	6611+75	6651+92	0.76	54						✓				Qao	---	80		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of Clayton Ridge and the Montezuma Range; incised by shallow to deep washes
MN1	6651+92	6763+58	2.11	54						✓				Qay	50	85		2:1	2:1	Conventional	
MN1	6763+58	6810+45	0.89	54, 55	✓									CZs	5	100		1:1	2:1	Drilling and Blasting	Cut and fill through sedimentary and metamorphic rocks; quartz monzonite dikes locally
MN1	6810+45	6811+06	0.01	54, 55										KJg	---	60		1:1	2:1	Drilling and Blasting	
MN1	6811+06	6814+10	0.06	54, 55										CZs	---	50		1:1	2:1	Drilling and Blasting	
MN1	6814+10	6814+86	0.01	54, 55					✓					KJg	---	45		1:1	2:1	Drilling and Blasting	
MN1	6814+86	6823+57	0.16	54, 55										CZs	---	65		1:1	2:1	Drilling and Blasting	
MN1	6823+57	6974+45	2.86	54, 55						✓				Qay	15	60		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan deposits of the Montezuma Range; incised by shallow to deep washes
MN1	6974+45	7290+19	5.98	54, 56, 57						✓				Qao	45	35		2:1	2:1	Ripping	
MN1	7290+19	7305+05	0.28	57										Tt3	---	50		1:1	2:1	Drilling and Blasting	Cut and fill through tuffaceous volcanic rock; old alluvium and channel deposits locally
MN1	7305+05	7308+79	0.07	57						✓				Qc	---	35		2:1	2:1	Conventional	
MN1	7308+79	7497+75	3.58	57, 58	✓				✓					Tt3	70	50		1:1	2:1	Drilling and Blasting	
MN1	7497+75	7511+49	0.26	58						✓				Qao	20	10		2:1	2:1	Ripping	
MN1	7511+49	7531+72	0.38	58										Tt3	---	35		1:1	2:1	Drilling and Blasting	
MN1	7531+72	7960+15	8.11	58, 59					✓					Qao	30	40		2:1	2:1	Ripping	Gently to moderately sloping alluvial fan deposits of the Montezuma Range and Goldfield Hills; incised by shallow to deep washes
MN1	7960+15	8030+00	1.32	59, 60						✓	✓			Qay	---	20		2:1	2:1	Conventional	
MN1	8030+00	8041+79	0.22	60	✓					✓	✓			Qay	---	20		2:1	2:1	Conventional	
MN1	8041+79	8048+92	0.14	60	✓									CZs	5	---		1:1	2:1	Drilling and Blasting	Cut through metamorphic and sedimentary rocks
MN1	8048+92	8115+66	1.26	60						✓	✓			Qay	---	25		2:1	2:1	Conventional	Moderately sloping alluvial fan deposits of the Goldfield Hills; incised by shallow to deep washes
MN1	8115+66	8133+63	0.34	60	✓									CZs	5	20		1:1	2:1	Drilling and Blasting	Cut and fill through metamorphic and sedimentary rocks
MN1	8133+63	8159+36	0.49	60							✓			Qay	5	20		2:1	2:1	Conventional	Gently sloping alluvial fan deposits of the Goldfield and Cuprite Hills
MN1	8159+36	8167+09	0.15	60										Tt3	---	20		1:1	2:1	Drilling and Blasting	
MN1	8167+09	8196+83	0.56	60							✓			Qay	---	20		2:1	2:1	Conventional	
MN1	8196+83	8270+22	1.39	60					✓					Qao	20	15		2:1	2:1	Ripping	
MN1	8270+22	8289+91	0.37	60	✓				✓					CZs	10	5		1:1	2:1	Drilling and Blasting	Cut and fill through metamorphic and sedimentary rocks
MN1	8289+91	8441+01	2.86	60				✓	✓					Qao	10	25	✓	2:1	2:1	Ripping	Gently sloping alluvial fan deposits of the Cuprite Hills; bridge/separation over US 95 and Jackson Wash
MN1	8441+01	8451+98	0.21	60, 61					✓					Tsy	---	15		1:1	2:1	Drilling and Blasting	
MN1	8451+98	8482+77	0.58	60, 61				✓	✓					Qao	---	10		2:1	2:1	Ripping	
MN1	8482+77	8637+96	2.94	61							✓			Qbf	---	15		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
MN2	4825+77	5295+38	8.89	34, 35		✓			✓					Qao	---	20	✓	2:1	2:1	Ripping	Flat-lying to gently sloping alluvial fan deposits; sand dunes locally; bridge/separation over US 6/95
MN2	5295+38	5305+70	0.20	35							✓		✓	Qe	---	15		2:1	2:1	Conventional	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
MN2	5305+70	5345+33	0.75	35				✓				✓		Qp	---	15		4:1	4:1	Conventional	Lowland playa deposits with areas of overlying sand dunes; channel deposits locally
MN2	5345+33	5412+48	1.27	35							✓		✓	Qe	---	20		2:1	2:1	Conventional	
MN2	5412+48	5415+23	0.05	35				✓				✓		Qp	---	20		4:1	4:1	Conventional	
MN2	5415+23	5419+80	0.09	35										Qc	---	20		2:1	2:1	Conventional	
MN2	5419+80	5435+37	0.29	35				✓				✓		Qp	---	20		4:1	4:1	Conventional	
MN2	5435+37	5485+41	0.95	35, 36							✓		✓	Qe	---	20		2:1	2:1	Conventional	
MN2	5485+41	5805+05	6.05	36, 37				✓				✓		Qp	---	20		4:1	4:1	Conventional	Lowland playa deposits with areas of overlying, persistent sand dunes; channel deposits locally
MN2	5805+05	6520+00	13.54	37, 38, 39, 40		✓		✓	✓					Qao	10	25		2:1	2:1	Ripping	Flat-lying to moderately sloping alluvial fan deposits; scattered mine waste; channel deposits locally
MN2	6520+00	6970+17	8.53	40, 41, 42				✓						Qao	---	20		2:1	2:1	Ripping	
MN2	6970+17	6972+04	0.04	42					✓					Qmw	---	10		2:1	2:1	Conventional	
MN2	6972+04	7177+19	3.89	42, 43										Qao	---	20		2:1	2:1	Ripping	
MN2	7177+19	7179+48	0.04	43										Qc	---	25		2:1	2:1	Conventional	
MN2	7179+48	7498+47	6.04	43, 44, 45				✓	✓					Qao	---	50		2:1	2:1	Ripping	
MN3	300+00	391+34	1.73	44				✓						Qao	10	15		2:1	2:1	Ripping	Gently to moderately sloping alluvial fan deposits of the Montezuma Range, tuffaceous volcanic rocks locally; alluvial fan incised by shallow to deep washes
MN3	391+34	398+40	0.13	44	✓									Tt3	10	---		1:1	2:1	Drilling and Blasting	
MN3	398+40	432+75	0.65	44										Qao	5	10		2:1	2:1	Ripping	
MN3	432+75	434+42	0.03	44										Tt3	---	10		1:1	2:1	Drilling and Blasting	
MN3	434+42	443+90	0.18	44										Qao	5	10		2:1	2:1	Ripping	
MN3	443+90	445+64	0.03	44										Qc	---	10		2:1	2:1	Conventional	
MN3	445+64	506+72	1.16	44, 55										Qao	---	20		2:1	2:1	Ripping	
MN3	506+72	508+03	0.02	44, 55										Qc	---	15		2:1	2:1	Conventional	
MN3	508+03	514+37	0.12	44, 55										Qao	---	15		2:1	2:1	Ripping	
MN3	514+37	515+79	0.03	44, 55										Qc	---	15		2:1	2:1	Conventional	
MN3	515+79	622+57	2.02	44, 55						✓				Qao	15	25		2:1	2:1	Ripping	
MN3	622+57	635+03	0.24	55	✓									CZs	20	5		1:1	2:1	Drilling and Blasting	Cut and fill through sedimentary, metamorphic, and igneous (tuffaceous and granitic) rocks of the Montezuma Range; alluvial fan deposits surrounding
MN3	635+03	670+34	0.67	55	✓									KJg	15	45		1:1	2:1	Drilling and Blasting	
MN3	670+34	706+16	0.68	55						✓				Qao	20	10		2:1	2:1	Ripping	
MN3	706+16	708+25	0.04	55	✓									Tt3	20	---		1:1	2:1	Drilling and Blasting	
MN3	708+25	721+05	0.24	54, 55						✓				Qao	20	20		2:1	2:1	Ripping	
MN3	721+05	724+36	0.06	54, 55						✓				Qay	---	10		2:1	2:1	Conventional	
MN3	724+36	725+54	0.02	54, 55										KJg	---	15		1:1	2:1	Drilling and Blasting	
MN3	725+54	727+06	0.03	54, 55						✓				Qc	---	20		2:1	2:1	Conventional	
MN3	727+06	780+78	1.02	54, 55						✓				Qay	5	25		2:1	2:1	Conventional	
S1	10000+00	10088+70	1.68	2					✓		✓			Qbf	20	5		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S1	10088+70	10103+43	0.28	2		✓		✓			✓			QTf	10	15	✓	2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S1	10103+43	10420+00	6.00	2, 3		✓						✓		Tsy	45	20		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock
S1	10420+00	10610+03	3.60	3, 4	✓	✓						✓		Tsy	---	15		1:1	2:1	Ripping	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[11]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S1	10610+03	10740+49	2.47	4, 5							✓			QTf	---	20		2:1	2:1	Conventional	Gently sloping fluvial deposits incised by shallow to deep washes
S1	10740+49	10747+22	0.13	5	✓									Tsy	5	---		1:1	2:1	Ripping	Cut through fine-grained sedimentary rock
S1	10747+22	10780+19	0.62	5							✓			Qay	5	10		2:1	2:1	Conventional	Gently to moderately sloping, distal to medial alluvial fan and aeolian sand deposits; alluvial fan incised by shallow to deep washes; bridge/separation over US 95
S1	10780+19	10876+50	1.82	5							✓		✓	Qe	---	15		2:1	2:1	Conventional	
S1	10876+50	10893+65	0.32	5							✓			Qbf	---	5		2:1	3:1	Conventional	
S1	10893+65	11051+58	2.99	5, 6							✓		✓	Qe	---	10	✓	2:1	2:1	Conventional	
S1	11051+58	11180+24	2.44	6, 7						✓	✓			Qay	5	30		2:1	2:1	Conventional	
S1	11180+24	11209+07	0.55	7							✓			Qbf	15	20		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits with numerous playa, lucustrine and eolian (sand dune) deposits interspersed
S1	11209+07	11210+13	0.02	7							✓		✓	Qe	20	---		2:1	2:1	Conventional	
S1	11210+13	11216+81	0.13	7							✓	✓		Qbf	15	---		2:1	3:1	Conventional	
S1	11216+81	11218+65	0.03	7				✓				✓		Qp	10	---		4:1	4:1	Conventional	
S1	11218+65	11221+82	0.06	7							✓	✓		Qbf	15	---		2:1	3:1	Conventional	
S1	11221+82	11227+58	0.11	7							✓		✓	Qe	15	---		2:1	2:1	Conventional	
S1	11227+58	11231+99	0.08	7				✓				✓		Qp	---	5		4:1	4:1	Conventional	
S1	11231+99	11235+08	0.06	7							✓	✓		Qbf	---	5		2:1	3:1	Conventional	
S1	11235+08	11237+56	0.05	7								✓		Ql	---	5		3:1	3:1	Conventional	
S1	11237+56	11239+21	0.03	7							✓	✓		Qbf	---	5		2:1	3:1	Conventional	
S1	11239+21	11242+74	0.07	7							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S1	11242+74	11246+84	0.08	7				✓				✓		Qp	---	5		4:1	4:1	Conventional	
S1	11246+84	11327+24	1.52	7							✓	✓		Qbf	5	15		2:1	3:1	Conventional	
S1	11327+24	11331+03	0.07	7							✓		✓	Qe	---	15		2:1	2:1	Conventional	Relatively flat-lying basin fill deposits with areas of persistent sand dunes
S1	11331+03	11331+22	0.00	7							✓			Qbf	---	10		2:1	3:1	Conventional	
S1	11331+22	11332+42	0.02	7							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S1	11332+42	11483+14	2.85	7, 8							✓			Qbf	5	20		2:1	3:1	Conventional	
S1	11483+14	11485+59	0.05	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S1	11485+59	11516+87	0.59	8, 9							✓			Qbf	---	10		2:1	3:1	Conventional	
S1	11516+87	11527+29	0.20	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S1	11527+29	11541+75	0.27	9							✓			Qbf	---	10		2:1	3:1	Conventional	
S1	11541+75	11548+94	0.14	9							✓		✓	Qe	5	10		2:1	2:1	Conventional	
S1	11548+94	11583+60	0.66	9							✓			Qbf	10	10		2:1	3:1	Conventional	
S1	11583+60	11639+86	1.07	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	Gently sloping, persistent sand dunes adjacent to alluvial fan deposit
S1	11639+86	11651+87	0.23	9										Qay	---	35		2:1	2:1	Conventional	
S1	11651+87	11699+65	0.90	9							✓		✓	Qe	5	30		2:1	2:1	Conventional	
S2	10000+00	10088+70	1.68	2					✓		✓			Qbf	20	5		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S2	10088+70	10103+43	0.28	2		✓		✓			✓			QTf	10	15	✓	2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S2	10103+43	10420+00	6.00	2, 3		✓						✓		Tsy	45	15		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock
S2	10420+00	10610+03	3.60	3, 4	✓	✓						✓		Tsy	70	15		1:1	2:1	Ripping	
S2	10610+03	10740+49	2.47	4, 5							✓			QTf	---	20		2:1	2:1	Conventional	Gently sloping fluvial deposits incised by shallow to deep washes
S2	10740+49	10747+22	0.13	5	✓									Tsy	5	---		1:1	2:1	Ripping	Cut through fine-grained sedimentary rock

TABLE 6
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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S2	10747+22	10780+18	0.62	5							✓			Qay	5	15		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan and aeolian sand deposits; alluvial fan incised by shallow to deep washes
S2	10780+18	10876+03	1.82	5							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S2	10876+03	11387+85	9.69	5, 6, 7, 8							✓	✓		Qbf	---			2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S2	11387+85	11388+96	0.02	8							✓		✓	Qe	---	---		2:1	2:1	Conventional	Relatively flat-lying basin fill deposits with areas of persistent sand dunes
S2	11388+96	11401+47	0.24	8							✓			Qbf	---	5		2:1	3:1	Conventional	
S2	11401+47	11403+23	0.03	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11403+23	11412+65	0.18	8							✓			Qbf	---	5		2:1	3:1	Conventional	
S2	11412+65	11415+69	0.06	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11415+69	11420+46	0.09	8							✓			Qbf	---	5		2:1	3:1	Conventional	
S2	11420+46	11422+62	0.04	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11422+62	11426+56	0.07	8							✓			Qbf	---	5		2:1	3:1	Conventional	
S2	11426+56	11429+29	0.05	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11429+29	11435+85	0.12	8, 9							✓	✓		Qbf	---	5		2:1	3:1	Conventional	
S2	11435+85	11446+43	0.20	9							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11446+43	11460+92	0.27	9							✓			Qbf	---	5		2:1	3:1	Conventional	
S2	11460+92	11468+11	0.14	9							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S2	11468+11	11502+76	0.66	9							✓			Qbf	5	10		2:1	3:1	Conventional	
S2	11502+76	11558+92	1.06	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	Gently sloping, persistent sand dunes adjacent to alluvial fan deposit
S2	11558+92	11570+82	0.23	9										Qay	---	35		2:1	2:1	Conventional	
S2	11570+82	11618+81	0.91	9							✓		✓	Qe	5	30		2:1	2:1	Conventional	
S3	10000+00	10002+60	0.05	5							✓			Qbf	---	10		2:1	3:1	Conventional	Cut through remnant alluvial fan deposit, basin fill surrounding
S3	10002+60	10055+18	1.00	5										QTg	80	15		2:1	2:1	Ripping	
S3	10055+18	10067+02	0.22	5							✓			Qbf	10	25		2:1	3:1	Conventional	
S3	10067+02	10075+53	0.16	5							✓			QTf	---	70		2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S3	10075+53	10088+72	0.25	5				✓						Qc	---	70	✓	2:1	2:1	Conventional	
S3	10088+72	10096+62	0.15	5							✓			QTf	---	70		2:1	2:1	Conventional	
S3	10096+62	10111+83	0.29	5	✓									Tsy	5	5		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock
S3	10111+83	10232+17	2.28	5, 6							✓		✓	Qe	5	10		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan and aeolian sand deposits; alluvial fan incised by shallow to deep washes
S3	10232+17	10287+84	1.05	6							✓			Qay	5	10		2:1	2:1	Conventional	
S3	10287+84	10364+27	1.45	6							✓		✓	Qe	5	10		2:1	2:1	Conventional	
S3	10364+27	10492+93	2.44	6, 7						✓	✓			Qay	5	30		2:1	2:1	Conventional	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S3	10492+93	10521+77	0.55	7							✓			Qbf	15	20		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits with numerous playa, lucustrine and eolian (sand dune) deposits interspersed
S3	10521+77	10522+83	0.02	7							✓		✓	Qe	20	---		2:1	2:1	Conventional	
S3	10522+83	10529+50	0.13	7							✓	✓		Qbf	20	---		2:1	3:1	Conventional	
S3	10529+50	10531+34	0.03	7				✓				✓		Qp	10	---		4:1	4:1	Conventional	
S3	10531+34	10534+52	0.06	7							✓	✓		Qbf	15	---		2:1	3:1	Conventional	
S3	10534+52	10540+27	0.11	7							✓		✓	Qe	15	---		2:1	2:1	Conventional	
S3	10540+27	10544+68	0.08	7				✓				✓		Qp	---	5		4:1	4:1	Conventional	
S3	10544+68	10547+78	0.06	7							✓	✓		Qbf	---	5		2:1	3:1	Conventional	
S3	10547+78	10550+25	0.05	7								✓		Ql	---	5		3:1	3:1	Conventional	
S3	10550+25	10551+90	0.03	7							✓	✓		Qbf	---	5		2:1	3:1	Conventional	
S3	10551+90	10555+43	0.07	7							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S3	10555+43	10559+53	0.08	7				✓				✓		Qp	---	5		4:1	4:1	Conventional	
S3	10559+53	10639+94	1.52	7							✓	✓		Qbf	5	15		2:1	3:1	Conventional	
S3	10639+94	10643+72	0.07	7							✓		✓	Qe	---	15		2:1	2:1	Conventional	Relatively flat-lying basin fill deposits with areas of persistent sand dunes
S3	10643+72	10643+92	0.00	7							✓			Qbf	---	10		2:1	3:1	Conventional	
S3	10643+92	10645+12	0.02	7							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S3	10645+12	10795+83	2.85	7, 8							✓			Qbf	---	20		2:1	3:1	Conventional	
S3	10795+83	10798+28	0.05	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S3	10798+28	10829+56	0.59	8, 9							✓			Qbf	---	10		2:1	3:1	Conventional	
S3	10829+56	10839+98	0.20	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S3	10839+98	10854+44	0.27	9							✓			Qbf	---	10		2:1	3:1	Conventional	
S3	10854+44	10861+63	0.14	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S3	10861+63	10896+29	0.66	9							✓			Qbf	10	10		2:1	3:1	Conventional	
S3	10896+29	10952+53	1.07	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	Gently sloping, persistent sand dunes adjacent to alluvial fan deposit
S3	10952+53	10964+49	0.23	9										Qay	---	35		2:1	2:1	Conventional	
S3	10964+49	11012+35	0.91	9							✓		✓	Qe	5	35		2:1	2:1	Conventional	
S4	10000+00	10089+74	1.70	2					✓		✓			Qbf	5	20		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S4	10089+74	10104+48	0.28	2		✓		✓			✓			QTf	---	30	✓	2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S4	10104+48	10420+00	5.98	2, 3		✓						✓		Tsy	35	25		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock
S4	10420+00	10618+60	3.76	3, 4	✓	✓						✓		Tsy	---	25		1:1	2:1	Ripping	
S4	10618+60	10635+53	0.32	4							✓			QTf	---	15		2:1	2:1	Conventional	
S4	10635+53	10680+45	0.85	4										Tsy	---	15		1:1	2:1	Ripping	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S4	10680+45	10697+42	0.32	4										Qay	---	10		2:1	2:1	Conventional	Gently to moderately sloping alluvium of the Calicho Hills and Painted Mesa; local remnant alluvial fan deposits and andesitic rock
S4	10697+42	10720+20	0.43	4										Qao	10	15		2:1	2:1	Ripping	
S4	10720+20	10743+32	0.44	4				✓						Qay	---	25		2:1	2:1	Conventional	
S4	10743+32	10749+73	0.12	4				✓						Qao	---	10		2:1	2:1	Ripping	
S4	10749+73	10756+79	0.13	4, 13				✓						Qay	---	15		2:1	2:1	Conventional	
S4	10756+79	10765+93	0.17	4, 13				✓						Qao	---	15		2:1	2:1	Ripping	
S4	10765+93	10808+62	0.81	13				✓			✓			Qay	15	20		2:1	2:1	Conventional	
S4	10808+62	10813+66	0.10	13				✓						QTg	40	---		2:1	2:1	Ripping	
S4	10813+66	10842+67	0.55	13				✓		✓				Qay	20	10		2:1	2:1	Conventional	
S4	10842+67	10864+04	0.40	13										QTg	20	15	✓	2:1	2:1	Ripping	Relatively flat-lying remnant alluvial fan deposits, locally buried by eolian sand; bridge/separation over US 95
S4	10864+04	10877+03	0.25	13							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S4	10877+03	10931+57	1.03	13										QTg	---	20		2:1	2:1	Ripping	
S4	10931+57	11019+51	1.67	6, 13							✓		✓	Qe	25	10		2:1	2:1	Conventional	Eolian sand deposits on gently sloping valley floor
S4	11019+51	11051+19	0.60	6										QTg	60	---		2:1	2:1	Ripping	Cut and fill through remnant alluvial fan deposits of the Calicho Hills/Terrill Mountains pass; local alluvial fan and channel deposits
S4	11051+19	11051+85	0.01	6						✓				Qay	30	---		2:1	2:1	Conventional	
S4	11051+85	11053+02	0.02	6						✓				Qc	30	---		2:1	2:1	Conventional	
S4	11053+02	11057+03	0.08	6						✓				Qay	30	---		2:1	2:1	Conventional	
S4	11057+03	11094+25	0.70	6				✓						QTg	50	35		2:1	2:1	Ripping	
S4	11094+25	11108+22	0.26	6						✓	✓			Qay	---	65		2:1	2:1	Conventional	
S4	11108+22	11114+70	0.12	6										QTg	---	75		2:1	2:1	Ripping	
S4	11114+70	11119+50	0.09	6				✓		✓				Qc	---	75		2:1	2:1	Conventional	
S4	11119+50	11122+88	0.06	6						✓				Qay	---	70		2:1	2:1	Conventional	Cut and fill through tuffaceous volcanic rock and remnant alluvial fan deposits of the southern Terrill Mountains; variable topographic relief
S4	11122+88	11130+96	0.15	6										Tt3	---	65		1:1	2:1	Drilling and Blasting	
S4	11130+96	11138+41	0.14	6										QTg	10	45		2:1	2:1	Ripping	
S4	11138+41	11140+79	0.05	6, 16	✓									Tt3	10	15		1:1	2:1	Drilling and Blasting	
S4	11140+79	11145+82	0.10	6, 16										QTg	---	35		2:1	2:1	Ripping	
S4	11145+82	11147+50	0.03	6, 16						✓				Qc	---	35		2:1	2:1	Conventional	
S4	11147+50	11164+18	0.32	6, 16	✓									Tt3	5	40		1:1	2:1	Drilling and Blasting	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S4	11164+18	11169+29	0.10	16						✓				Qay	---	65		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan and remnant alluvial fan deposits of the southern Terrill Mountains; locally incised by shallow to deep washes
S4	11169+29	11170+79	0.03	16						✓				Qc	---	65		2:1	2:1	Conventional	
S4	11170+79	11175+62	0.09	16						✓				Qay	---	65		2:1	2:1	Conventional	
S4	11175+62	11191+94	0.31	16						✓				Qao	---	35		2:1	2:1	Ripping	
S4	11191+94	11193+34	0.03	16				✓		✓				Qc	---	25		2:1	2:1	Conventional	
S4	11193+34	11224+52	0.59	16										Qao	---	50		2:1	2:1	Ripping	
S4	11224+52	11232+62	0.15	16						✓	✓			Qay	---	50		2:1	2:1	Conventional	
S4	11232+62	11237+65	0.10	16						✓				Qc	---	45		2:1	2:1	Conventional	
S4	11237+65	11241+33	0.07	16						✓	✓			Qay	---	40		2:1	2:1	Conventional	
S4	11241+33	11250+85	0.18	16										Qao	---	25		2:1	2:1	Ripping	
S4	11250+85	11254+81	0.07	16						✓				Qc	---	15		2:1	2:1	Conventional	
S4	11254+81	11272+06	0.33	16										Qao	---	15		2:1	2:1	Ripping	
S4	11272+06	11333+40	1.16	16										QTg	25	15		2:1	2:1	Ripping	
S4	11333+40	11366+96	0.64	16										Qay	---	30		2:1	2:1	Conventional	
S4	11366+96	11370+46	0.07	16							✓		✓	Qe	---	20		2:1	2:1	Conventional	Persistent sand dunes and local exposures of alluvial fan deposits of Red Ridge
S4	11370+46	11375+55	0.10	16										Qay	---	20		2:1	2:1	Conventional	
S4	11375+55	11377+48	0.04	16							✓		✓	Qe	---	15		2:1	2:1	Conventional	
S4	11377+48	11393+44	0.30	16										Qay	5	10		2:1	2:1	Conventional	
S4	11393+44	11405+75	0.23	16							✓		✓	Qe	---	25		2:1	2:1	Conventional	
S4	11405+75	11411+38	0.11	16										Qao	---	25		2:1	2:1	Ripping	
S4	11411+38	11413+80	0.05	16							✓		✓	Qe	---	35		2:1	2:1	Conventional	
S4	11413+80	11416+93	0.06	16										Qao	---	40		2:1	2:1	Ripping	
S4	11416+93	11421+85	0.09	16							✓		✓	Qe	---	35		2:1	2:1	Conventional	
S4	11421+85	11423+49	0.03	16										Qao	---	35		2:1	2:1	Ripping	
S4	11423+49	11459+54	0.68	16							✓		✓	Qe	---	35		2:1	2:1	Conventional	
S4	11459+54	11483+97	0.46	16										Qao	---	45		2:1	2:1	Ripping	
S4	11483+97	11535+40	0.97	16, 17							✓		✓	Qe	10	35		2:1	2:1	Conventional	
S4	11535+40	11586+61	0.97	17							✓			Qbf	---	15		2:1	3:1	Conventional	Gently sloping basin fill deposits; incised by shallow to deep washes
S4	11586+61	11587+97	0.03	17										Qc	---	---		2:1	2:1	Conventional	
S4	11587+97	11703+82	2.19	17							✓			Qbf	---	30		2:1	3:1	Conventional	
S4	11703+82	11706+10	0.04	17										Qc	---	5		2:1	2:1	Conventional	
S4	11706+10	11912+09	3.90	8, 17							✓			Qbf	---	20		2:1	3:1	Conventional	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S4	11912+09	11914+50	0.05	8							✓		✓	Qe	---	10		2:1	2:1	Conventional	Gently sloping, persistent sand dunes surrounded by basin fill deposits; adjacent to alluvial fan deposit
S4	11914+50	11945+82	0.59	8, 9							✓			Qbf	---	20		2:1	3:1	Conventional	
S4	11945+82	11956+24	0.20	9							✓		✓	Qe	---	20		2:1	2:1	Conventional	
S4	11956+24	11970+72	0.27	9							✓			Qbf	---	15		2:1	3:1	Conventional	
S4	11970+72	11977+90	0.14	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S4	11977+90	12012+48	0.65	9							✓			Qbf	5	10		2:1	3:1	Conventional	
S4	12012+48	12059+53	0.89	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S4	12059+53	12084+34	0.47	9										Qay	15	20		2:1	2:1	Conventional	
S4	12084+34	12130+74	0.88	9							✓		✓	Qe	30	5		2:1	2:1	Conventional	
S5	10000+00	10089+78	1.70	2					✓		✓			Qbf	10	10		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S5	10089+78	10104+51	0.28	2		✓		✓			✓			QTf	---	25	✓	2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S5	10104+51	10177+52	1.38	2		✓						✓		Tsy	30	20		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock, alluvial fan deposits locally
S5	10177+52	10178+96	0.03	2							✓			Qay	20	---		2:1	2:1	Conventional	
S5	10178+96	10208+39	0.56	2, 10										Tsy	70	5		1:1	2:1	Ripping	
S5	10208+39	10269+66	1.16	10				✓			✓			Qay	---	45		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan deposits of the Desert Mountains, local cuts and fills in andesitic volcanic rocks; alluvial fans incised by shallow to deep washes
S5	10269+66	10273+21	0.07	10										Qc	---	30		2:1	2:1	Conventional	
S5	10273+21	10288+77	0.29	10							✓			Qay	25	15		2:1	2:1	Conventional	
S5	10288+77	10289+77	0.02	10						✓				Qc	30	---		2:1	2:1	Conventional	
S5	10289+77	10310+08	0.38	10	✓									Ta4	60	30		1:1	2:1	Drilling and Blasting	
S5	10310+08	10333+40	0.44	10						✓	✓			Qay	---	60		2:1	2:1	Conventional	
S5	10333+40	10334+50	0.02	10						✓				Qc	---	60		2:1	2:1	Conventional	
S5	10334+50	10356+40	0.41	10						✓	✓			Qay	---	80		2:1	2:1	Conventional	
S5	10356+40	10372+02	0.30	10	✓									Ta4	---	70		1:1	2:1	Drilling and Blasting	
S5	10372+02	10373+92	0.04	10						✓				Qao	---	55		2:1	2:1	Ripping	
S5	10373+92	10387+90	0.26	10	✓									Ta4	10	80		1:1	2:1	Drilling and Blasting	
S5	10387+90	10391+93	0.08	10						✓				Qao	---	70		2:1	2:1	Ripping	
S5	10391+93	10394+80	0.05	10										Ta4	---	50		1:1	2:1	Drilling and Blasting	
S5	10394+80	10401+48	0.13	10						✓				Qao	---	40		2:1	2:1	Ripping	
S5	10401+48	10498+69	1.84	10							✓			Qay	20	30		2:1	2:1	Conventional	
S5	10498+69	10509+77	0.21	10	✓									Ta4	10	40		1:1	2:1	Drilling and Blasting	
S5	10509+77	10526+39	0.31	10, 11										Qay	---	60		2:1	2:1	Conventional	

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TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S5	10526+39	10531+76	0.10	10, 11										Ta4	---	55		1:1	2:1	Drilling and Blasting	Cut and fill through andesitic volcanic rocks; surrounded by eolian deposits
S5	10531+76	10534+58	0.05	10, 11							✓		✓	Qe	---	35		2:1	2:1	Conventional	
S5	10534+58	10557+48	0.43	10, 11	✓									Ta4	30	40		1:1	2:1	Drilling and Blasting	
S5	10557+48	10591+28	0.64	11				✓			✓		✓	Qe	---	60		2:1	2:1	Conventional	
S5	10591+28	10610+27	0.36	11	✓									Ta4	105	5		1:1	2:1	Drilling and Blasting	
S5	10610+27	10617+78	0.14	11							✓		✓	Qe	85	---		2:1	2:1	Conventional	
S5	10617+78	10617+82	0.00	11	✓									Ta4	30	---		1:1	2:1	Drilling and Blasting	
S5	10617+82	10641+86	0.46	11							✓		✓	Qe	30	25		2:1	2:1	Conventional	Relatively flat-lying floor of Long Valley with persistent sand dunes, local basin fill and alluvial fan deposits
S5	10641+86	10653+20	0.21	11							✓			Qbf	---	30		2:1	3:1	Conventional	
S5	10653+20	10660+21	0.13	11							✓		✓	Qe	20	10		2:1	2:1	Conventional	
S5	10660+21	10675+95	0.30	11										Qao	50	---		2:1	2:1	Ripping	
S5	10675+95	10749+91	1.40	11							✓		✓	Qe	45	25		2:1	2:1	Conventional	
S5	10749+91	10885+71	2.57	11, 12						✓				Qao	40	20		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of Painted Mesa, adjacent foothills comprised of tuffaceous volcanic rocks; alluvial fan incised by shallow to deep washes; bridge/separation over US 95
S5	10885+71	10893+97	0.16	12						✓	✓			Qay	---	35		2:1	2:1	Conventional	
S5	10893+97	10929+11	0.67	12						✓				Qao	---	50		2:1	2:1	Ripping	
S5	10929+11	10934+01	0.09	12										Tt3	---	50		1:1	2:1	Drilling and Blasting	
S5	10934+01	11005+17	1.35	12, 13						✓				Qao	15	45	✓	2:1	2:1	Ripping	
S5	11005+17	11015+78	0.20	13										QTg	---	20		2:1	2:1	Ripping	Gently sloping alluvial fan and remnant alluvial fan deposits of the Terrill Mountains, locally incised by shallow to deep washes
S5	11015+78	11018+81	0.06	13										Qao	---	10		2:1	2:1	Ripping	
S5	11018+81	11068+41	0.94	13										QTg	10	30		2:1	2:1	Ripping	
S5	11068+41	11069+12	0.01	13						✓				Qc	---	30		2:1	2:1	Conventional	
S5	11069+12	11113+01	0.83	13						✓				Qay	---	45		2:1	2:1	Conventional	
S5	11113+01	11114+87	0.04	13						✓				Qc	---	40		2:1	2:1	Conventional	
S5	11114+87	11137+41	0.43	13										QTg	---	40		2:1	2:1	Ripping	
S5	11137+41	11139+38	0.04	13										Qc	---	30		2:1	2:1	Conventional	
S5	11139+38	11213+70	1.41	6, 13							✓		✓	Qe	50	25		2:1	2:1	Conventional	Eolian sand deposits on gently sloping valley floor
S5	11213+70	11245+22	0.60	6										QTg	90	---		2:1	2:1	Ripping	Cut and fill through remnant alluvial fan deposits of the Calicho Hills/Terrill Mountains pass; local alluvial fan and channel deposits
S5	11245+22	11245+76	0.01	6						✓				Qay	60	---		2:1	2:1	Conventional	
S5	11245+76	11246+98	0.02	6						✓				Qc	60	---		2:1	2:1	Conventional	
S5	11246+98	11250+92	0.07	6						✓				Qay	60	---		2:1	2:1	Conventional	
S5	11250+92	11288+00	0.70	6				✓						QTg	80	5		2:1	2:1	Ripping	
S5	11288+00	11301+96	0.26	6						✓	✓			Qay	---	30		2:1	2:1	Conventional	
S5	11301+96	11308+44	0.12	6										QTg	---	40		2:1	2:1	Ripping	
S5	11308+44	11313+24	0.09	6				✓		✓				Qc	---	45		2:1	2:1	Conventional	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S5	11313+24	11316+62	0.06	6										Qay	---	40		2:1	2:1	Conventional	Cut and fill through tuffaceous volcanic rock and remnant alluvial fan deposits of the southern Terrill Mountains; variable topographic relief
S5	11316+62	11324+70	0.15	6	✓									Tt3	25	35		1:1	2:1	Drilling and Blasting	
S5	11324+70	11332+15	0.14	6										QTg	40	10		2:1	2:1	Ripping	
S5	11332+15	11334+53	0.05	6, 16	✓									Tt3	40	---		1:1	2:1	Drilling and Blasting	
S5	11334+53	11339+57	0.10	6, 16										QTg	15	---		2:1	2:1	Ripping	
S5	11339+57	11341+25	0.03	6, 16						✓				Qc	10	5		2:1	2:1	Conventional	
S5	11341+25	11357+93	0.32	6, 16	✓									Tt3	35	10		1:1	2:1	Drilling and Blasting	
S5	11357+93	11363+04	0.10	16						✓				Qay	---	30		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan and remnant alluvial fan deposits of the southern Terrill Mountains; locally incised by shallow to deep washes
S5	11363+04	11364+54	0.03	16						✓				Qc	---	30		2:1	2:1	Conventional	
S5	11364+54	11369+37	0.09	16						✓				Qay	---	30		2:1	2:1	Conventional	
S5	11369+37	11385+68	0.31	16						✓				Qao	30	---		2:1	2:1	Ripping	
S5	11385+68	11387+08	0.03	16				✓		✓				Qc	15	---		2:1	2:1	Conventional	
S5	11387+08	11418+26	0.59	16										Qao	30	20		2:1	2:1	Ripping	
S5	11418+26	11426+37	0.15	16						✓	✓			Qay	---	20		2:1	2:1	Conventional	
S5	11426+37	11431+39	0.10	16						✓				Qc	---	15		2:1	2:1	Conventional	
S5	11431+39	11435+07	0.07	16						✓	✓			Qay	5	10		2:1	2:1	Conventional	
S5	11435+07	11444+60	0.18	16										Qao	15	---		2:1	2:1	Ripping	
S5	11444+60	11448+56	0.07	16						✓				Qc	10	---		2:1	2:1	Conventional	
S5	11448+56	11465+81	0.33	16										Qao	---	15		2:1	2:1	Ripping	
S5	11465+81	11527+14	1.16	16										QTg	---	20		2:1	2:1	Ripping	
S5	11527+14	11560+70	0.64	16										Qay	---	20		2:1	2:1	Conventional	
S5	11560+70	11564+21	0.07	16							✓		✓	Qe	---	5		2:1	2:1	Conventional	Persistent sand dunes and local exposures of alluvial fan deposits of Red Ridge
S5	11564+21	11569+30	0.10	16										Qay	---	5		2:1	2:1	Conventional	
S5	11569+30	11571+23	0.04	16							✓		✓	Qe	10	---		2:1	2:1	Conventional	
S5	11571+23	11587+18	0.30	16										Qay	20	---		2:1	2:1	Conventional	
S5	11587+18	11599+50	0.23	16							✓		✓	Qe	15	5		2:1	2:1	Conventional	
S5	11599+50	11605+13	0.11	16										Qao	---	5		2:1	2:1	Ripping	
S5	11605+13	11607+55	0.05	16							✓		✓	Qe	---	15		2:1	2:1	Conventional	
S5	11607+55	11610+67	0.06	16										Qao	---	20		2:1	2:1	Ripping	
S5	11610+67	11615+60	0.09	16							✓		✓	Qe	---	15		2:1	2:1	Conventional	
S5	11615+60	11617+24	0.03	16										Qao	---	15		2:1	2:1	Ripping	
S5	11617+24	11653+29	0.68	16							✓		✓	Qe	15	30		2:1	2:1	Conventional	
S5	11653+29	11677+72	0.46	16										Qao	---	45		2:1	2:1	Ripping	
S5	11677+72	11729+14	0.97	16, 17							✓		✓	Qe	---	35		2:1	2:1	Conventional	

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ALIGNMENT SEGMENT	STATION (FEET) FROM	TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S5	11729+14	11780+35	0.97	17							✓			Qbf	---	10		2:1	3:1	Conventional	Gently sloping basin fill deposits; incised by shallow to deep washes
S5	11780+35	11781+72	0.03	17										Qc	---	---		2:1	2:1	Conventional	
S5	11781+72	11897+57	2.19	17							✓			Qbf	5	25		2:1	3:1	Conventional	
S5	11897+57	11899+85	0.04	17										Qc	5	---		2:1	2:1	Conventional	
S5	11899+85	12105+83	3.90	8, 17							✓			Qbf	5	10		2:1	3:1	Conventional	
S5	12105+83	12108+25	0.05	8							✓		✓	Qe	---	5		2:1	2:1	Conventional	Gently sloping, persistent sand dunes surrounded by basin fill deposits; adjacent to alluvial fan deposit
S5	12108+25	12139+57	0.59	8, 9							✓			Qbf	---	10		2:1	3:1	Conventional	
S5	12139+57	12149+99	0.20	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S5	12149+99	12164+47	0.27	9							✓			Qbf	---	10		2:1	3:1	Conventional	
S5	12164+47	12171+65	0.14	9							✓		✓	Qe	---	5		2:1	2:1	Conventional	
S5	12171+65	12206+23	0.65	9							✓			Qbf	5	15		2:1	3:1	Conventional	
S5	12206+23	12253+28	0.89	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S5	12253+28	12278+08	0.47	9										Qay	20	15		2:1	2:1	Conventional	
S5	12278+08	12324+49	0.88	9							✓		✓	Qe	40	---		2:1	2:1	Conventional	
S6	10000+00	10089+78	1.70	2					✓		✓			Qbf	10	10		2:1	3:1	Conventional	Relatively flat-lying basin fill deposits
S6	10089+78	10104+51	0.28	2		✓		✓			✓			QTf	---	20	✓	2:1	2:1	Conventional	Bridge crossing over the Walker River, banks comprised of fluvial sediments
S6	10104+51	10177+52	1.38	2		✓						✓		Tsy	30	20		1:1	2:1	Ripping	Cut and fill through fine-grained sedimentary rock, alluvial fan deposits locally
S6	10177+52	10178+96	0.03	2							✓			Qay	15	---		2:1	2:1	Conventional	
S6	10178+96	10208+39	0.56	2, 10										Tsy	70	---		1:1	2:1	Ripping	
S6	10208+39	10269+66	1.16	10				✓			✓			Qay	---	45		2:1	2:1	Conventional	Gently to moderately sloping alluvial fan deposits of the Desert Mountains, local cuts and fills in andesitic volcanic rocks; alluvial fans incised by shallow to deep washes
S6	10269+66	10273+21	0.07	10										Qc	---	30		2:1	2:1	Conventional	
S6	10273+21	10288+77	0.29	10							✓			Qay	25	20		2:1	2:1	Conventional	
S6	10288+77	10289+77	0.02	10						✓				Qc	30	---		2:1	2:1	Conventional	
S6	10289+77	10310+08	0.38	10	✓									Ta4	65	30		1:1	2:1	Drilling and Blasting	
S6	10310+08	10333+40	0.44	10						✓	✓			Qay	---	60		2:1	2:1	Conventional	
S6	10333+40	10334+50	0.02	10						✓				Qc	---	60		2:1	2:1	Conventional	
S6	10334+50	10356+40	0.41	10						✓	✓			Qay	---	80		2:1	2:1	Conventional	
S6	10356+40	10372+02	0.30	10	✓									Ta4	---	70		1:1	2:1	Drilling and Blasting	
S6	10372+02	10373+92	0.04	10						✓				Qao	---	55		2:1	2:1	Ripping	
S6	10373+92	10387+90	0.26	10	✓									Ta4	10	75		1:1	2:1	Drilling and Blasting	
S6	10387+90	10391+93	0.08	10						✓				Qao	---	65		2:1	2:1	Ripping	
S6	10391+93	10394+80	0.05	10										Ta4	---	60		1:1	2:1	Drilling and Blasting	
S6	10394+80	10401+48	0.13	10						✓				Qao	---	45		2:1	2:1	Ripping	
S6	10401+48	10498+69	1.84	10							✓			Qay	20	30		2:1	2:1	Conventional	
S6	10498+69	10509+77	0.21	10	✓									Ta4	10	45		1:1	2:1	Drilling and Blasting	
S6	10509+77	10526+39	0.31	10, 11						✓				Qay	---	60		2:1	2:1	Conventional	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S6	10526+39	10531+76	0.10	10, 11									✓	Ta4	---	55		1:1	2:1	Drilling and Blasting	Cut and fill through andesitic volcanic rocks; surrounded by eolian deposits
S6	10531+76	10534+58	0.05	10, 11							✓			Qe	---	35		2:1	2:1	Conventional	
S6	10534+58	10557+48	0.43	10, 11	✓									Ta4	30	45		1:1	2:1	Drilling and Blasting	
S6	10557+48	10591+28	0.64	11				✓			✓		✓	Qe	---	65		2:1	2:1	Conventional	
S6	10591+28	10610+27	0.36	11	✓									Ta4	110	5		1:1	2:1	Drilling and Blasting	
S6	10610+27	10617+78	0.14	11							✓		✓	Qe	95	---		2:1	2:1	Conventional	
S6	10617+78	10617+82	0.00	11	✓									Ta4	45	---		1:1	2:1	Drilling and Blasting	
S6	10617+82	10641+86	0.46	11							✓		✓	Qe	45	30		2:1	2:1	Conventional	Relatively flat-lying floor of Long Valley with persistent sand dunes, local basin fill and alluvial fan deposits
S6	10641+86	10653+20	0.21	11							✓			Qbf	---	35		2:1	3:1	Conventional	
S6	10653+20	10660+21	0.13	11							✓		✓	Qe	15	15		2:1	2:1	Conventional	
S6	10660+21	10675+95	0.30	11										Qao	30	---		2:1	2:1	Ripping	
S6	10675+95	10749+91	1.40	11							✓		✓	Qe	25	55		2:1	2:1	Conventional	
S6	10749+91	10828+61	1.49	11, 12										Qao	25	25		2:1	2:1	Ripping	Moderately sloping alluvial fan deposits of Terrill Mountains; adjacent foothills comprised of steeply sloping andesitic rocks; alluvium locally incised by shallow to deep washes; bridge/separation under US 95
S6	10828+61	10830+51	0.04	12	✓									Ta4	30	---		1:1	2:1	Drilling and Blasting	
S6	10830+51	10852+74	0.42	12										Qao	30	10		2:1	2:1	Ripping	
S6	10852+74	10858+52	0.11	12				✓						Qc	---	10		2:1	2:1	Conventional	
S6	10858+52	10893+37	0.66	12										Qao	---	30		2:1	2:1	Ripping	
S6	10893+37	10894+30	0.02	12										Qc	---	30		2:1	2:1	Conventional	
S6	10894+30	10908+84	0.28	12										Qao	---	30		2:1	2:1	Ripping	
S6	10908+84	10909+81	0.02	12										Qc	---	25		2:1	2:1	Conventional	
S6	10909+81	10923+26	0.25	12										Qao	---	25		2:1	2:1	Ripping	
S6	10923+26	10926+78	0.07	12										Ta4	---	25		1:1	2:1	Drilling and Blasting	
S6	10926+78	10928+36	0.03	12										Qao	---	25		2:1	2:1	Ripping	
S6	10928+36	10933+44	0.10	12										Ta4	---	30		1:1	2:1	Drilling and Blasting	
S6	10933+44	10941+41	0.15	12										Qao	---	30		2:1	2:1	Ripping	
S6	10941+41	10946+75	0.10	12										Ta4	---	35		1:1	2:1	Drilling and Blasting	
S6	10946+75	10949+46	0.05	12				✓						Qao	---	40		2:1	2:1	Ripping	
S6	10949+46	10950+24	0.01	12				✓		✓				Qc	---	35		2:1	2:1	Conventional	
S6	10950+24	10964+29	0.27	12				✓						Qao	---	35		2:1	2:1	Ripping	

TABLE 6
SUMMARY OF GEOLOGIC CONDITIONS AND ENGINEERING CONSIDERATIONS ALONG ALIGNMENTS

ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S6	10964+29	10975+42	0.21	12	✓									Tt3	45	15		1:1	2:1	Drilling and Blasting	Cut and fill through rhyolitic rocks and alluvial fan deposits of the northern Terrill Mountains; highly variable topographic relief
S6	10975+42	10975+53	0.00	12										Qao	---	15		2:1	2:1	Ripping	
S6	10975+53	10977+86	0.04	12										Tt3	---	15		1:1	2:1	Drilling and Blasting	
S6	10977+86	10984+78	0.13	12										Qao	---	30		2:1	2:1	Ripping	
S6	10984+78	10988+68	0.07	12										Tt3	---	15		1:1	2:1	Drilling and Blasting	
S6	10988+68	11006+77	0.34	12										Qao	10	25		2:1	2:1	Ripping	
S6	11006+77	11019+40	0.24	12	✓									Tt3	55	10		1:1	2:1	Drilling and Blasting	
S6	11019+40	11027+61	0.16	12										Qao	---	50		2:1	2:1	Ripping	
S6	11027+61	11059+29	0.60	12	✓									Tt3	45	70		1:1	2:1	Drilling and Blasting	
S6	11059+29	11060+83	0.03	12						✓				Qay	---	70		2:1	2:1	Conventional	
S6	11060+83	11071+25	0.20	12										Tt3	---	70		1:1	2:1	Drilling and Blasting	
S6	11071+25	11073+06	0.03	12						✓				Qay	---	30		2:1	2:1	Conventional	
S6	11073+06	11079+66	0.13	12										Tt3	---	70		1:1	2:1	Drilling and Blasting	
S6	11079+66	11084+87	0.10	12						✓				Qao	---	70		2:1	2:1	Ripping	
S6	11084+87	11088+72	0.07	12	✓									Tt3	10	55		1:1	2:1	Drilling and Blasting	
S6	11088+72	11090+36	0.03	12						✓				Qay	---	60		2:1	2:1	Conventional	
S6	11090+36	11119+54	0.55	12	✓									Tt3	40	80		1:1	2:1	Drilling and Blasting	
S6	11119+54	11127+92	0.16	12	✓					✓				Qay	---	50		2:1	2:1	Conventional	Cut and fill through rhyolitic and gabbroic rocks, and alluvial fan deposits of the eastern Terrill Mountains; moderately variable topographic relief; locally incised by shallow to deep washes
S6	11127+92	11137+42	0.18	12	✓									Kjm	---	50		1:1	2:1	Drilling and Blasting	
S6	11137+42	11174+62	0.70	12	✓					✓				Qay	---	50		2:1	2:1	Conventional	
S6	11174+62	11183+67	0.17	12	✓									Kjm	20	45		1:1	2:1	Drilling and Blasting	
S6	11183+67	11186+13	0.05	12						✓				Qay	---	60		2:1	2:1	Conventional	
S6	11186+13	11195+03	0.17	12										Kjm	---	55		1:1	2:1	Drilling and Blasting	
S6	11195+03	11196+36	0.03	12						✓				Qay	---	15		2:1	2:1	Conventional	
S6	11196+36	11243+65	0.90	12, 14	✓									Tt3	50	25		1:1	2:1	Drilling and Blasting	
S6	11243+65	11244+73	0.02	14						✓				Qc	---	25		2:1	2:1	Conventional	
S6	11244+73	11274+79	0.57	14	✓				✓					Tt3	20	35		1:1	2:1	Drilling and Blasting	
S6	11274+79	11277+26	0.05	14					✓	✓				Qay	---	25		2:1	2:1	Conventional	
S6	11277+26	11289+68	0.24	14					✓					Qao	---	40		2:1	2:1	Ripping	
S6	11289+68	11324+92	0.67	14						✓				Qay	---	50		2:1	2:1	Conventional	
S6	11324+92	11339+62	0.28	14, 15						✓				Qao	---	35		2:1	2:1	Ripping	
S6	11339+62	11340+66	0.02	14, 15						✓				Qc	---	10		2:1	2:1	Conventional	
S6	11340+66	11356+98	0.31	14, 15										Qao	---	10		2:1	2:1	Ripping	
S6	11356+98	11358+56	0.03	15						✓				Qc	---	10		2:1	2:1	Conventional	
S6	11358+56	11379+36	0.39	15										Qao	---	15		2:1	2:1	Ripping	
S6	11379+36	11380+73	0.03	15						✓				Qc	---	15		2:1	2:1	Conventional	

TABLE 6
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ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S6	11380+73	11404+45	0.45	15										Qao	15	15		2:1	2:1	Ripping	Cuts and scattered fills through tuffaceous rock and alluvial fan deposits of Red Ridge and the Terrill Mountains; local lacustrine deposits
S6	11404+45	11454+98	0.96	15	✓									Tt3	30	15		1:1	2:1	Drilling and Blasting	
S6	11454+98	11464+26	0.18	15										Qay	5	10		2:1	2:1	Conventional	
S6	11464+26	11468+65	0.08	15										Qao	35	---		2:1	2:1	Ripping	
S6	11468+65	11469+41	0.01	15										Qay	15	---		2:1	2:1	Conventional	
S6	11469+41	11471+02	0.03	15										Qao	15	---		2:1	2:1	Ripping	
S6	11471+02	11564+24	1.77	15, 16										Qay	20	20		2:1	2:1	Conventional	
S6	11564+24	11571+21	0.13	16								✓		Ql	15	---		3:1	3:1	Conventional	
S6	11571+21	11591+86	0.39	16										Qay	20	---		2:1	2:1	Conventional	
S6	11591+86	11597+06	0.10	16								✓		Ql	10	---		3:1	3:1	Conventional	
S6	11597+06	11615+99	0.36	16										Qay	15	---		2:1	2:1	Conventional	
S6	11615+99	11632+44	0.31	16							✓		✓	Qe	15	5		2:1	2:1	Conventional	Persistent sand dunes and local exposures of alluvial fan deposits of Red Ridge
S6	11632+44	11638+09	0.11	16										Qao	---	5		2:1	2:1	Ripping	
S6	11638+09	11640+52	0.05	16							✓		✓	Qe	---	20		2:1	2:1	Conventional	
S6	11640+52	11643+64	0.06	16										Qao	---	25		2:1	2:1	Ripping	
S6	11643+64	11648+56	0.09	16							✓		✓	Qe	---	20		2:1	2:1	Conventional	
S6	11648+56	11650+20	0.03	16										Qao	---	15		2:1	2:1	Ripping	
S6	11650+20	11686+25	0.68	16							✓		✓	Qe	10	30		2:1	2:1	Conventional	
S6	11686+25	11710+69	0.46	16										Qao	---	50		2:1	2:1	Ripping	
S6	11710+69	11762+11	0.97	16, 17							✓		✓	Qe	---	35		2:1	2:1	Conventional	
S6	11762+11	11813+32	0.97	17							✓			Qbf	---	15		2:1	3:1	Conventional	Gently sloping basin fill deposits; incised by shallow to deep washes
S6	11813+32	11814+68	0.03	17										Qc	---	10		2:1	2:1	Conventional	
S6	11814+68	11930+53	2.19	17							✓			Qbf	5	25		2:1	3:1	Conventional	
S6	11930+53	11932+81	0.04	17										Qc	5	---		2:1	2:1	Conventional	
S6	11932+81	12138+80	3.90	8, 17							✓			Qbf	5	5		2:1	3:1	Conventional	

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TABLE 6
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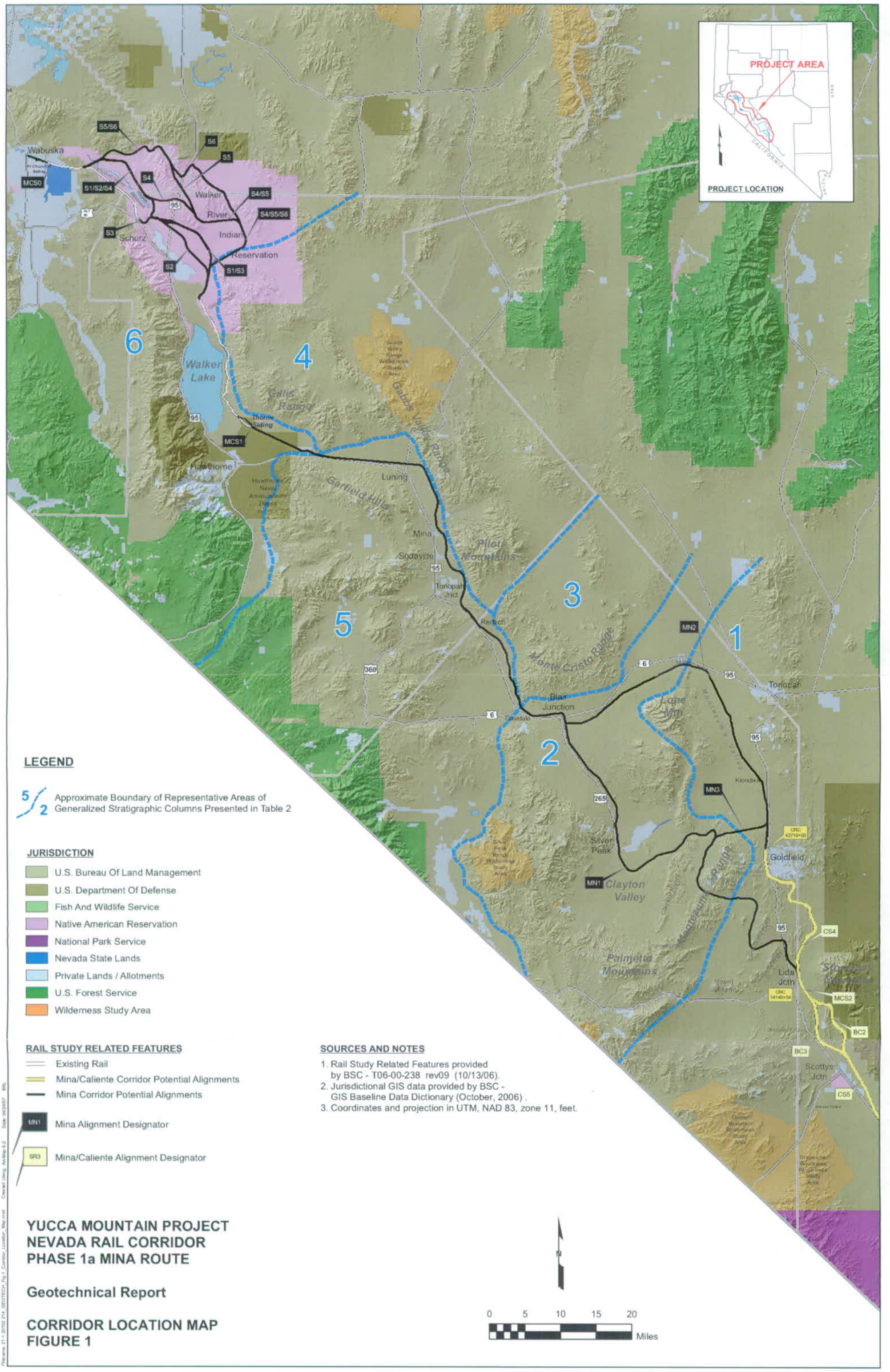
ALIGNMENT SEGMENT	STATION (FEET) FROM	STATION (FEET) TO	LENGTH (MILES)	FIG. 3 SHEET(S)	GEOLOGIC HAZARDS: ROCK SLOPE[1]	EARTHQUAKE (GROUND RUPTURE)[2]	SURFACE FISSURES[3]	SCOUR AND/OR FLOOD[4]	MINED LAND SUBSIDENCE[5]	DEBRIS FLOW[6]	SOIL COLLAPSE[7]	SOFT SOIL[8]	BLOWING SAND[9]	GEOLOGIC UNIT ENCOUNTERED[10]	PROPOSED CONSTRUCTION ACTIVITY: MAXIMUM CUT HEIGHT (FT)[11]	MAXIMUM FILL HEIGHT (FT)[11]	BRIDGE/SEPARATION[12]	PRELIMINARY EARTHWORK RECOMMENDATIONS[13]: CUT SLOPES (H:V)	FILL SLOPES (H:V)	PRIMARY EXCAVATION METHOD	TERRAIN DESCRIPTION
S6	12138+80	12141+22	0.05	8							✓		✓	Qe	---	---		2:1	2:1	Conventional	Gently sloping, persistent sand dunes surrounded by basin fill deposits; adjacent to alluvial fan deposit
S6	12141+22	12172+53	0.59	8, 9							✓			Qbf	---	10		2:1	3:1	Conventional	
S6	12172+53	12182+95	0.20	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S6	12182+95	12197+43	0.27	9							✓			Qbf	---	10		2:1	3:1	Conventional	
S6	12197+43	12204+61	0.14	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S6	12204+61	12239+19	0.65	9							✓			Qbf	5	10		2:1	3:1	Conventional	
S6	12239+19	12286+24	0.89	9							✓		✓	Qe	---	10		2:1	2:1	Conventional	
S6	12286+24	12311+05	0.47	9										Qay	10	20		2:1	2:1	Conventional	
S6	12311+05	12357+45	0.88	9							✓		✓	Qe	30	5		2:1	2:1	Conventional	
Wabuska Yard	N/A	N/A	N/A	1							✓			Qbf	No Information Available			2:1	3:1	Conventional	Gently sloping to flat basin fill sediments
Thorne Yard	N/A	N/A	N/A	18				✓				✓	✓	Ql, Qc	No Information Available			3:1	3:1	Conventional	Gently sloping lacustrine deposits interbedded with distal alluvial fan deposits, incised by shallow to deep channels

NOTES:

1. Rock slope hazards are indicated where a cut in rock is proposed or where natural slopes adjacent to alignments pose a potential rock fall hazard.
2. Earthquake (ground rupture) hazards are indicated where historical or Holocene fault zones intersect an alignment.
3. Surface fissures are indicated for segments in the vicinity of Clayton Valley.
4. Scour and/or flood hazards are indicated for segments with proposed bridges over water, where identified surface drainages run approximately parallel to the alignment, where significant erosion features were observed crossing the alignment, or for low-lying areas where Qp or Ql deposits exist.
5. Mined land subsidence hazards are indicated for segments in proximity to historic or current mining activities, including prospect locations, based on published USGS 1:24,000 maps and reconnaissance observations.
6. Debris flow hazards are indicated for segments that traverse relatively steep sections of alluvial fans (on units Qao or Qay) or alluvial fan channels (on unit Qc).
7. Soil collapse hazards are indicated for segments that include units Qbf or Qe, and for segments that include very loose to loose units Qay or QTf.
8. Soft soil (low bearing capacity) hazards are indicated for segments that include units Qp or Ql, segments that include cohesive units Qbf or Qc, and for segments that include weathered (soil-like) unit Tsy.
9. Blowing sand hazards are indicated for segments that include unit Qe.
10. Geologic units and respective station ranges are measured along alignment centerline.
11. Cut and fill heights are measured along alignment centerline; therefore, true maximum cut and fill heights for a cross-section may vary widely from the values indicated. Cut and fill heights for alignments MCS1, MN1, MN2, S1, S2 and S3 are based on profile drawings provided by BSC dated June or July, 2006. Cut and fill heights for alignments MN3, S4, S5 and S6 are based on profile drawings provided by BSC dated January, 2007. Values were rounded to the nearest 5-foot increment, and "---" indicates cut or fill heights less than 4 feet.
12. Bridges/separations are indicated for segments with proposed structures that cross the Walker River or US 95 (near Schurz), SR 361 (near Luning), US 6/95 (near Blair Junction), or US 95 and Jackson Wash (NE of the Cuprite Hills).
13. Preliminary earthwork recommendations are based on limited field reconnaissance and our experience with similar materials. This information is intended for conceptual-level planning and estimating purposes only, and should not be used for design. No subsurface explorations or laboratory testing have been performed for this study.



LEGEND

5/2 Approximate Boundary of Representative Areas of Generalized Stratigraphic Columns Presented in Table 2

JURISDICTION

- U.S. Bureau Of Land Management
- U.S. Department Of Defense
- Fish And Wildlife Service
- Native American Reservation
- National Park Service
- Nevada State Lands
- Private Lands / Allotments
- U.S. Forest Service
- Wilderness Study Area

RAIL STUDY RELATED FEATURES

- Existing Rail
- Mina/Caliente Corridor Potential Alignments
- Mina Corridor Potential Alignments
- MN1 Mina Alignment Designator
- SR3 Mina/Caliente Alignment Designator

SOURCES AND NOTES

1. Rail Study Related Features provided by BSC - T06-00-238 rev09 (10/13/06).
2. Jurisdictional GIS data provided by BSC - GIS Baseline Data Dictionary (October, 2006) .
3. Coordinates and projection in UTM, NAD 83, zone 11, feet.

N

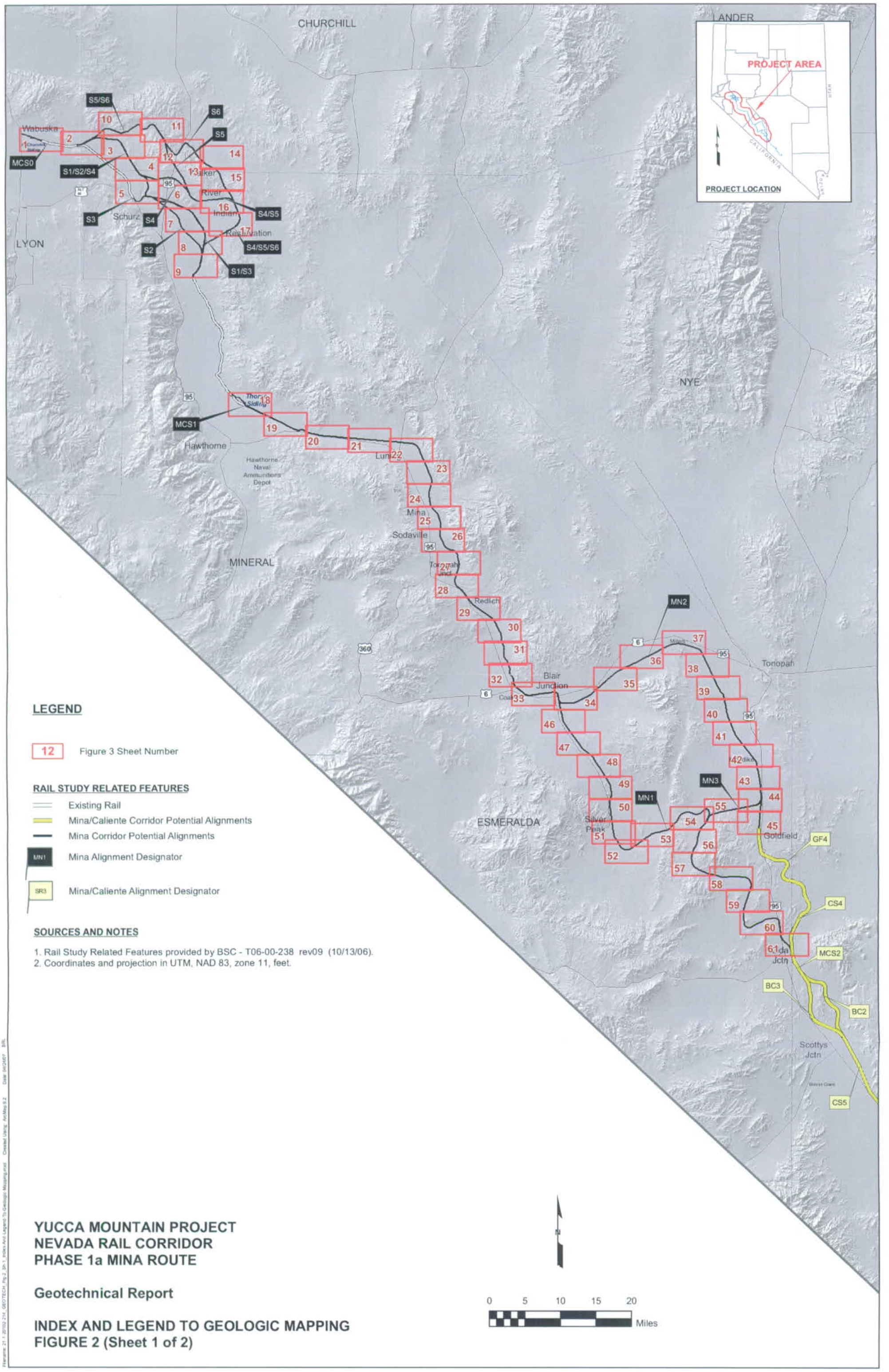
0 5 10 15 20 Miles

YUCCA MOUNTAIN PROJECT
NEVADA RAIL CORRIDOR
PHASE 1a MINA ROUTE

Geotechnical Report

CORRIDOR LOCATION MAP
FIGURE 1

Filename: 21-1_20150-214_GEOTECH_Fig 1_Corridor_Location_Map.mxd Created Using: ArcMap 9.2 Date: 04/24/07 BRL



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NEVADA RAIL CORRIDOR
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INDEX AND LEGEND TO GEOLOGIC MAPPING
FIGURE 2 (Sheet 1 of 2)

Filename: 21_20100_214_GEOTECH_Fig 2_SH_1_Index And Legend To Geologic Mapping.mxd Created Using: ArcMap 9.2 Date: 04/24/07 BRL

Qmw
Mining Waste

Qc
Fluvial Deposits

Qbf
Basin-Fill Deposits

Qe
Eolian Deposits

Qp
Playa and Spring Deposits

Ql
Lacustrine Deposits

Qay
Younger Alluvial Fan Deposits

Qao
Older Alluvial Fan Deposits

Tsv
Miocene and Oligocene Volcanic, Volcaniclastic and Sedimentary Rocks

Tsy
Pliocene to middle Miocene Sedimentary Rocks

QTf
Fluvial Sediments of Ancestral Walker River and Other Pleistocene Streams

QTg
Remnant Alluvial Fan Deposits

QTp
Pediment Deposits

Quaternary-Tertiary Alluvium (QTa)

Holocene	Quaternary	Cenozoic
Pleistocene		
Pliocene	Tertiary	
Miocene		
Oligocene		
Eocene		
Paleocene		
Cretaceous		Mesozoic
Jurassic		
Triassic		
Permian		Paleozoic
Pennsylvanian		
Mississipian		
Devonian		
Silurian		
Ordovician		
Cambrian		
Late Proterozoic		

Qb
Quaternary Basalt Flows and Cinder Cones

Ta4
Late to Middle Miocene Lava Flows, Flow Breccias and Lahars of mostly Intermediate Composition

Tt4
Middle Miocene Rhyolite to Rhyodacite Ash-Flow and Ash-Fall Tuffs

Ta3
Early Miocene Lava Flows, Flow Breccias and Lahars of Intermediate Composition

Tt3
Early Miocene Rhyolite and Rhyodacite Ash-Flow and Ash-Fall Tuffs

Tvr
Miocene Rhyolite Lava Flows and Flow Breccia with Subordinate Intrusive Rocks

Tt2
Oligocene Ash-Flow and Ash-Fall tuffs of Silicic to Intermediate Composition

KJg
Cretaceous and Jurassic Granitic Rocks

KJm
Cretaceous and Jurassic Mafic Instrusive Rocks

JTrs
Jurassic and Triassic Locally Metamorphosed Sedimentary and Volcanic Rocks

TrPvs
Triassic and Permian Commonly Metamorphosed Sedimentary and Volcanic Rocks

Cc
Upper Cambrian Carbonate Rocks

CZs
Middle and Lower Cambrian and Late Proterozoic Sedimentary Rocks

STRUCTURAL FEATURES

74 — FAULT dashed where located approximately or concealed by alluvium; queried where uncertain; ball and bar on downthrown side; arrow with number indicates direction and dip of fault

QUATERNARY ? FAULT SCARP

78 — ORIENTATION OF FOLIATION; Long line indicates strike; tooth and number indicate direction and angle of dip

64 — ORIENTATION OF BEDDING; Long line indicates strike; short line and number indicate direction and angle of dip

Tsy — GEOLOGIC UNIT

MT1000 — GEOTECHNICAL RECONNAISSANCE WAYPOINT

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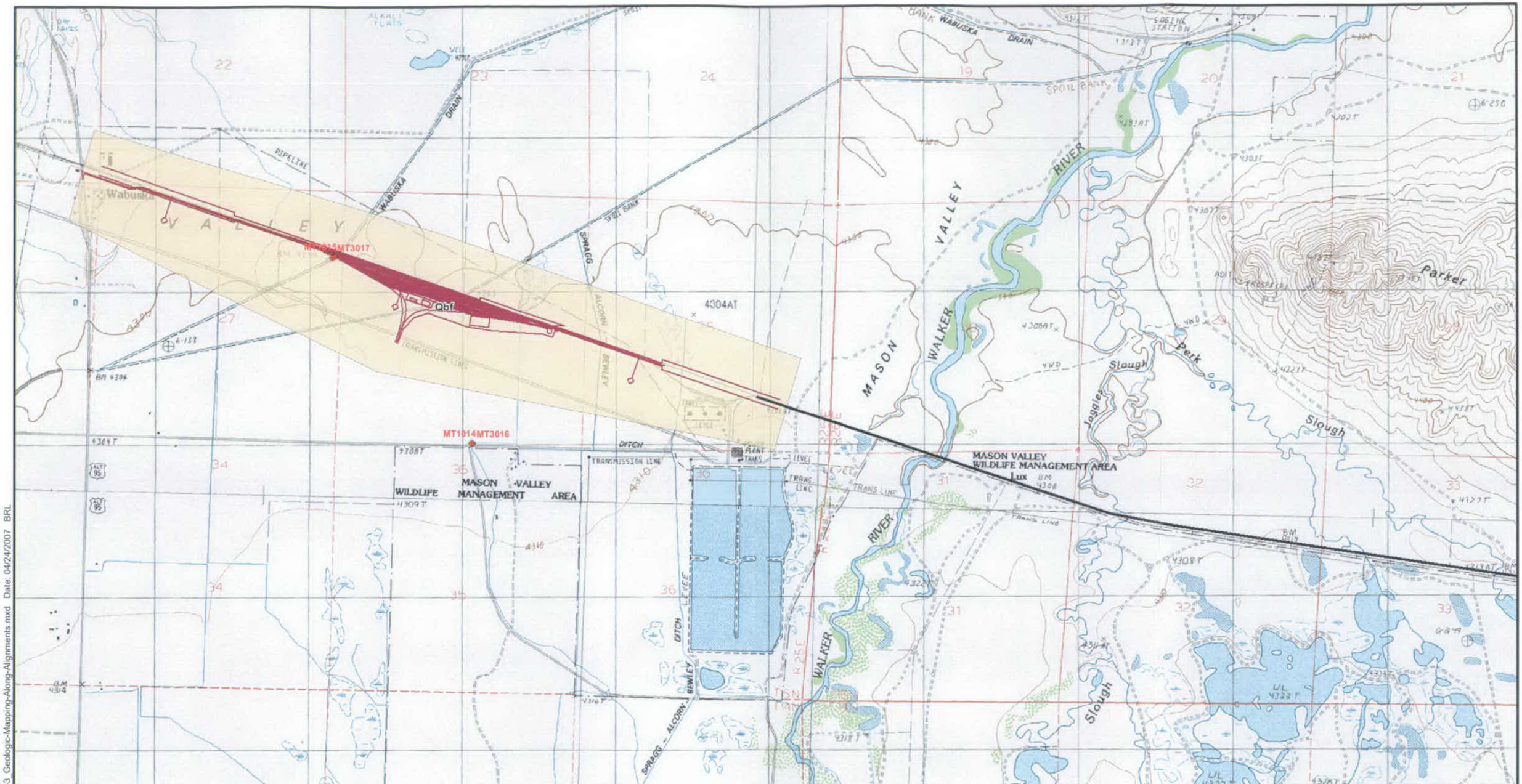
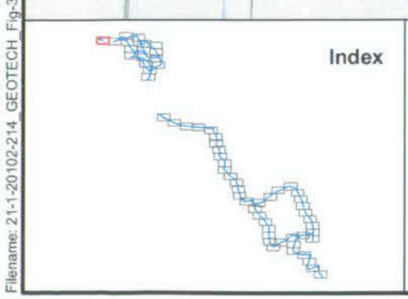
Filename: 21-1-20102-214_GEOTECH_Fig-2_Sh-2_Index-And-Legend-To-Geologic-Mapping.mxd Created Using: ArcMap 9.2 Date: 04/24/07 BRL





0 2,000 4,000 Feet

Yucca Mountain Project
Nevada Rail Corridor
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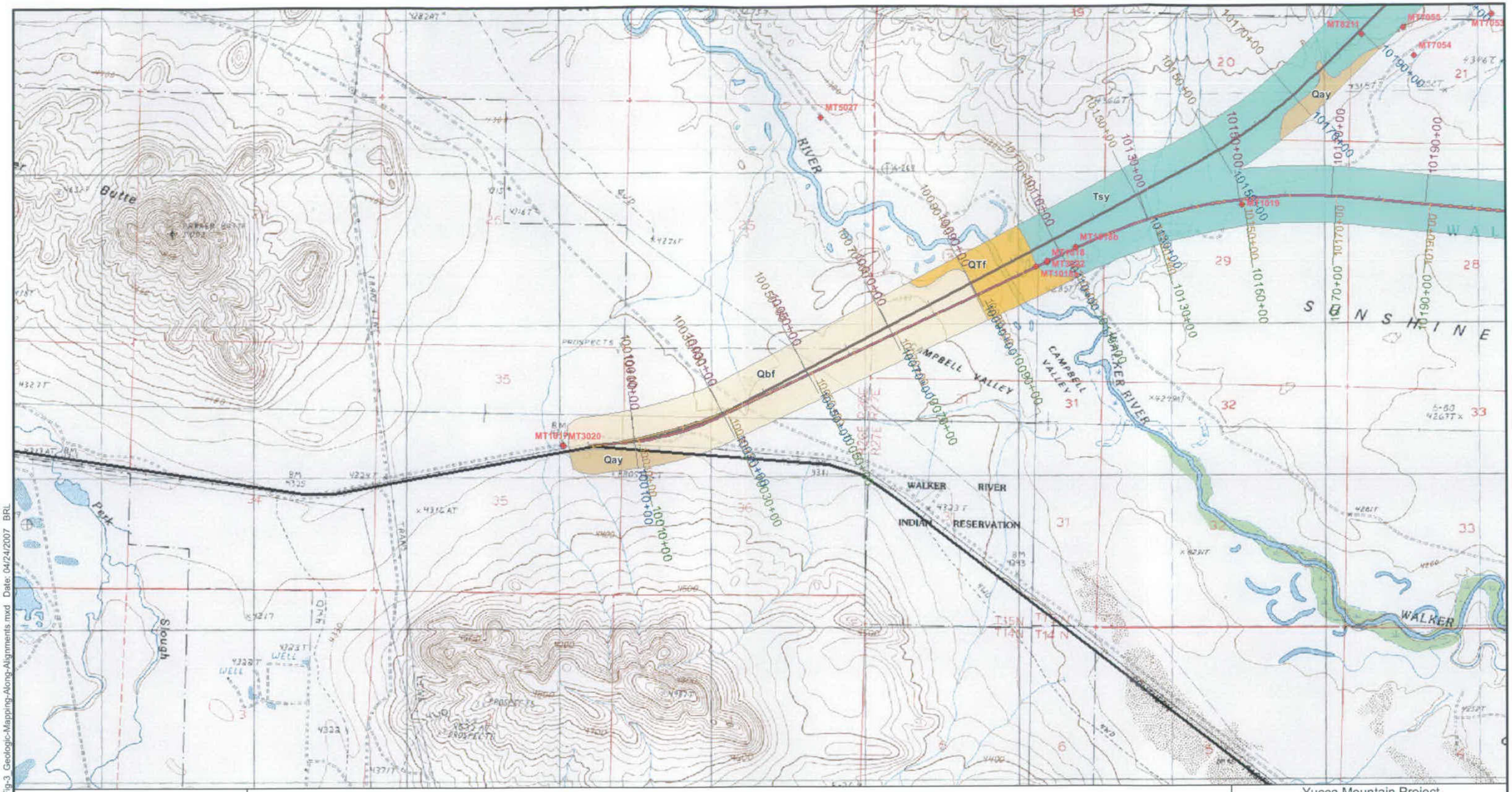

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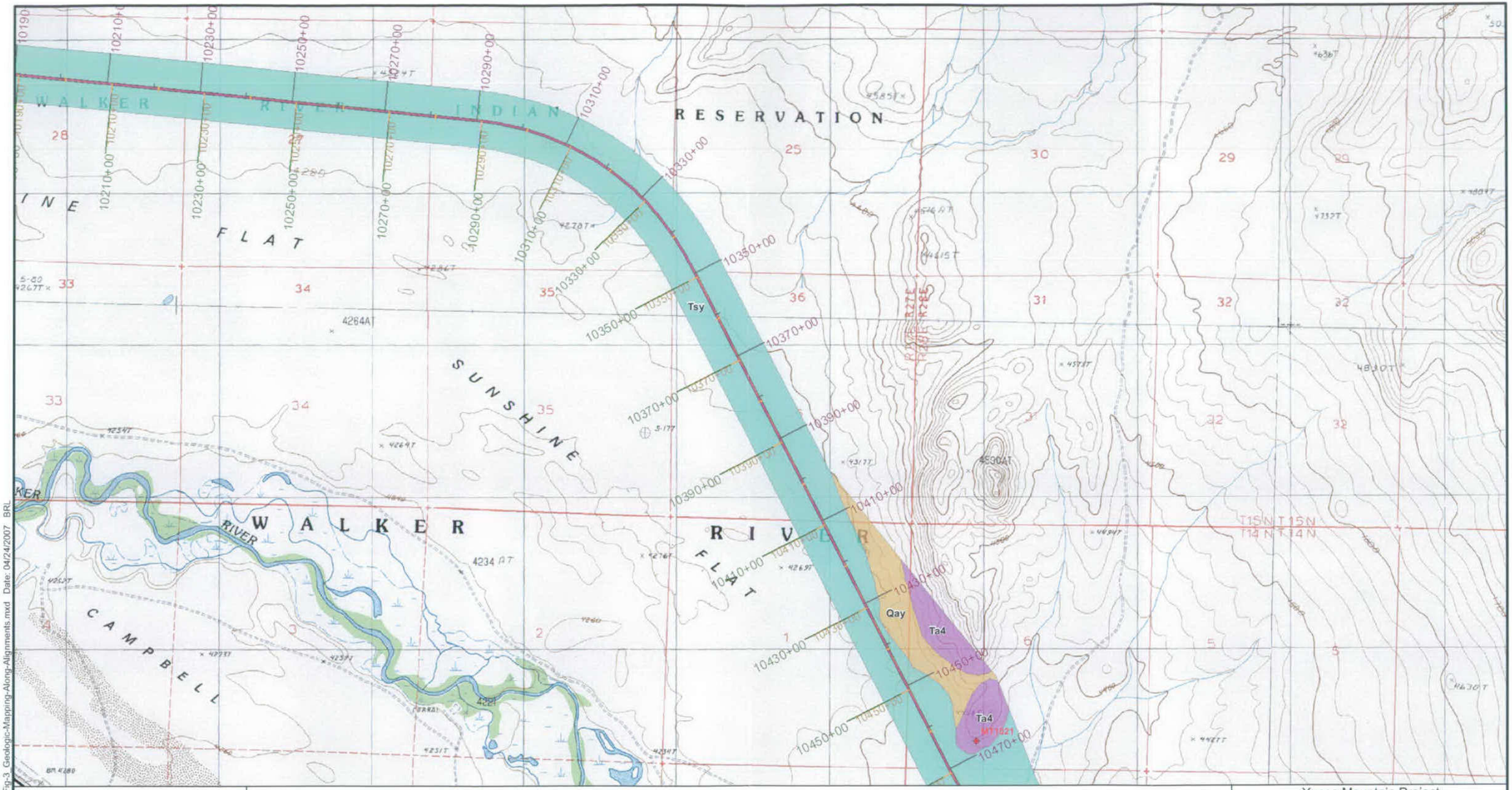

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RESERVATION

VALLEY

WEBER RESERVOIR

WALKER

LYON CO
MINERAL CO

Ta4

Qay

QTf

Tsy

Qao

MT1020a
MT1020
MT1022
MT1022a
MT1024
MT1024a
MT1024b
MT1025
MT8133
MT8134
MT8135
MT8136
MT8137

10470+00
10490+00
10510+00
10530+00
10550+00
10570+00
10590+00
10610+00
10630+00
10650+00
10670+00
10690+00
10710+00
10730+00
10750+00

4245AT
4257 AT
4041AT
4457 AT
4491AT

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0 2,000 4,000 Feet

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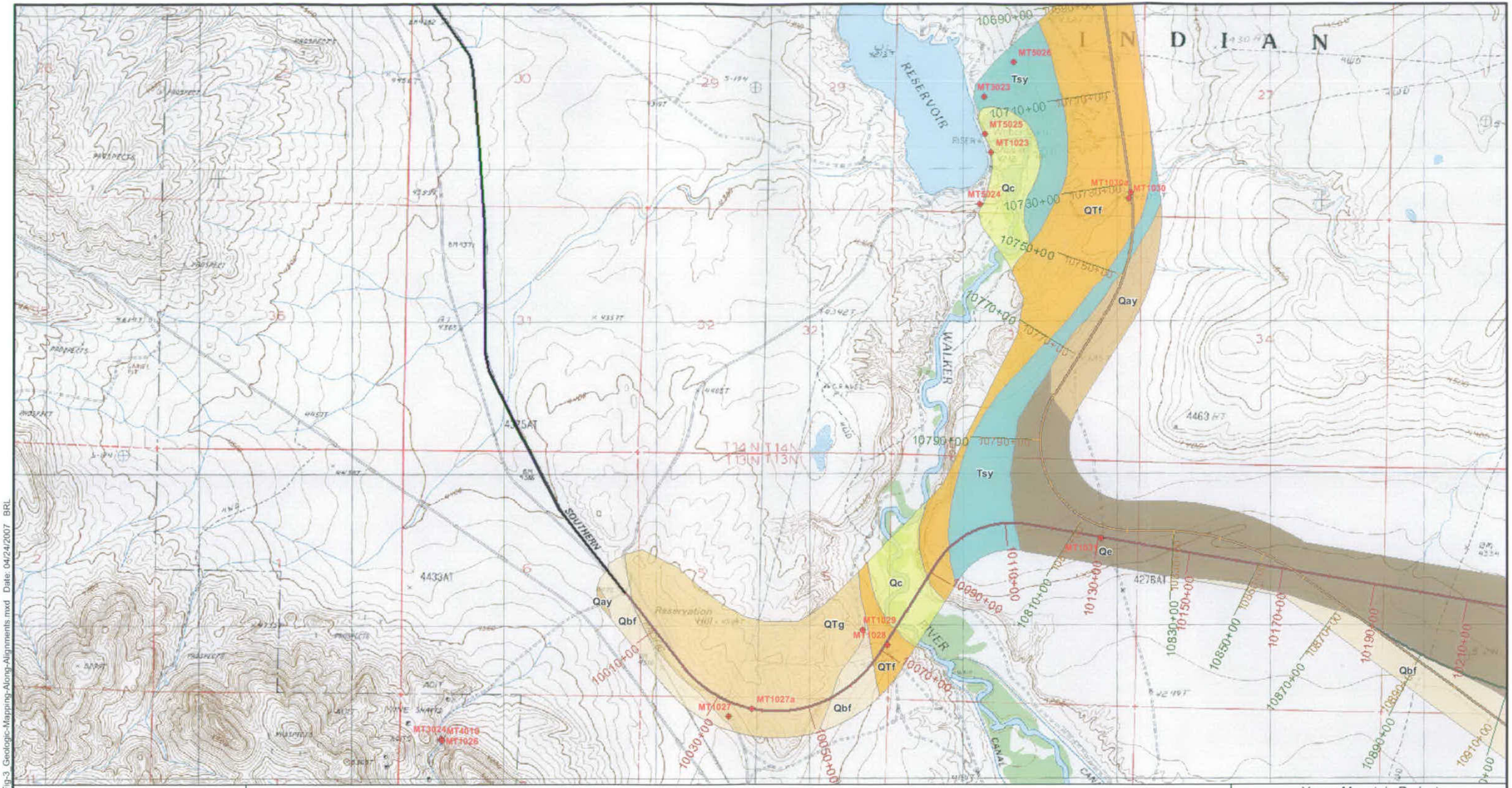

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0 2,000 4,000 Feet

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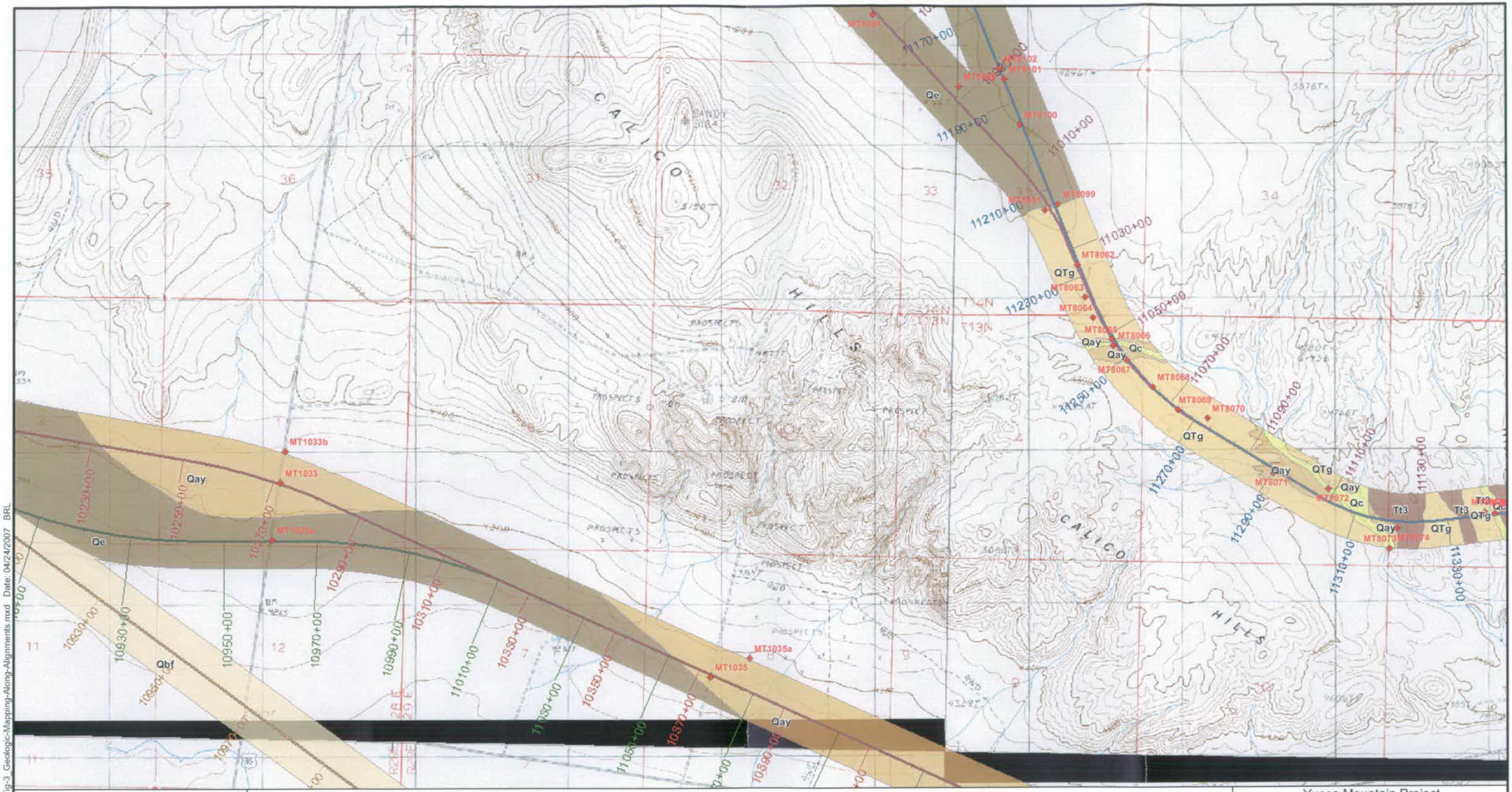

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NOTE

The Black Color On This Map Are Pixels Imbedded In The Image That Contain No Color Value And Cannot Be Removed.

0 2,000 4,000 Feet

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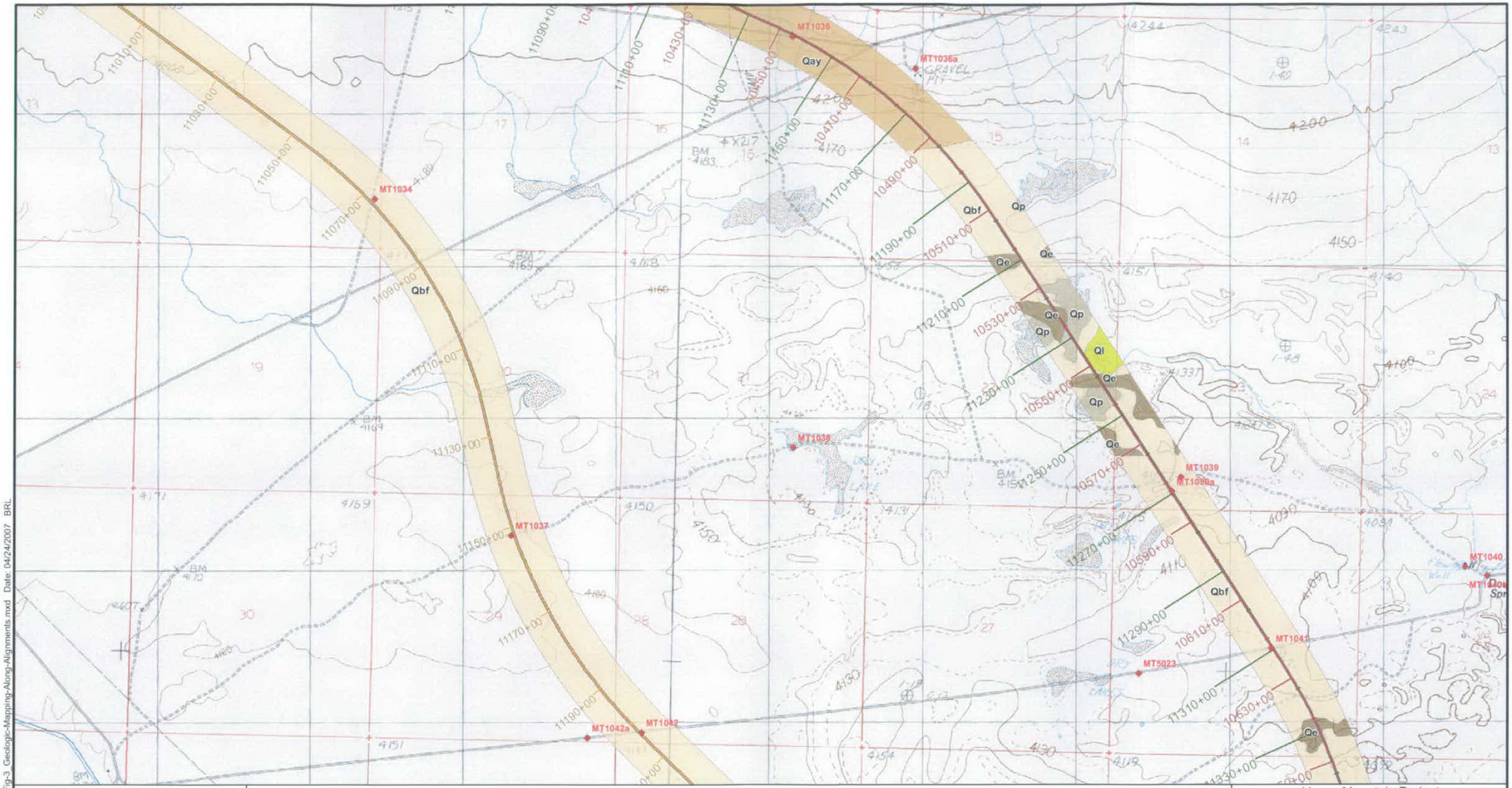

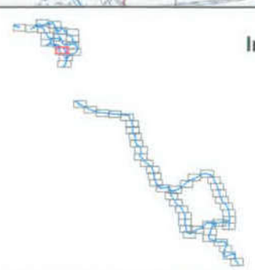

0 2,000 4,000 Feet

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0 2,000 4,000 Feet

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0 2,000 4,000 Feet

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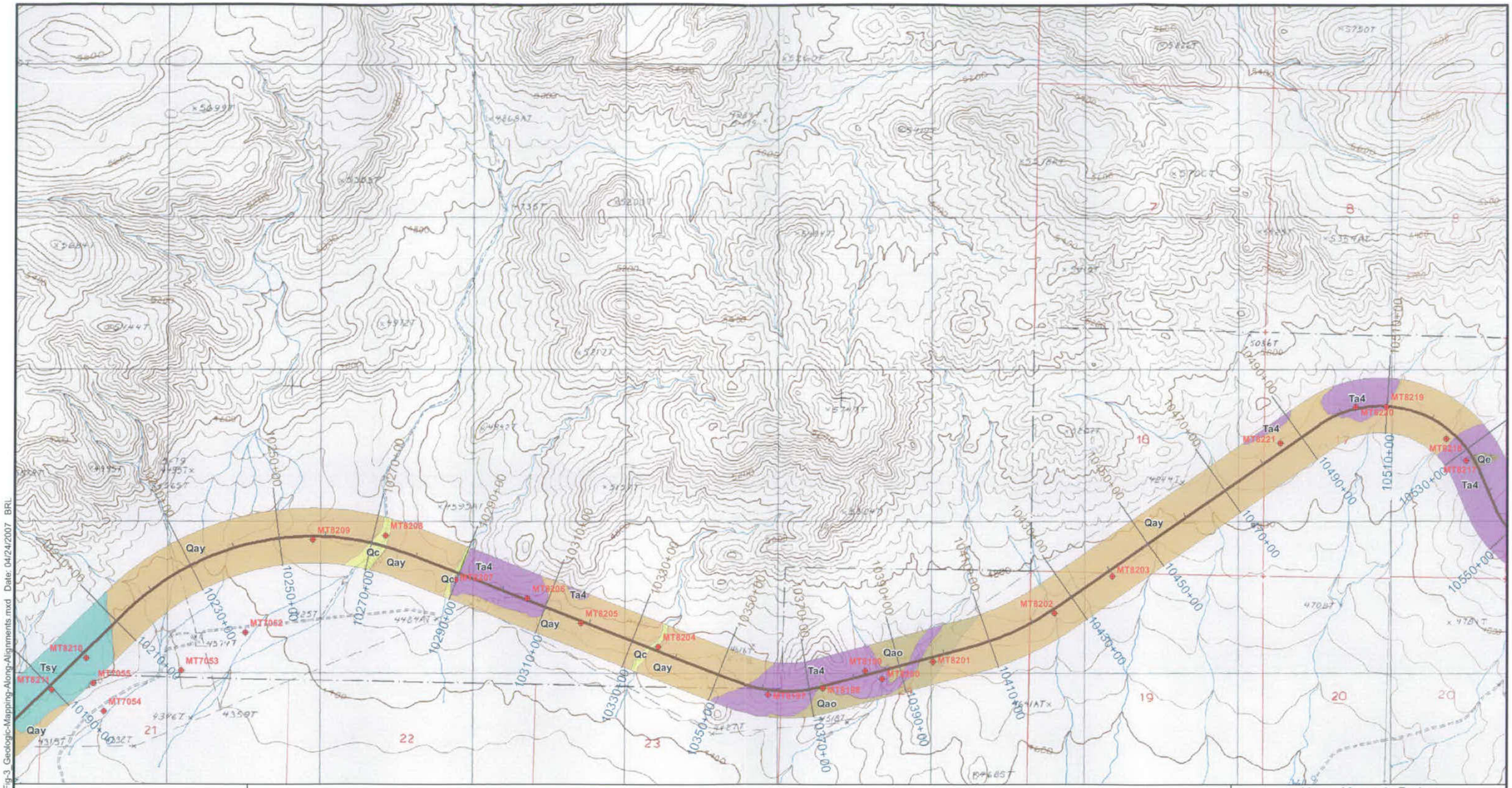

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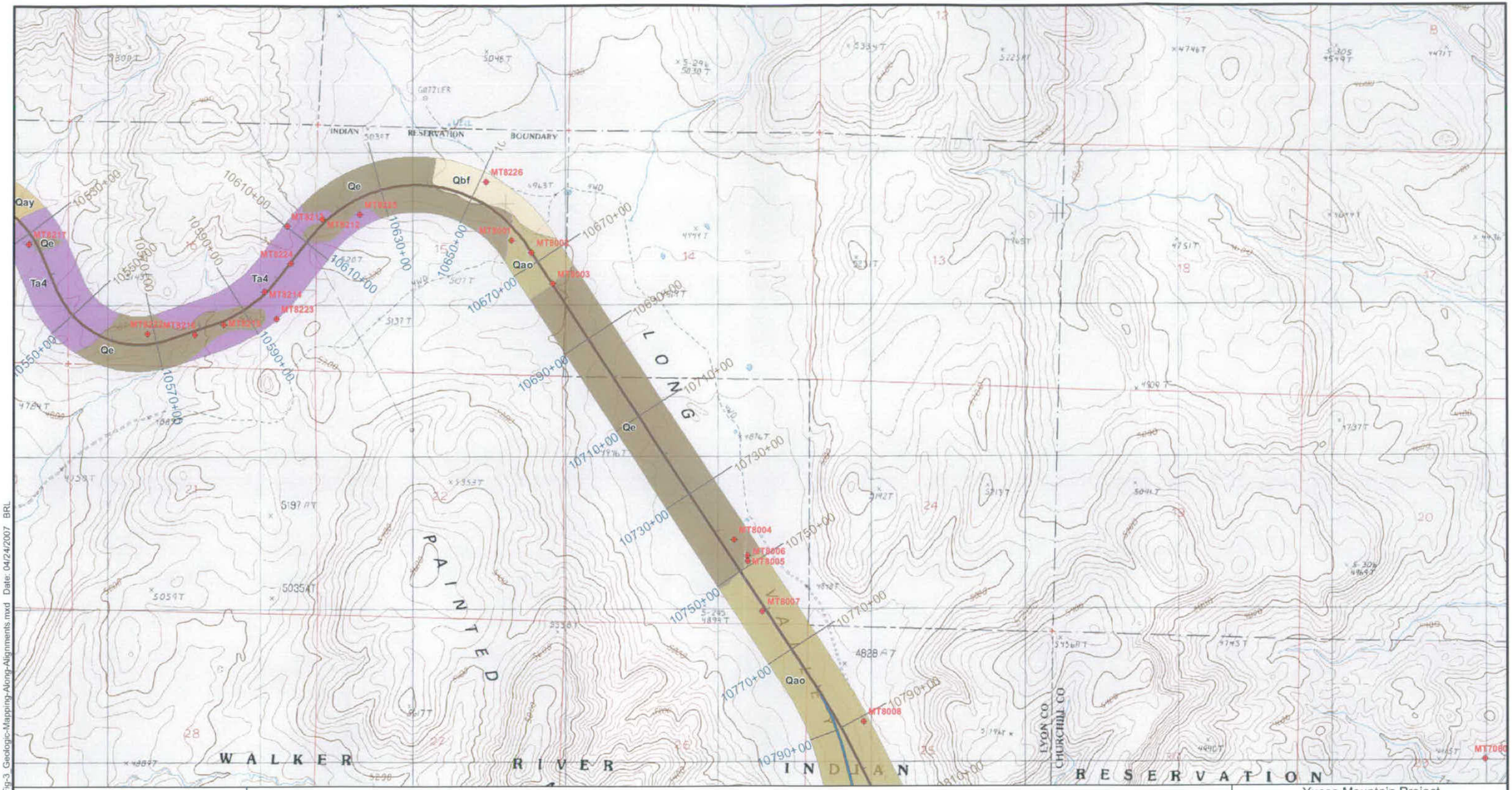

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0 2,000 4,000 Feet

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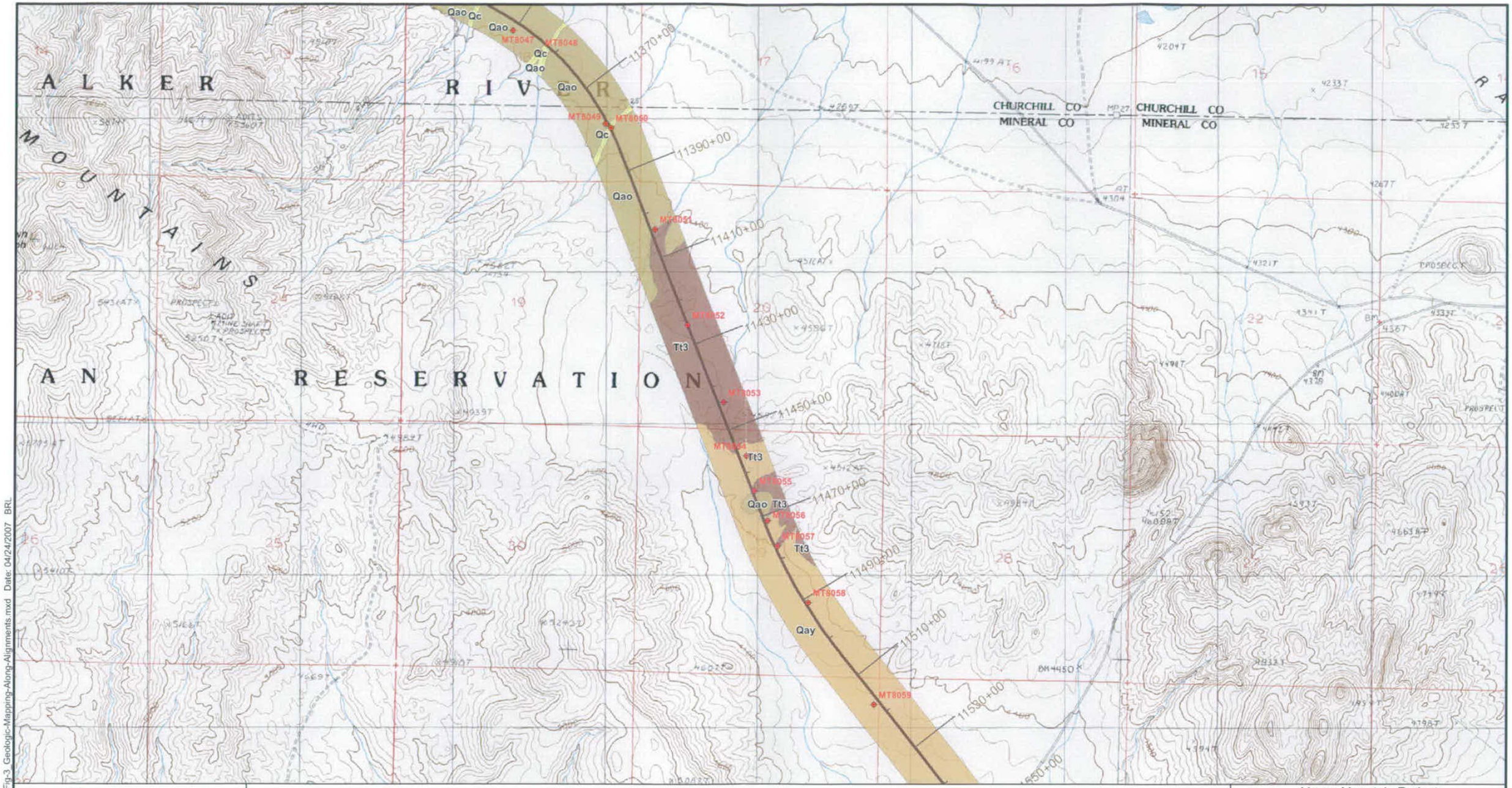

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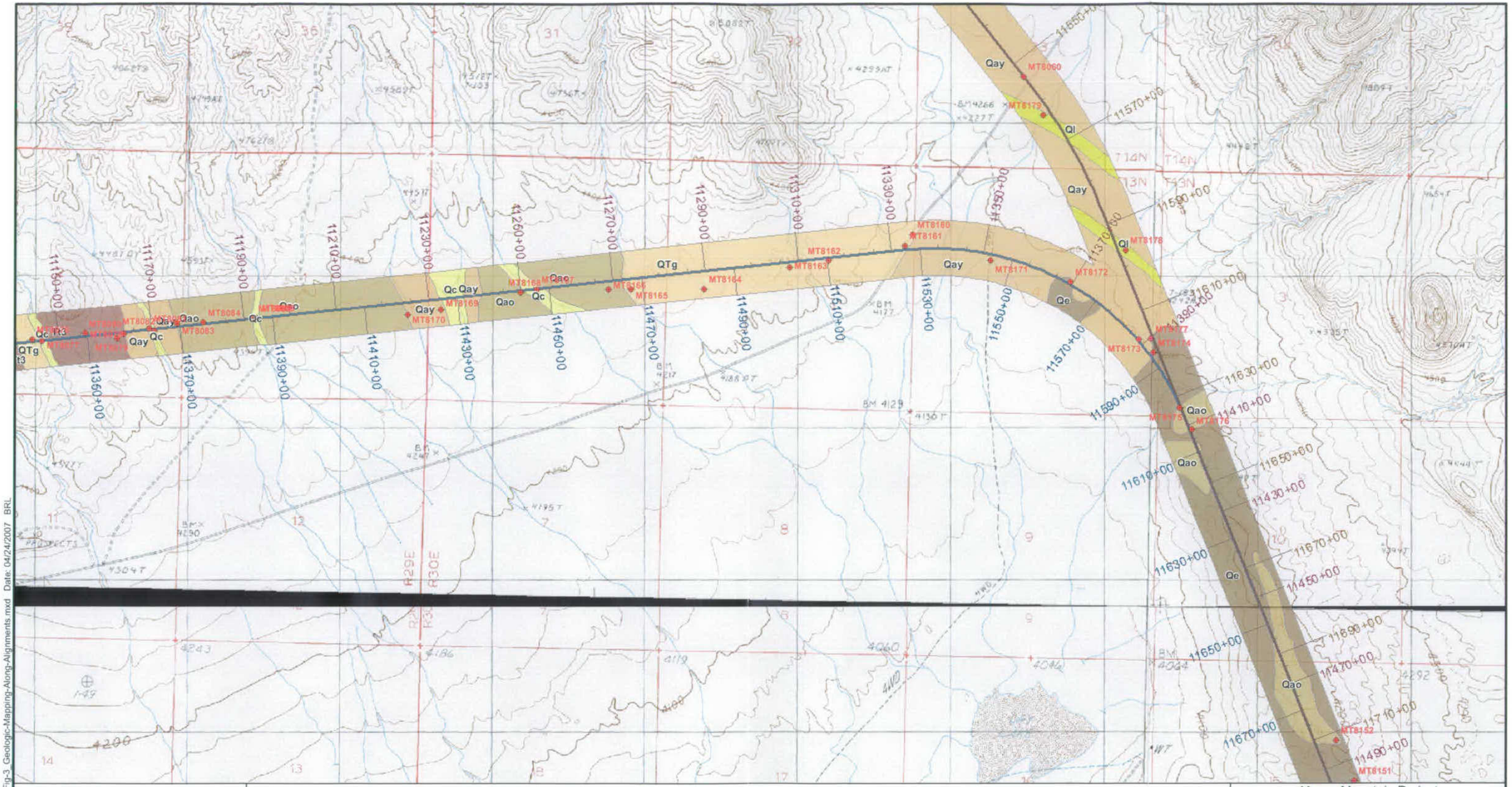

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0 2,000 4,000 Feet

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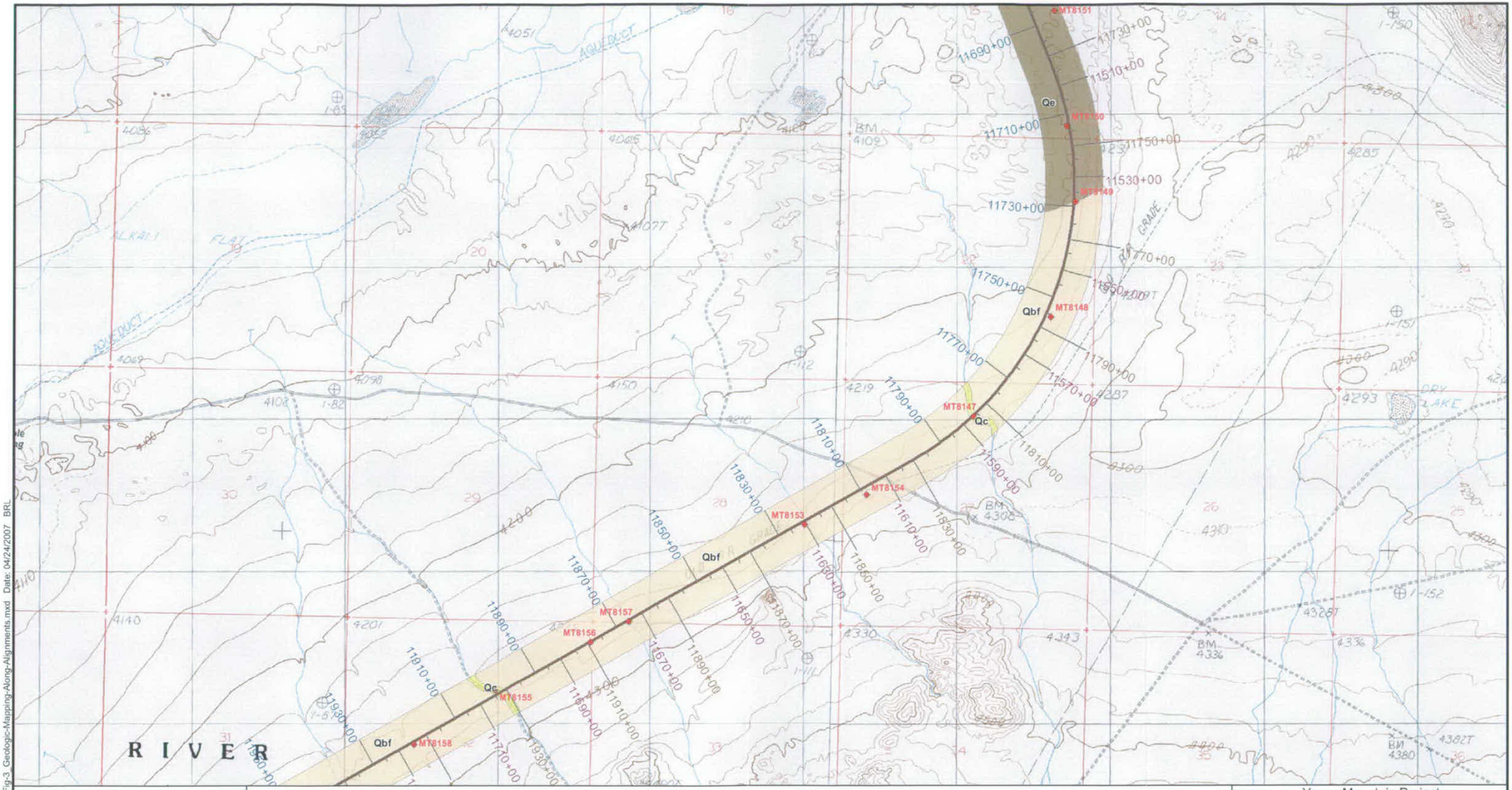

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0 2,000 4,000 Feet

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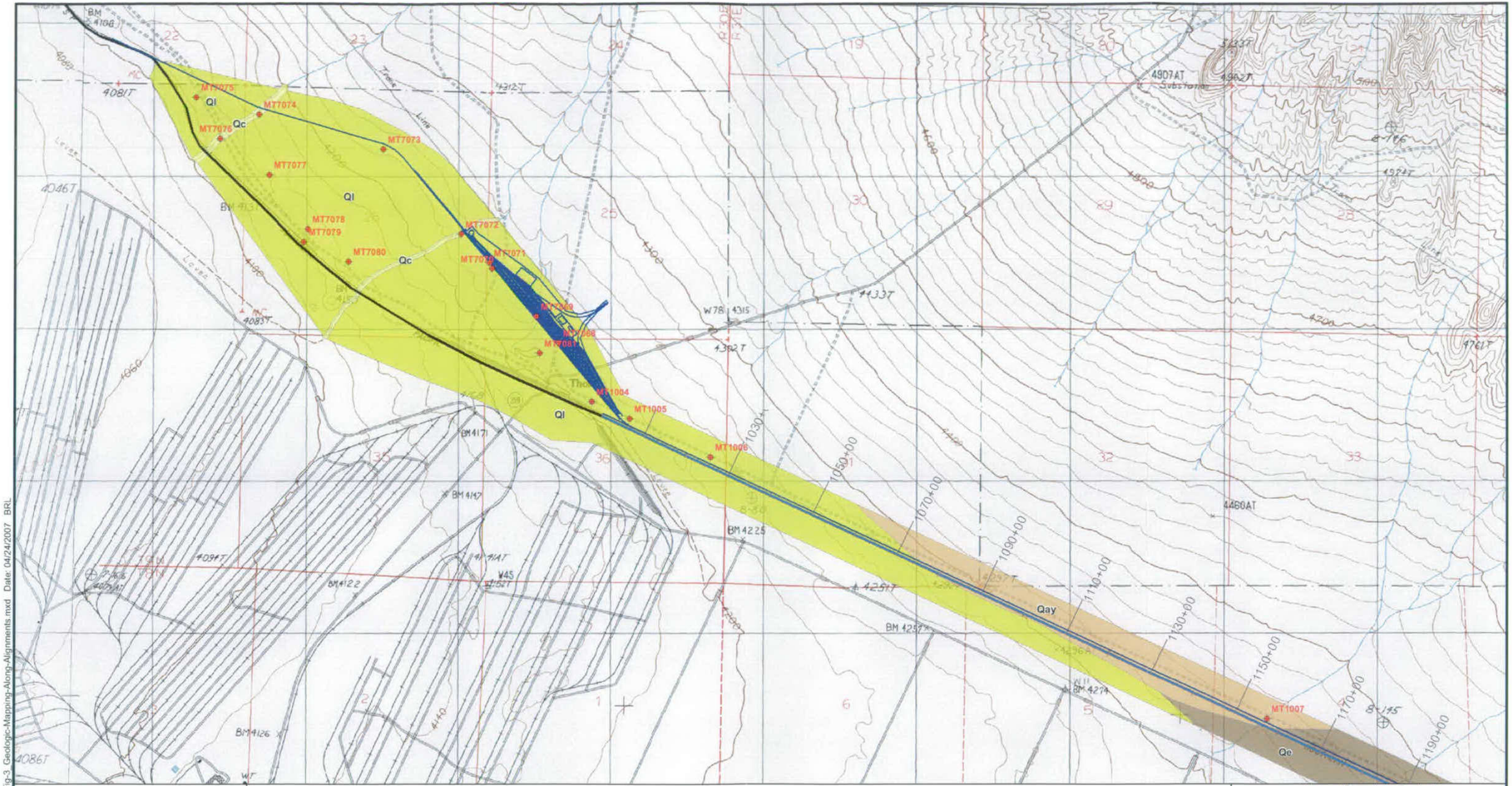

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0 2,000 4,000 Feet

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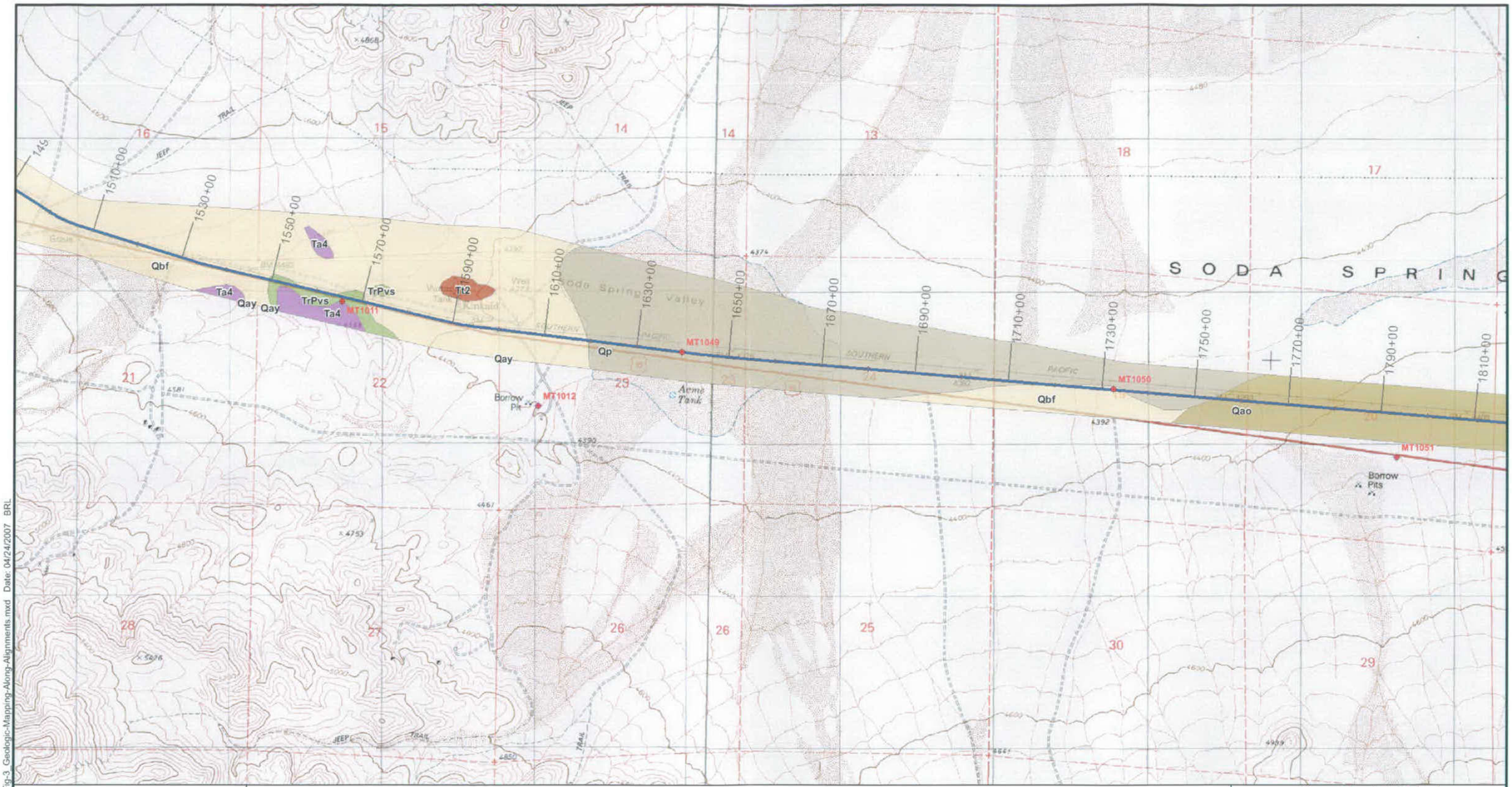

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0 2,000 4,000 Feet

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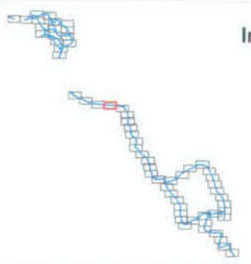

0 2,000 4,000 Feet

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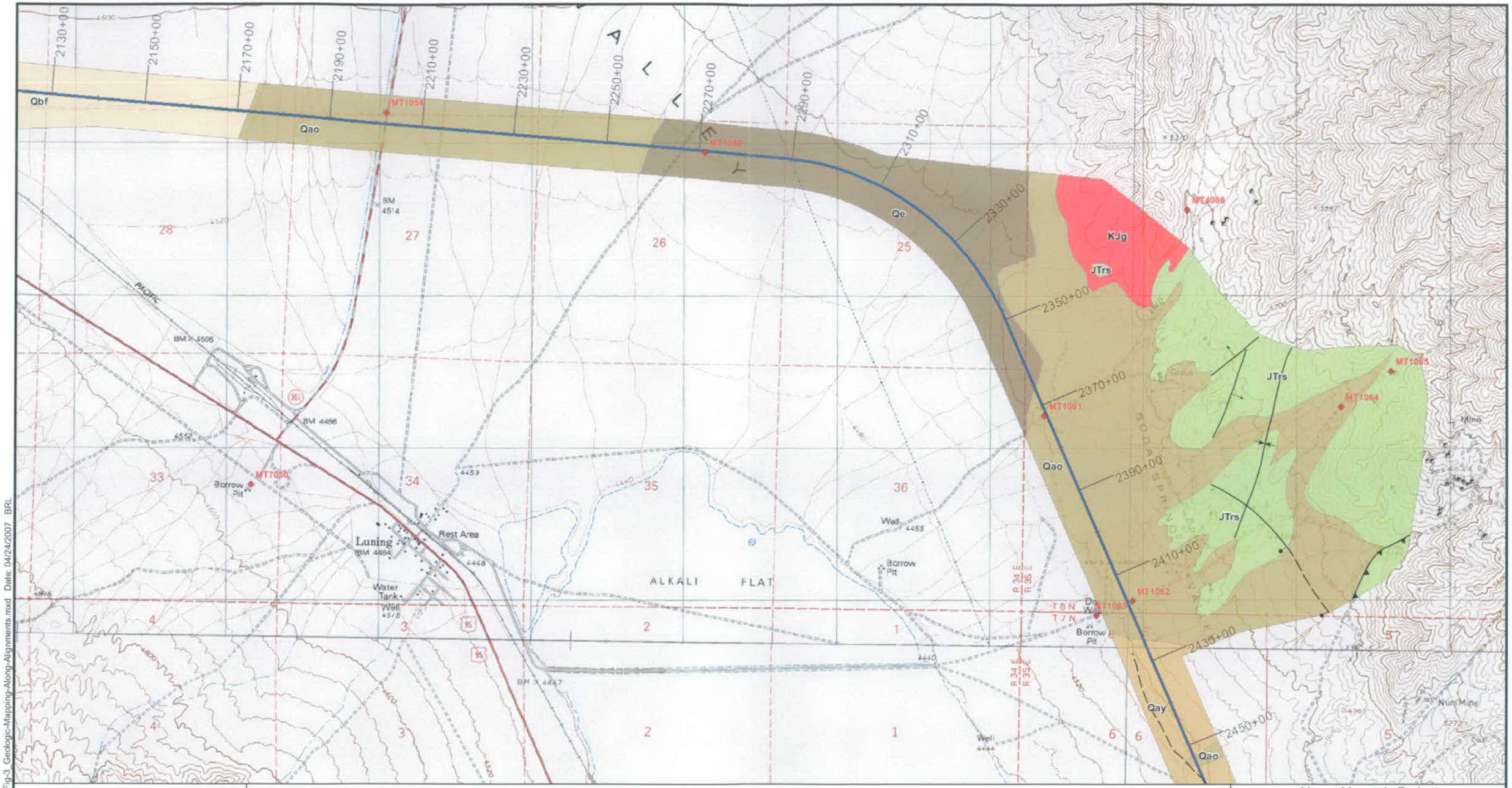

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0 2,000 4,000 Feet

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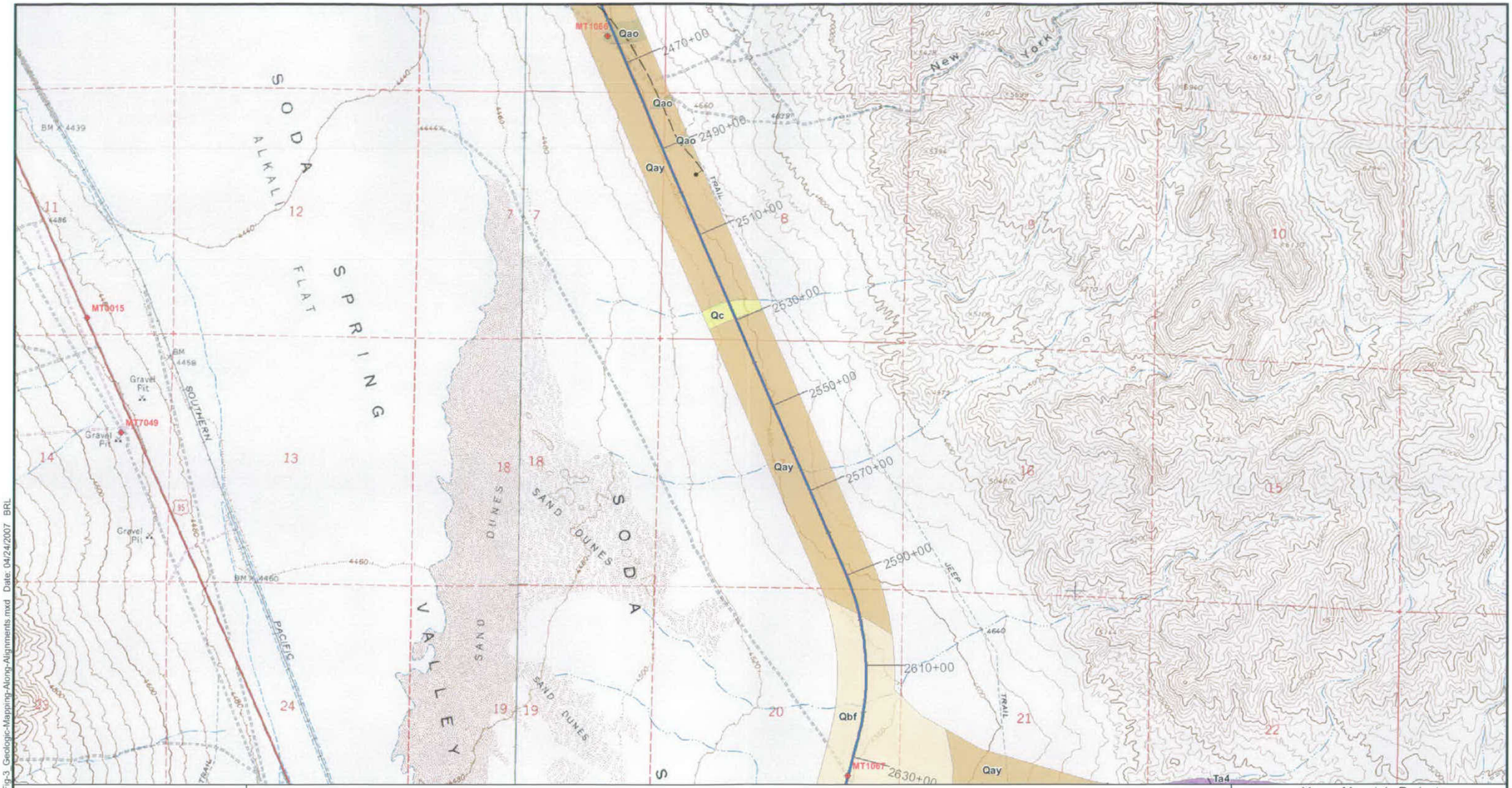

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0 2,000 4,000 Feet

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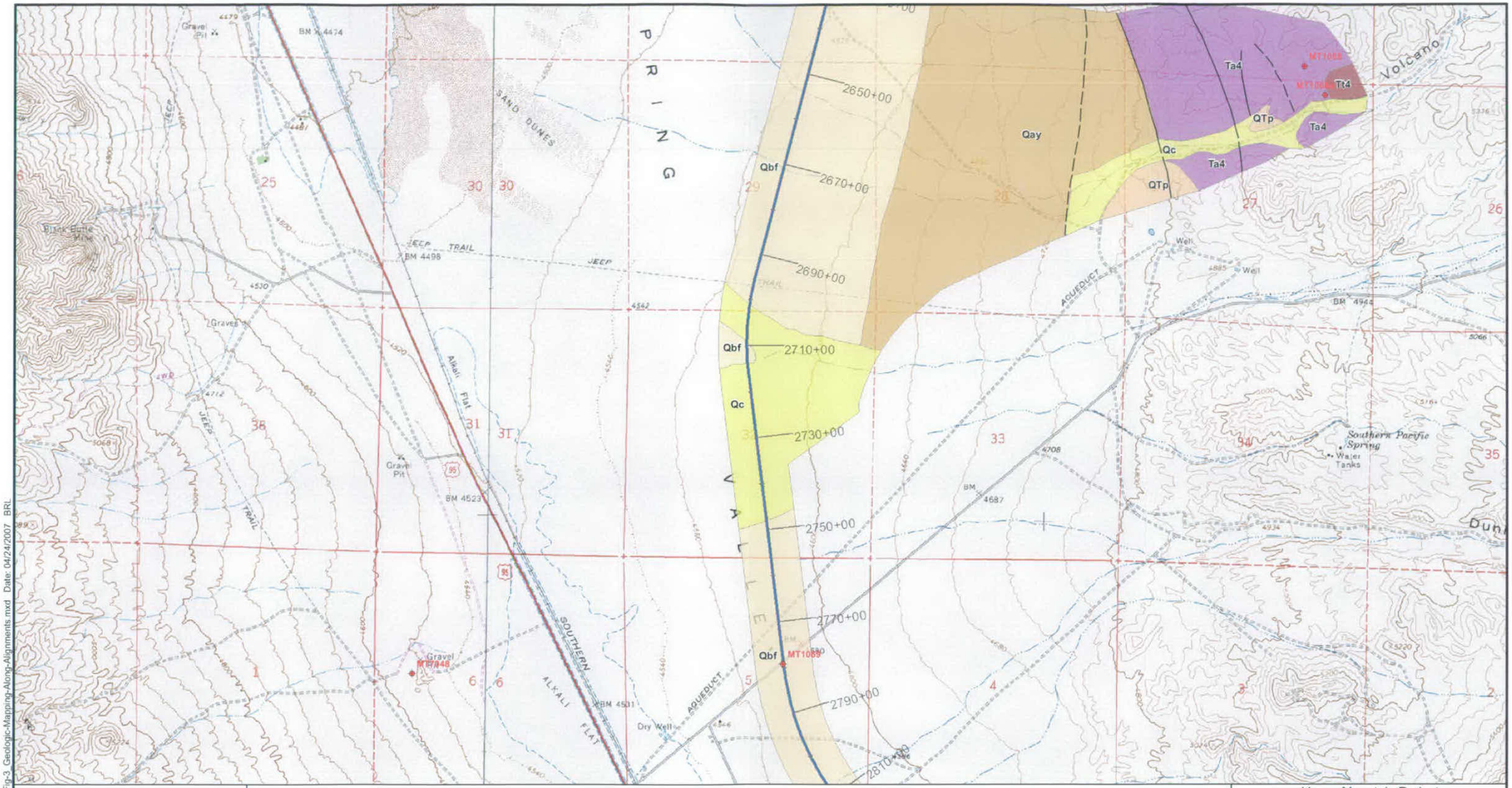

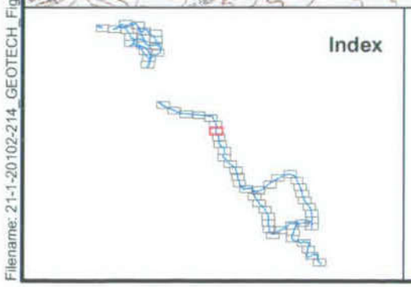

0 2,000 4,000 Feet

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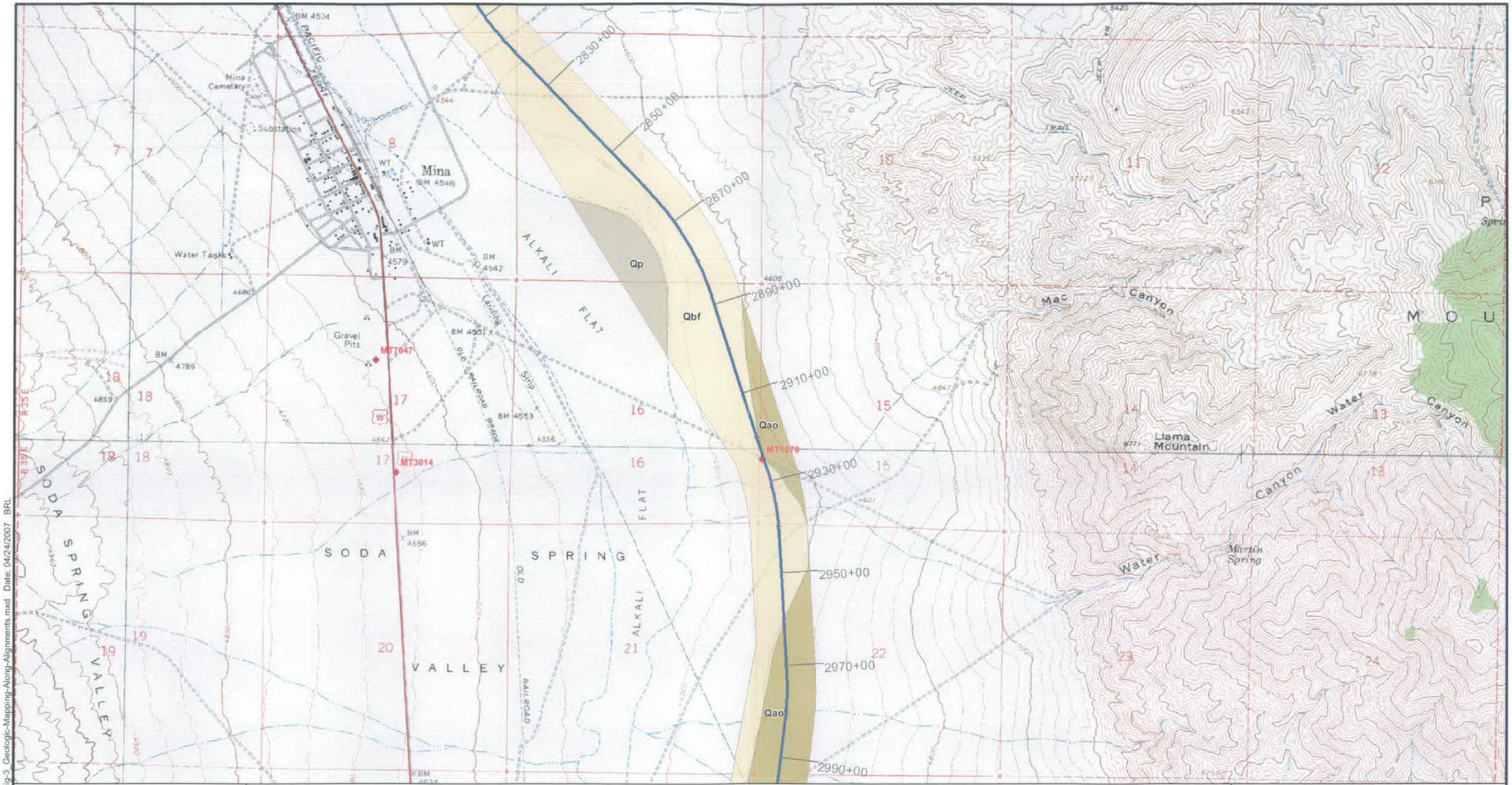

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0 2,000 4,000 Feet

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Qbf

MT1071

3010+00

3030+00

3050+00

MT1072

3070+00

3090+00

MT1073

Qao

MT1074a

3110+00

MT1074

MT1074b

3130+00

3150+00

3170+00

3190+00

3210+00

Gravel Pit

Prospects

Cem

Sodaville

Soda Springs

BM 4650

Tailings

BM 4599

Gravel Pit

BM 4541

Telephone

Mine

TRAIL

JEEP

TELEPHONE

GRADE

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0 2,000 4,000 Feet

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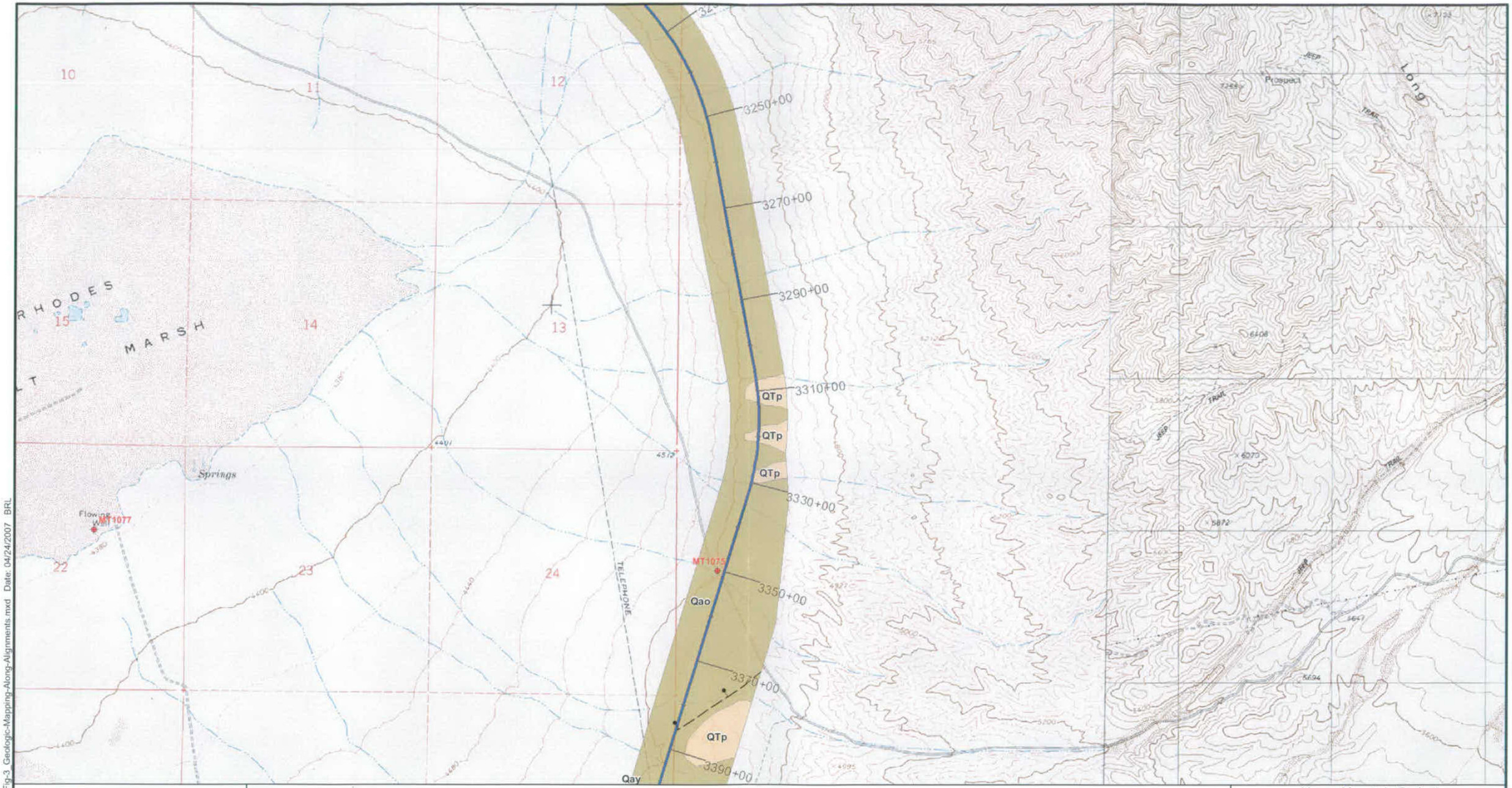

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0 2,000 4,000 Feet

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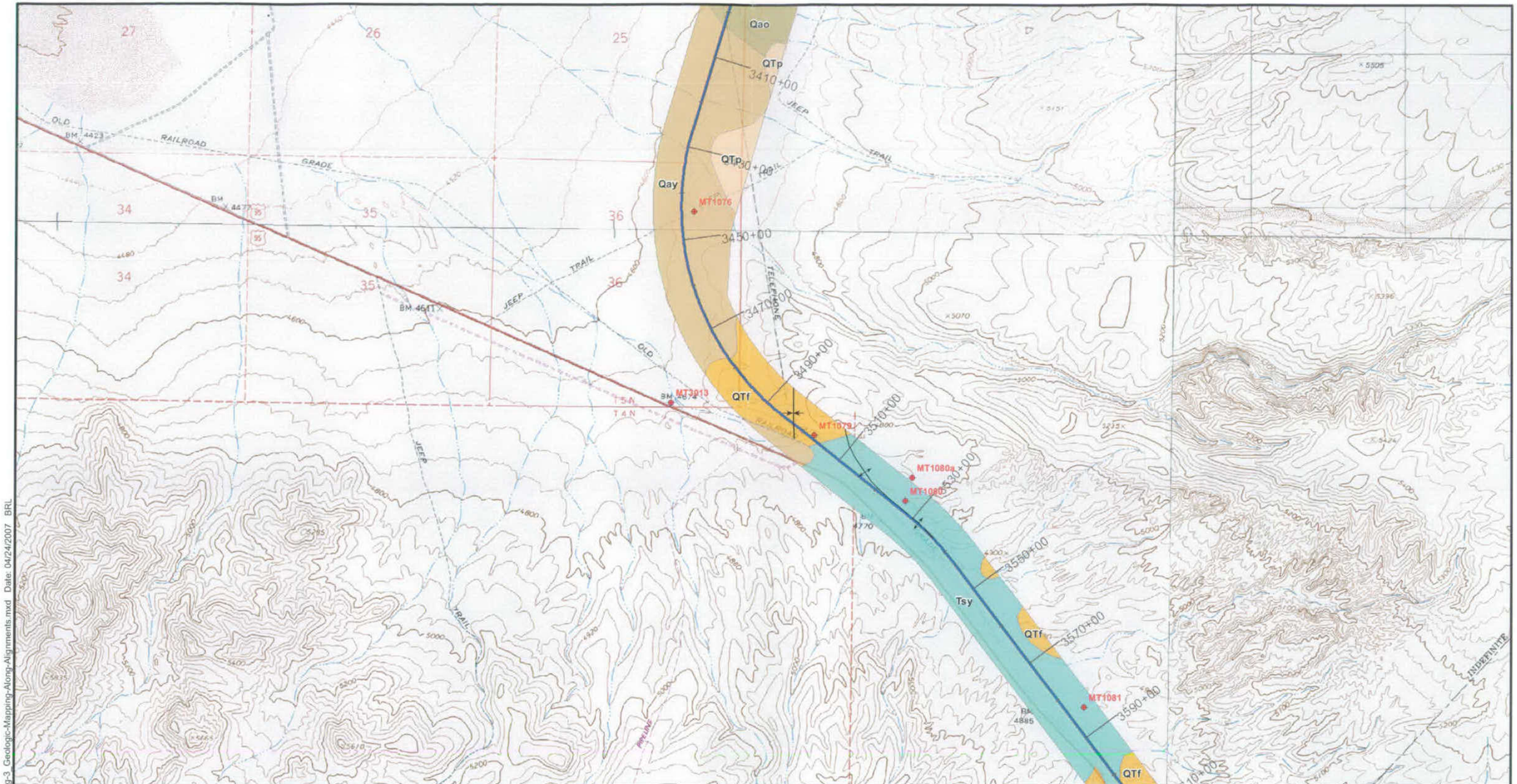

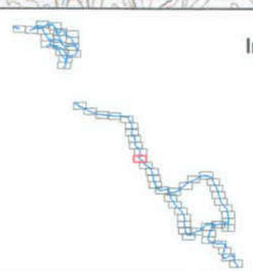

0 2,000 4,000 Feet

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Tsy
QTf
MT1082
MT1082a
MT1082b
MT3012
MT1083
Qao
Ta3
Tsv
MINERAL CO
ESMERALDA CO
OLD RAILROAD
BM 4973
BM 4966
BM 5049
BM 5070
BM 4893
BM 4749
3630+00
3650+00
3670+00
3690+00
3710+00
3730+00
3750+00
3770+00
3790+00
3810+00
3830+00
3850+00

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0 2,000 4,000 Feet

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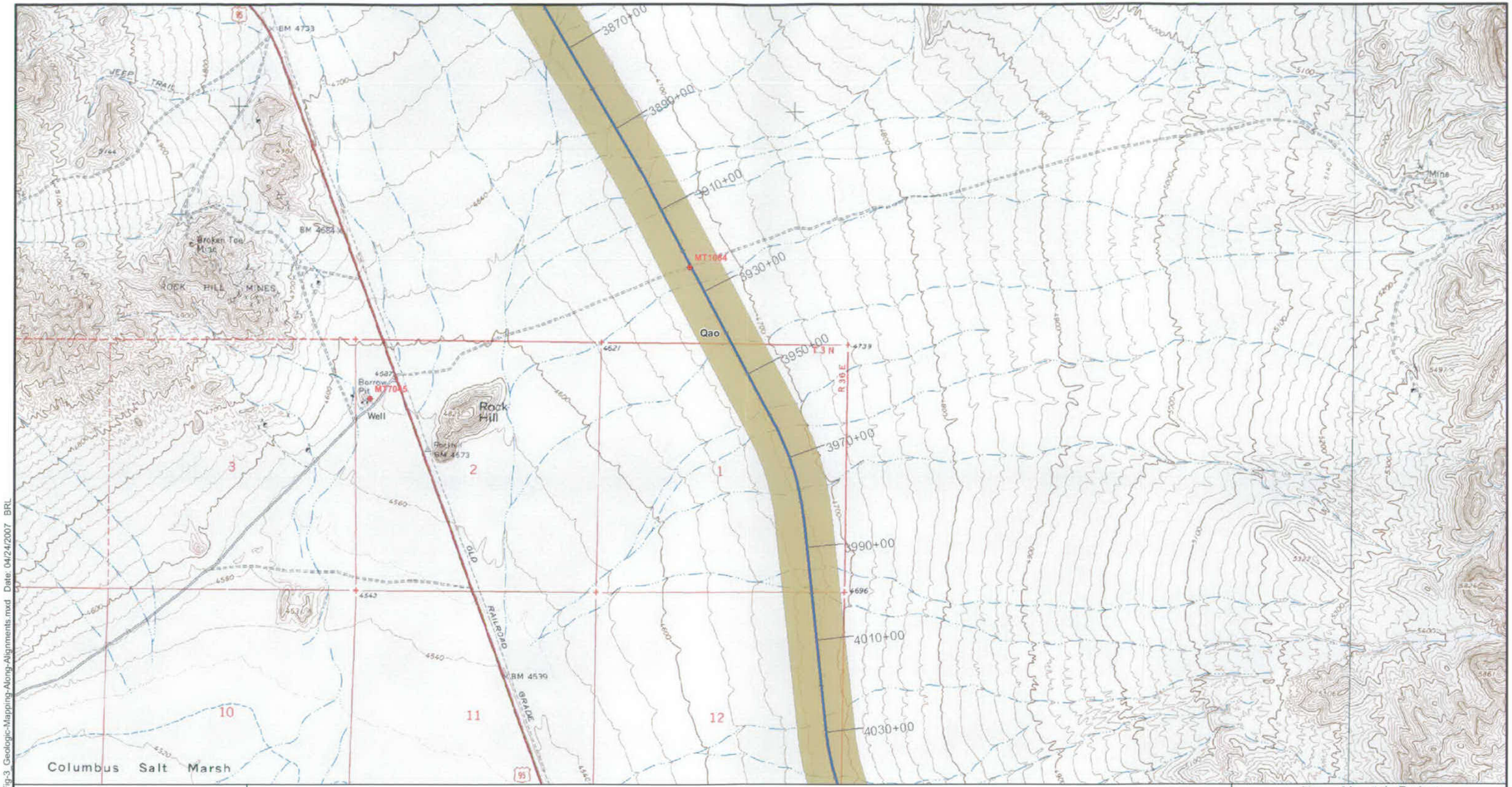

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0 2,000 4,000 Feet

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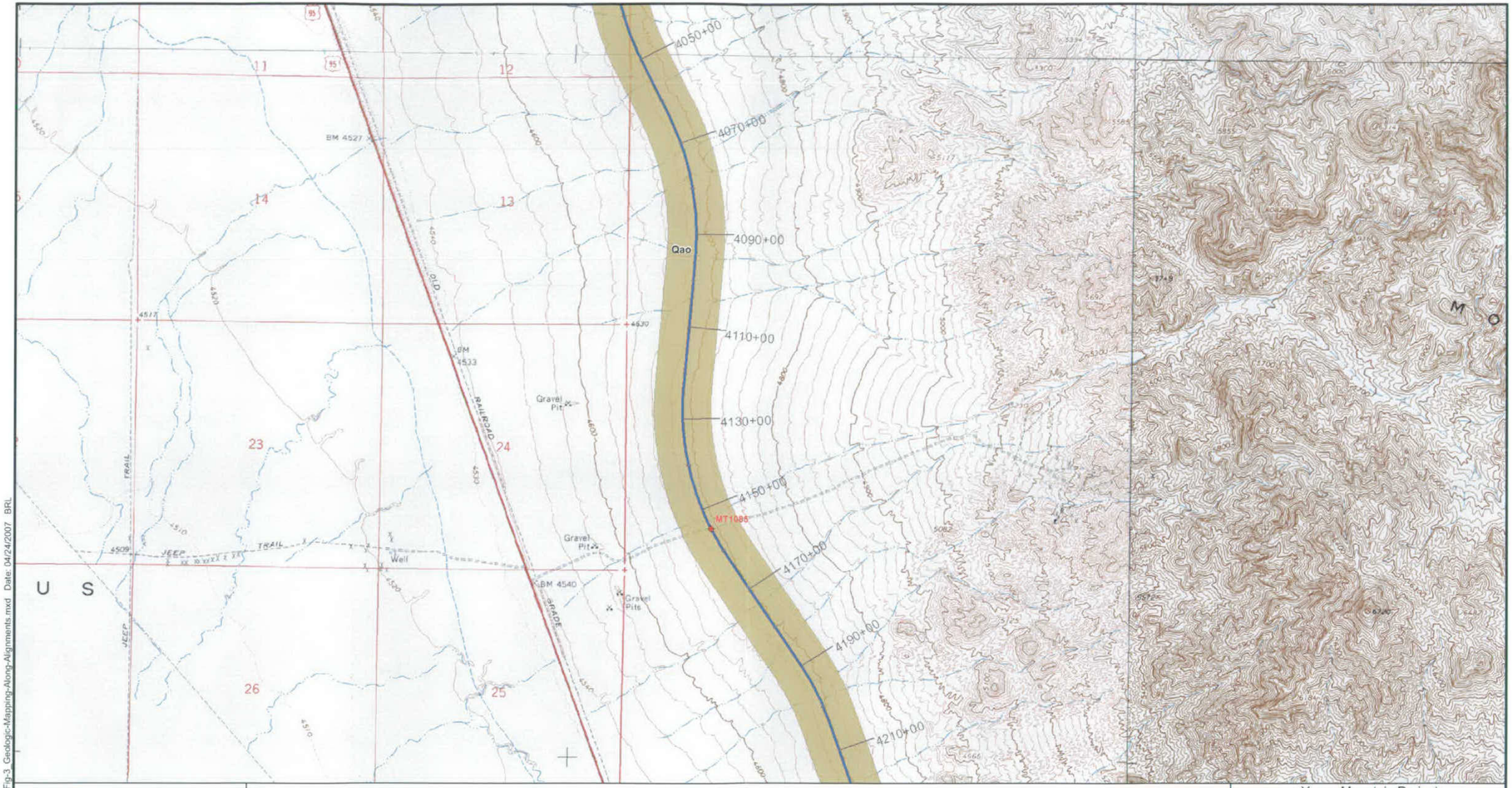

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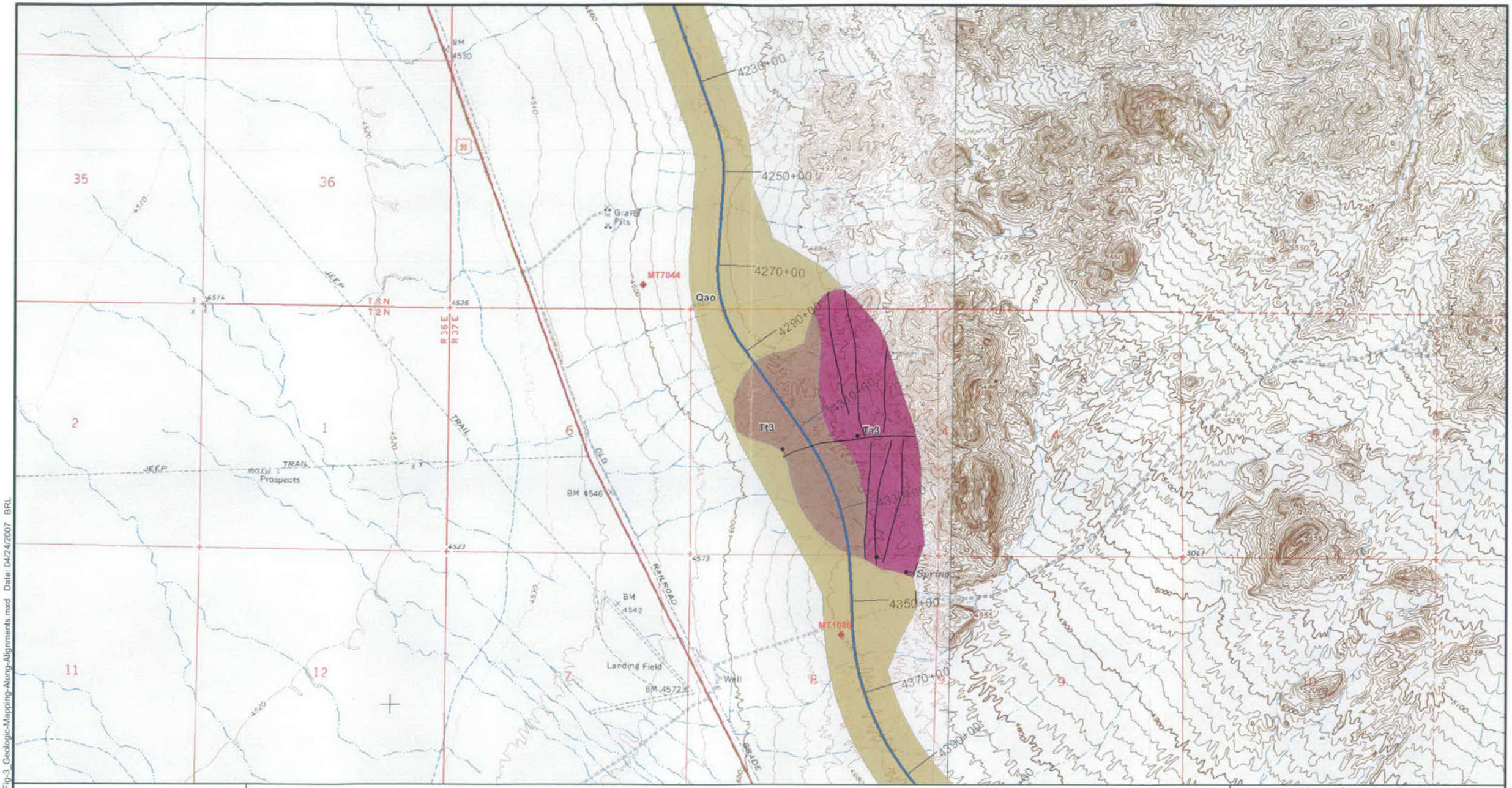

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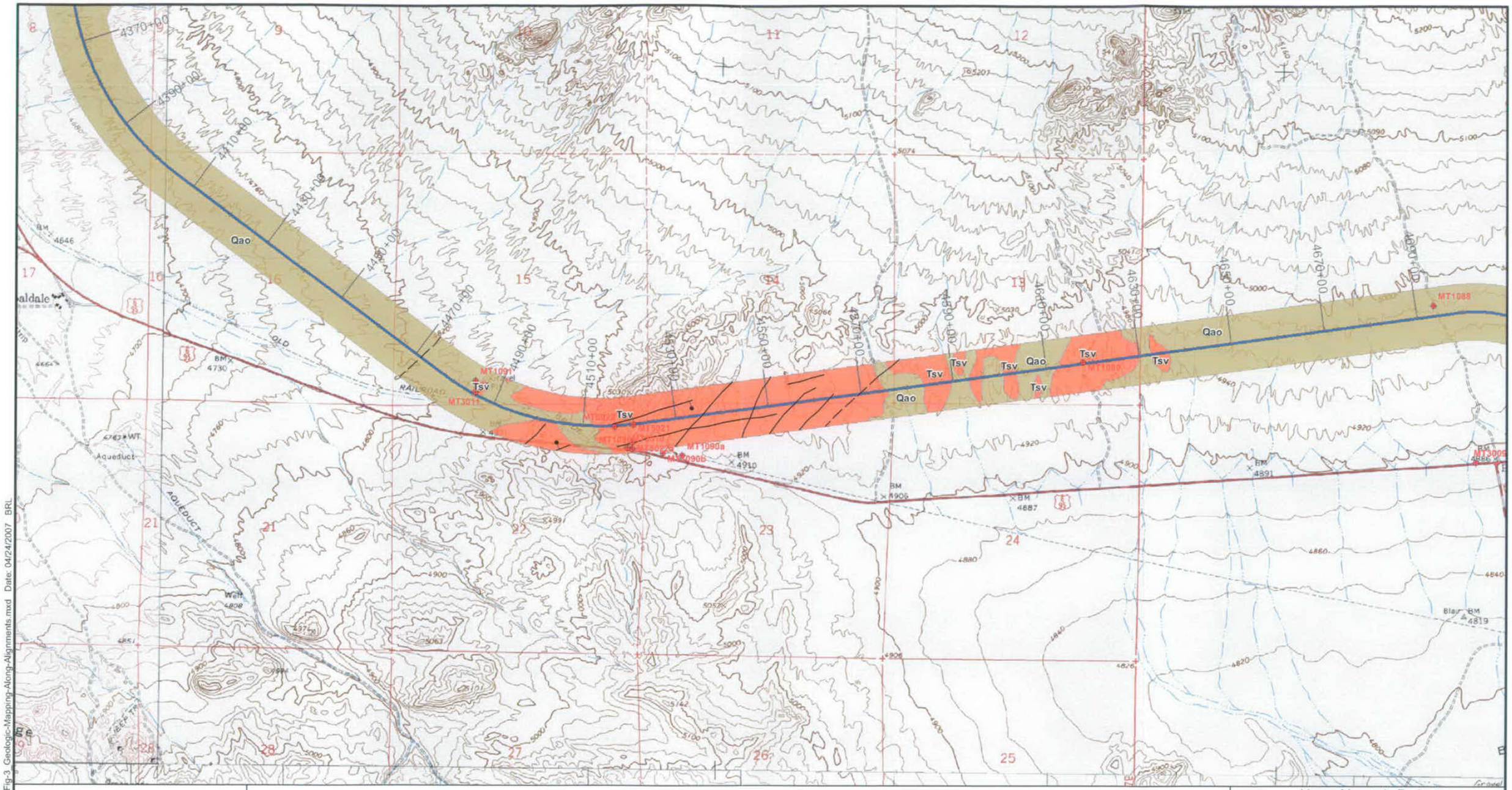

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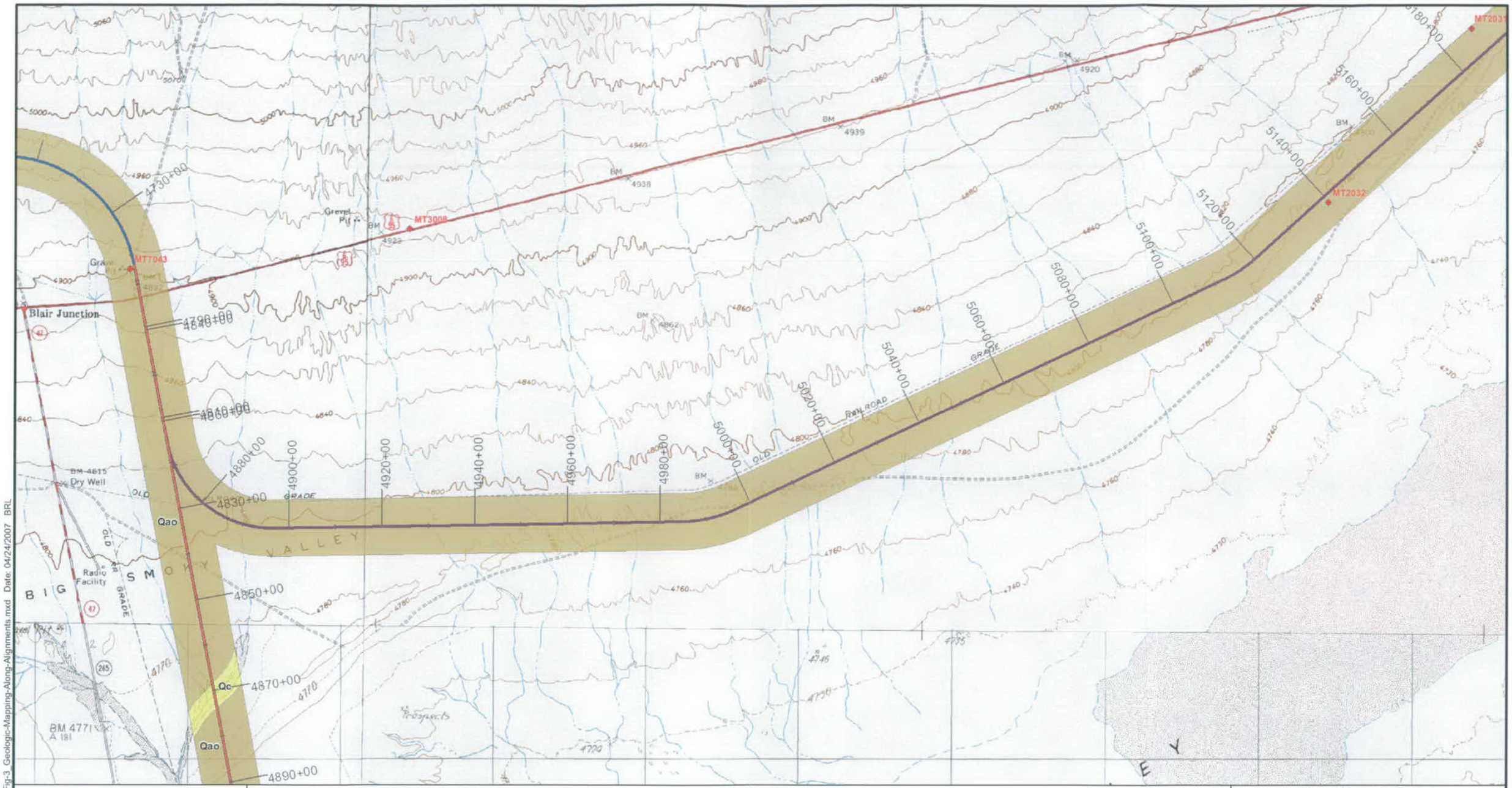

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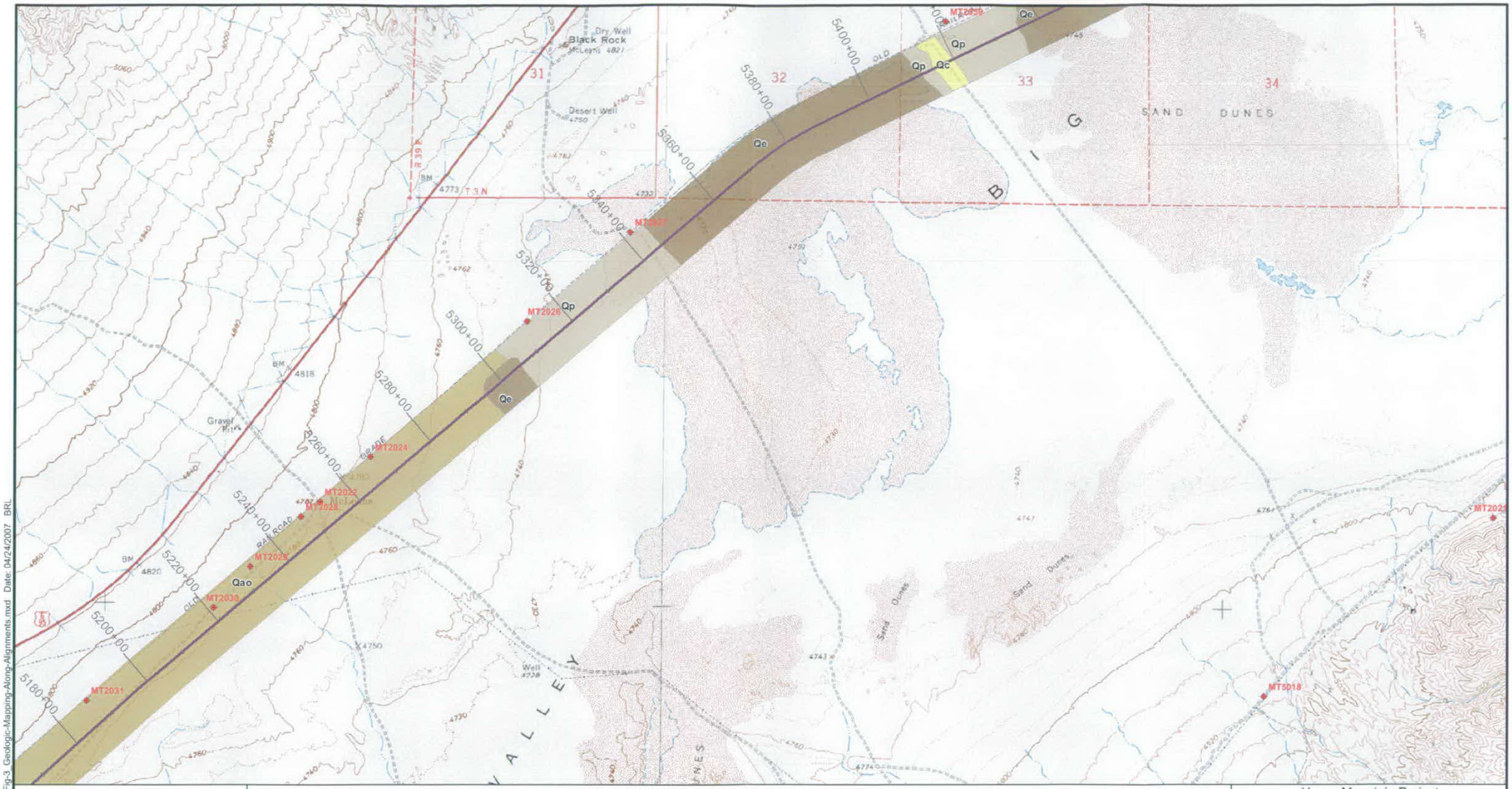

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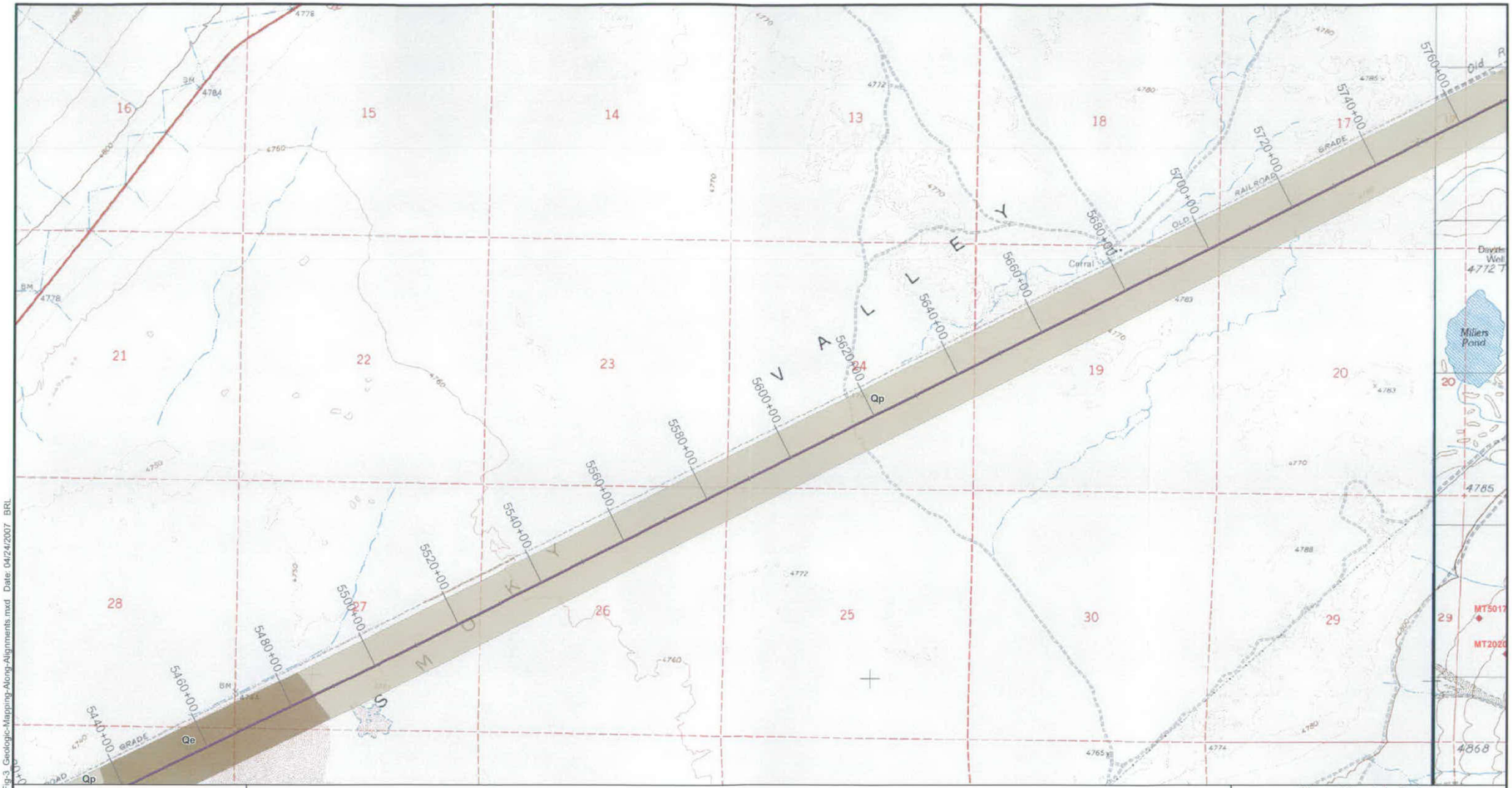

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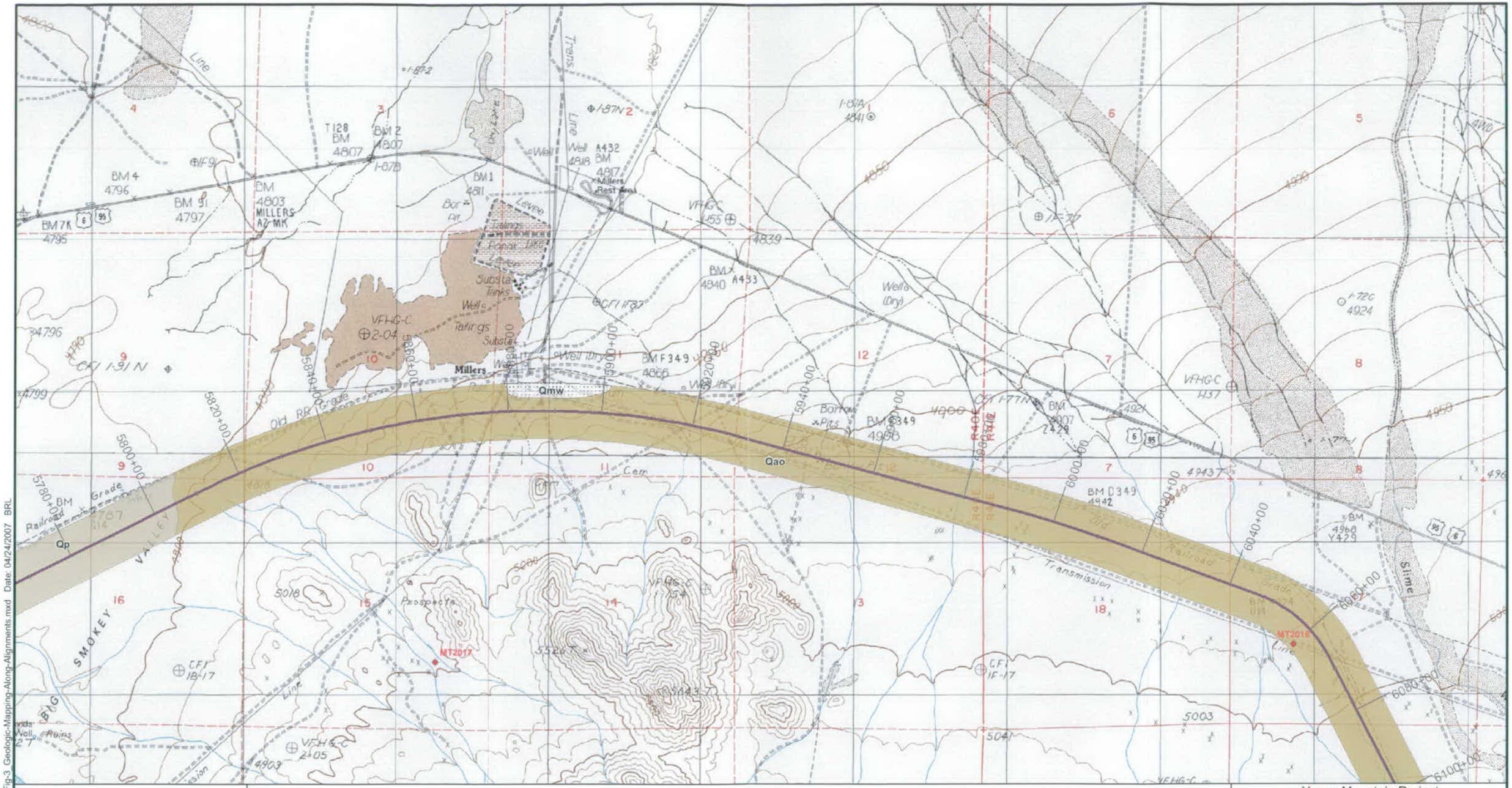

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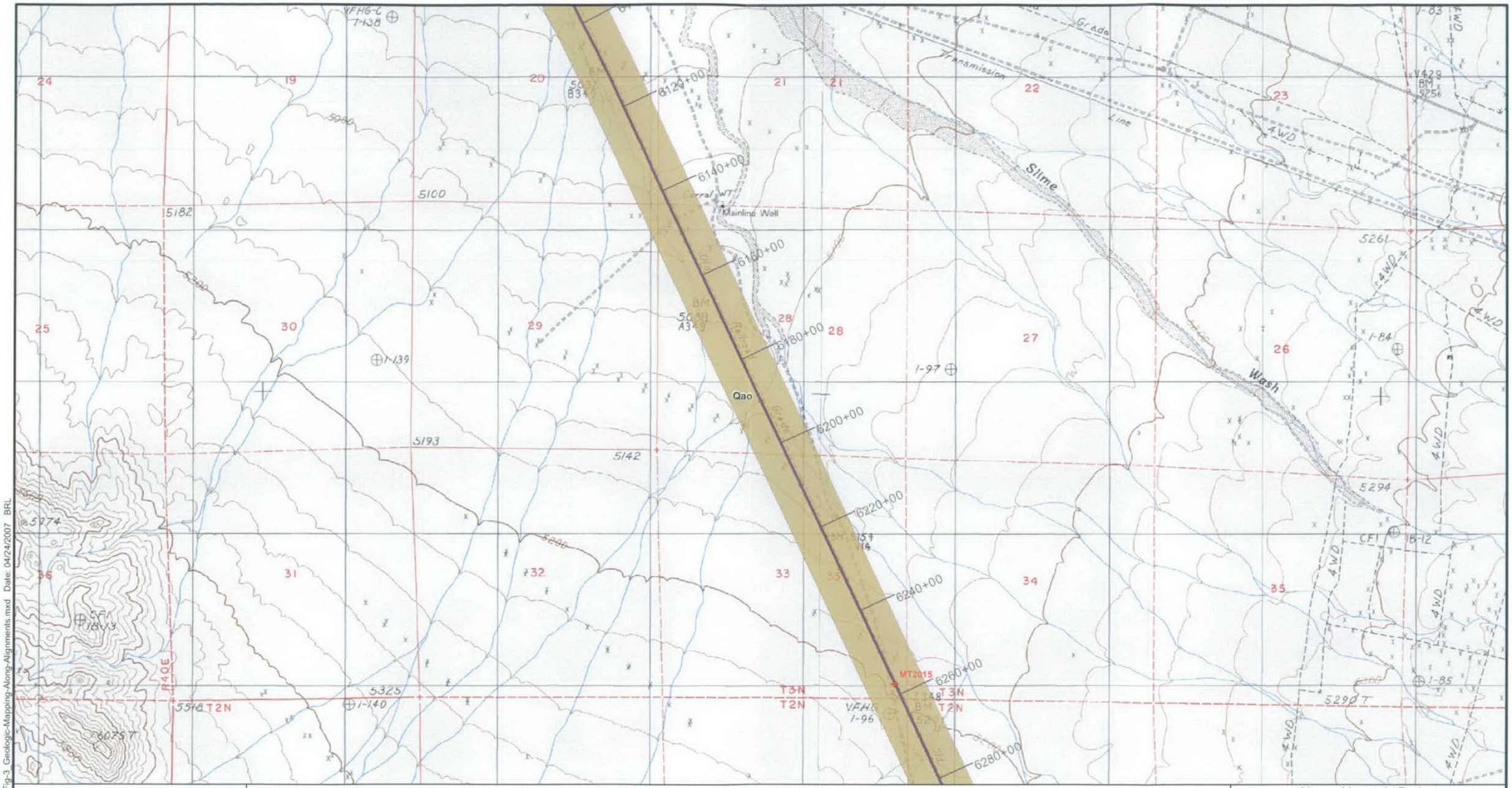

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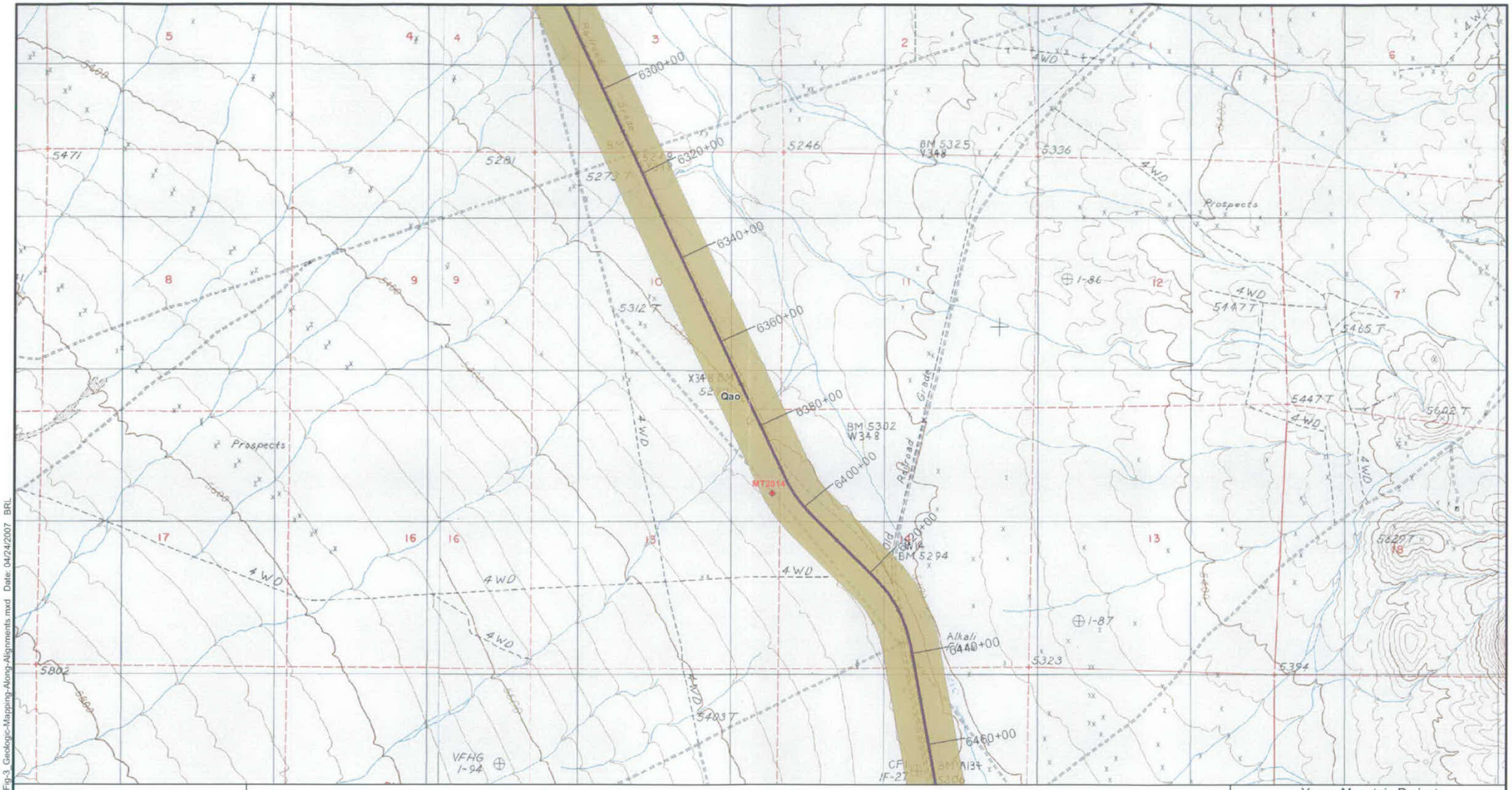

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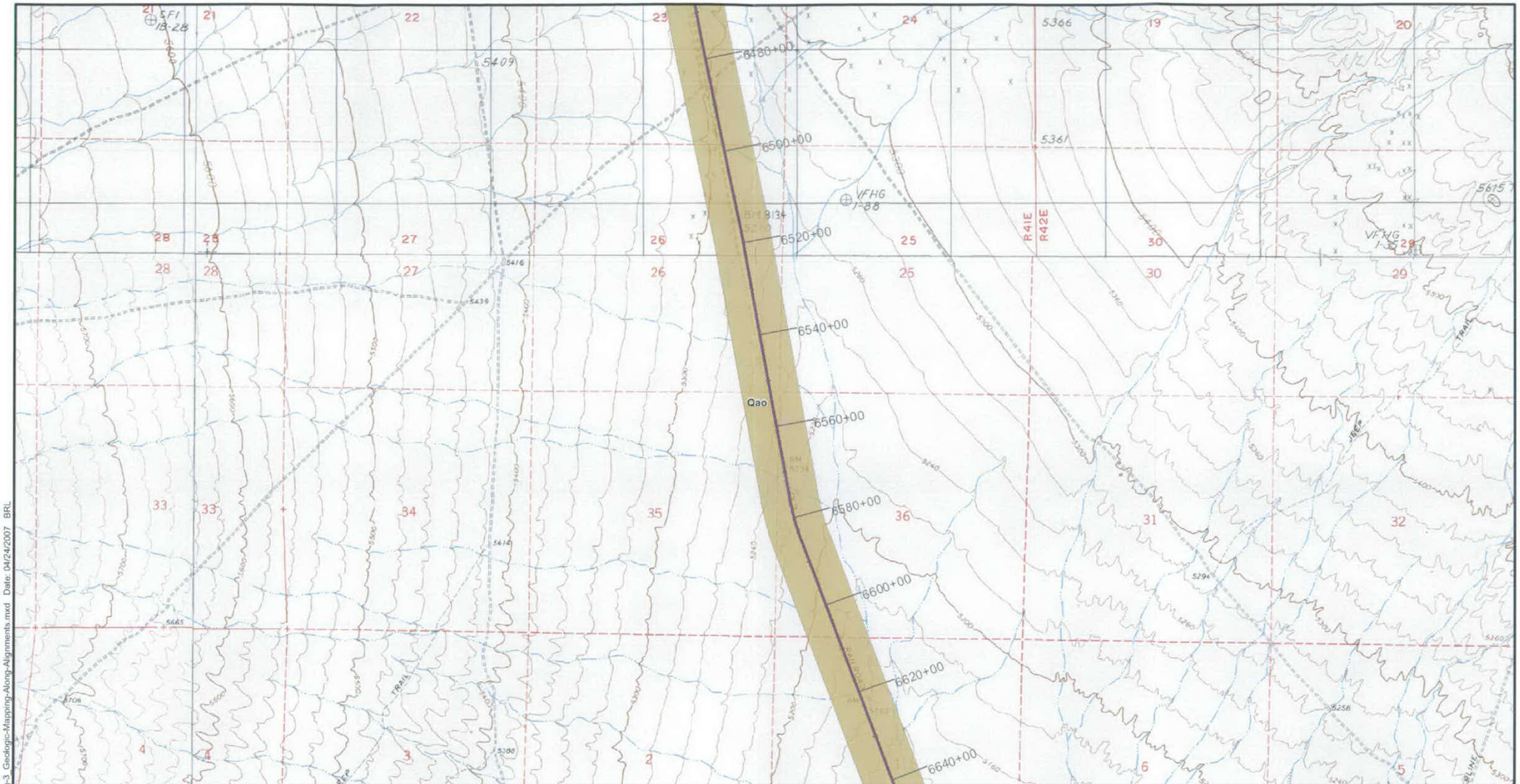

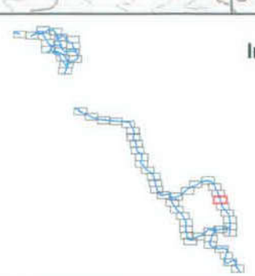

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MT2013
T2012
6660+00
6680+00
6700+00
6720+00
6740+00
6760+00
6780+00
6800+00
6820+00
6840+00
Qao
10
11
12
7
8
9
15
14
13
18
17
16
22
23
24
19
20
21
TRAIL
JEEP
PIT

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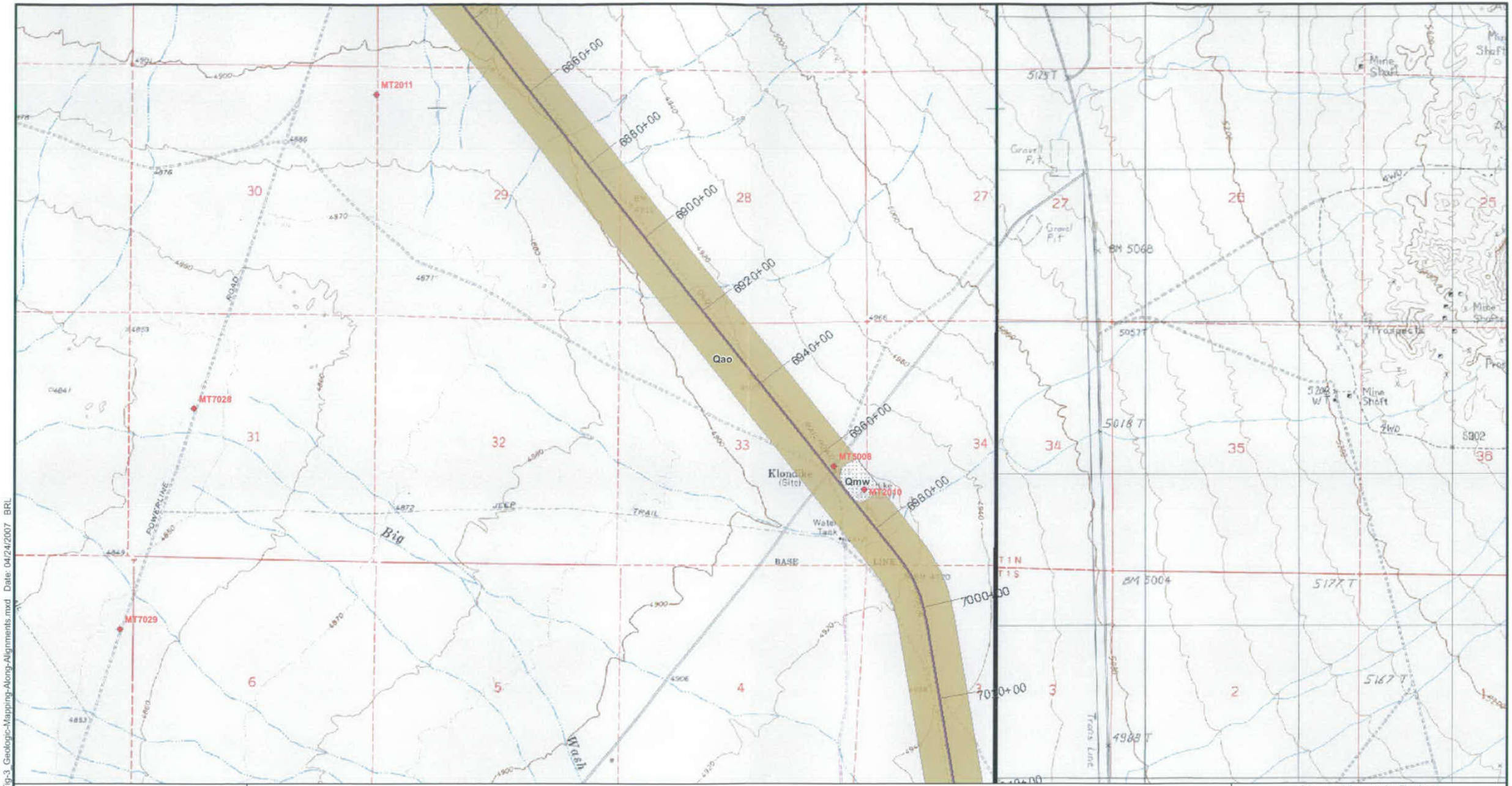

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0 2,000 4,000 Feet

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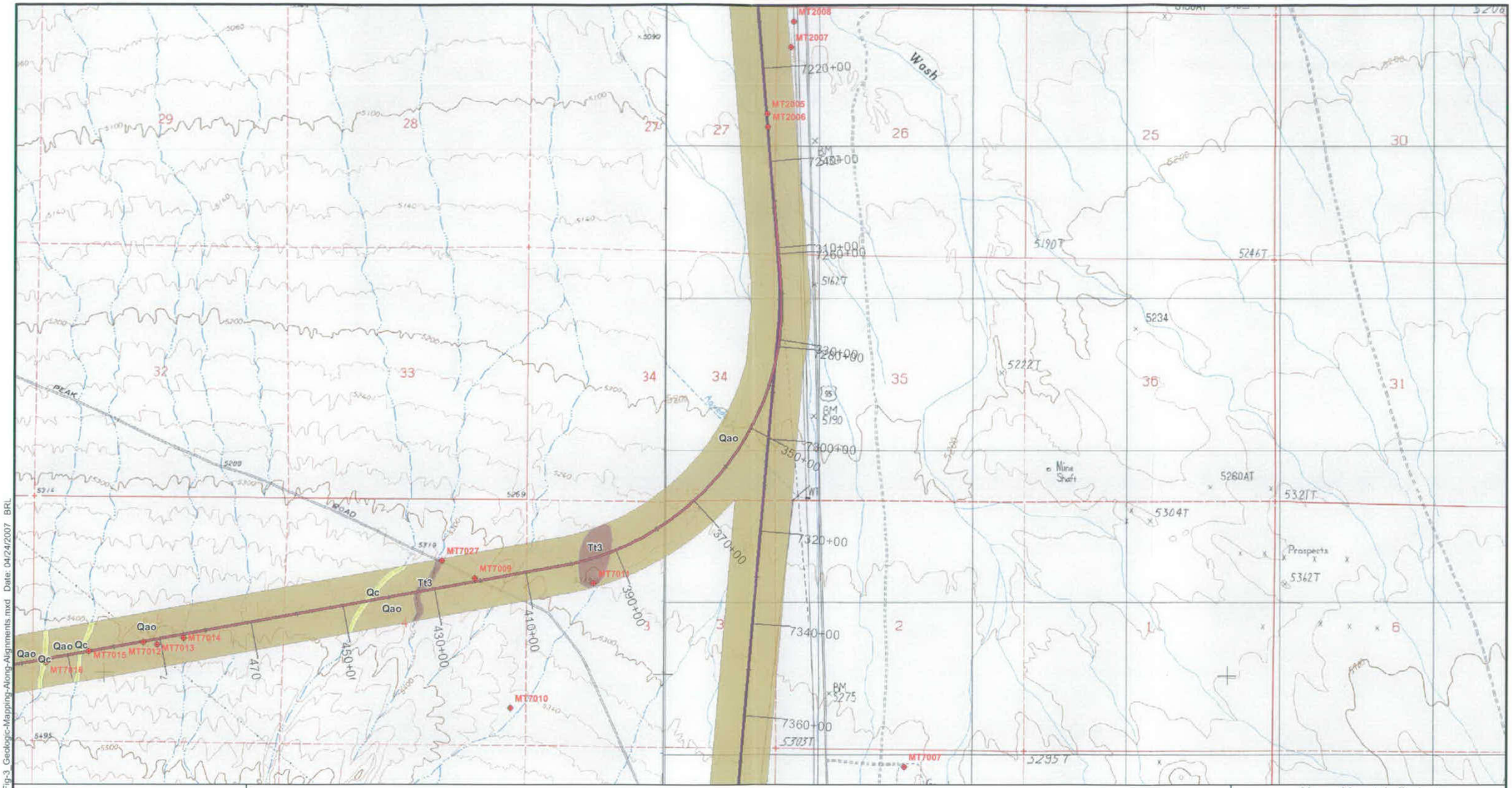

0 2,000 4,000 Feet

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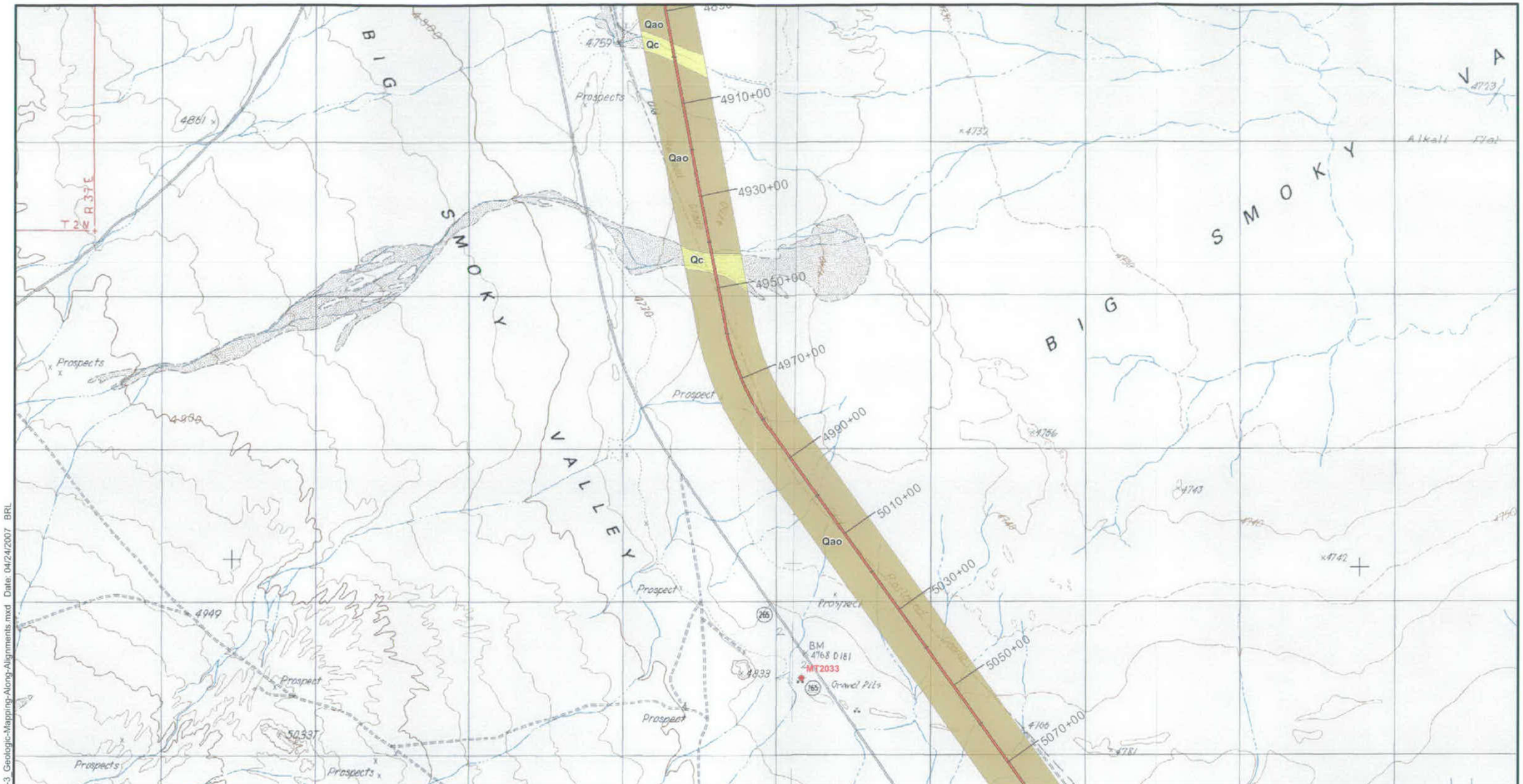

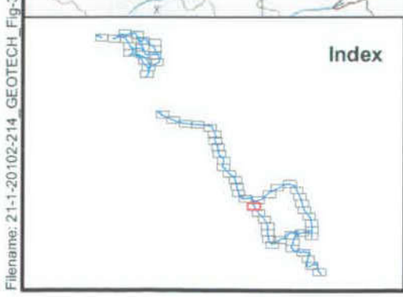

0 2,000 4,000 Feet

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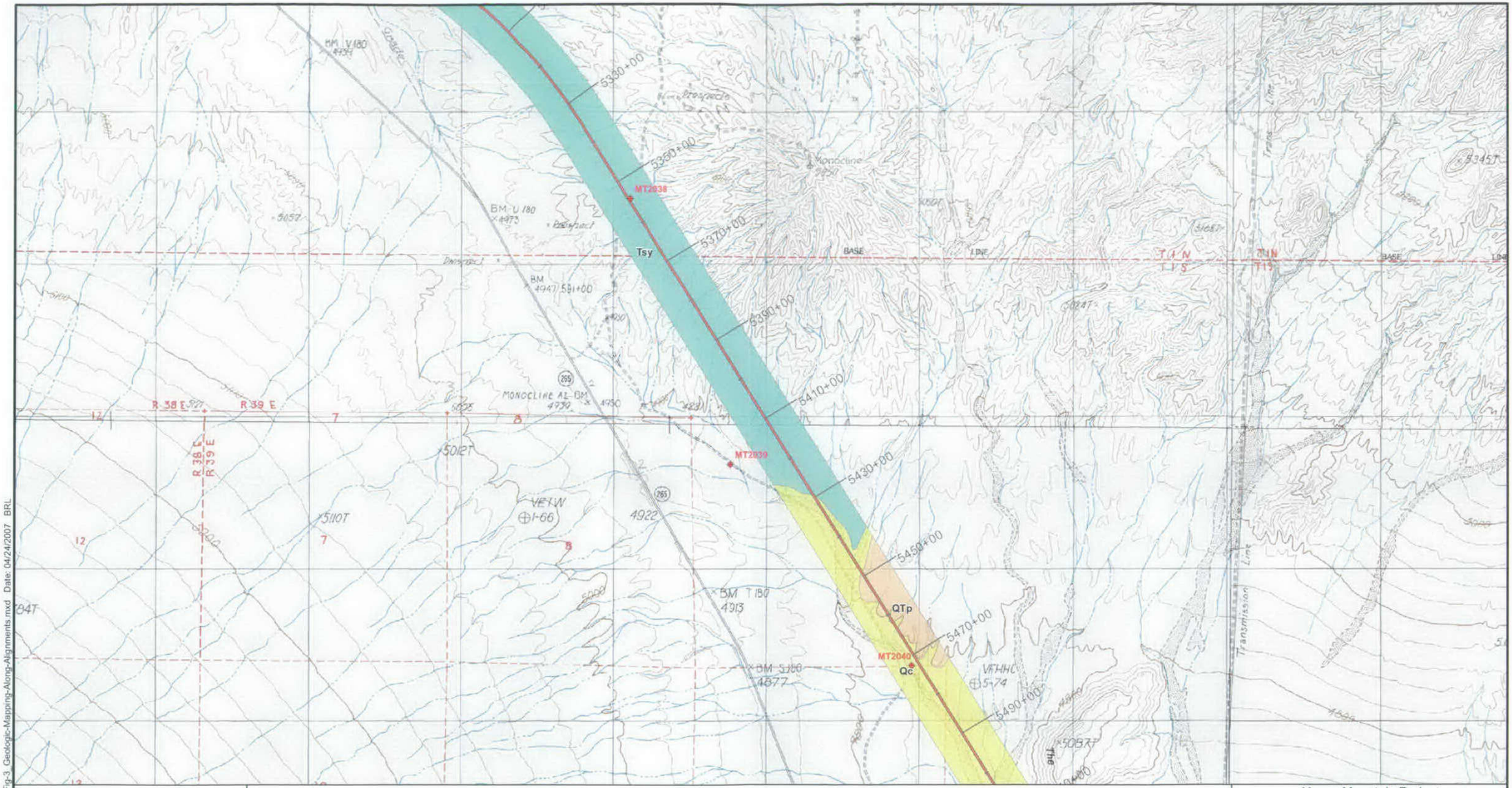

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0 2,000 4,000 Feet

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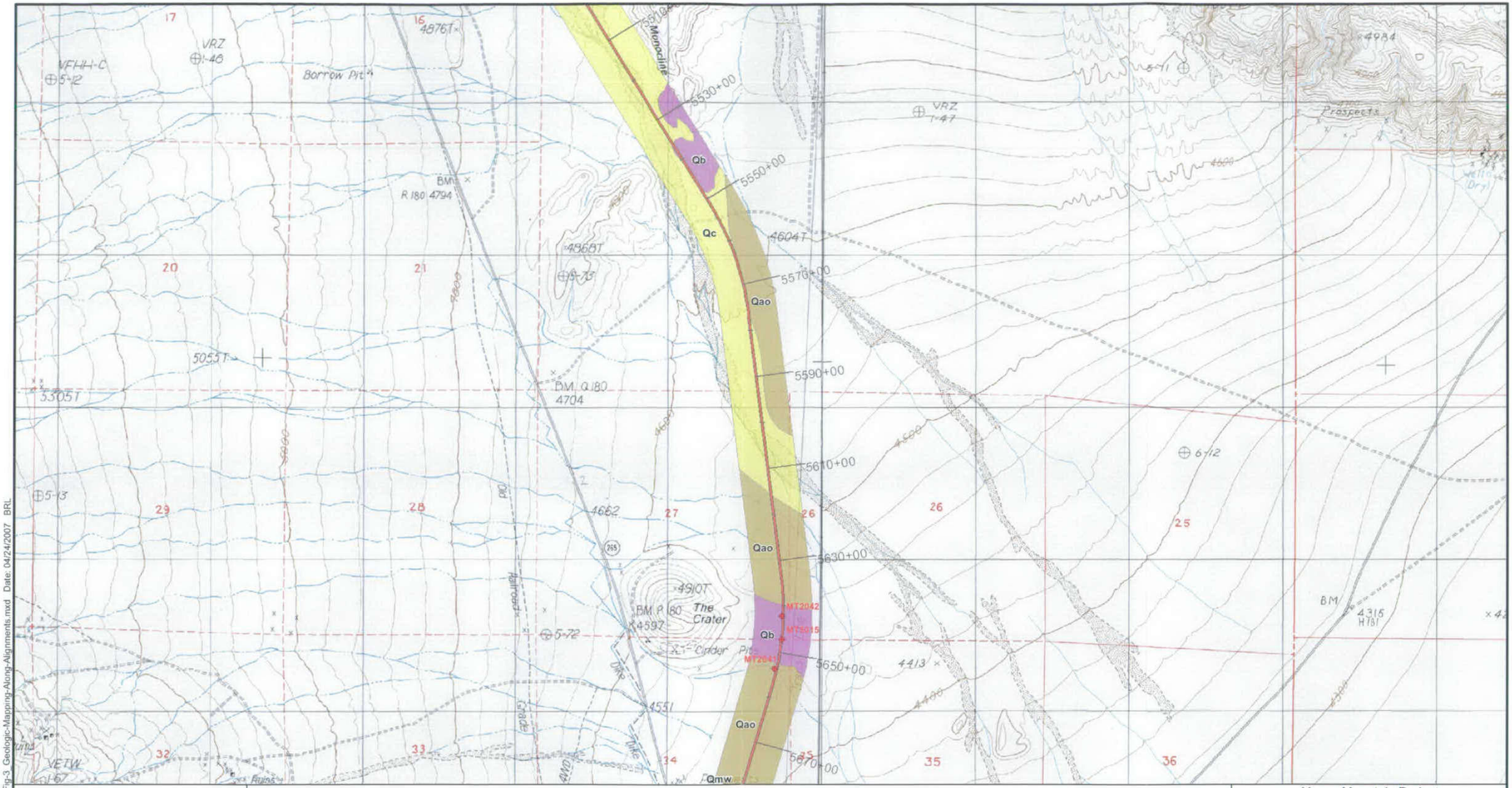

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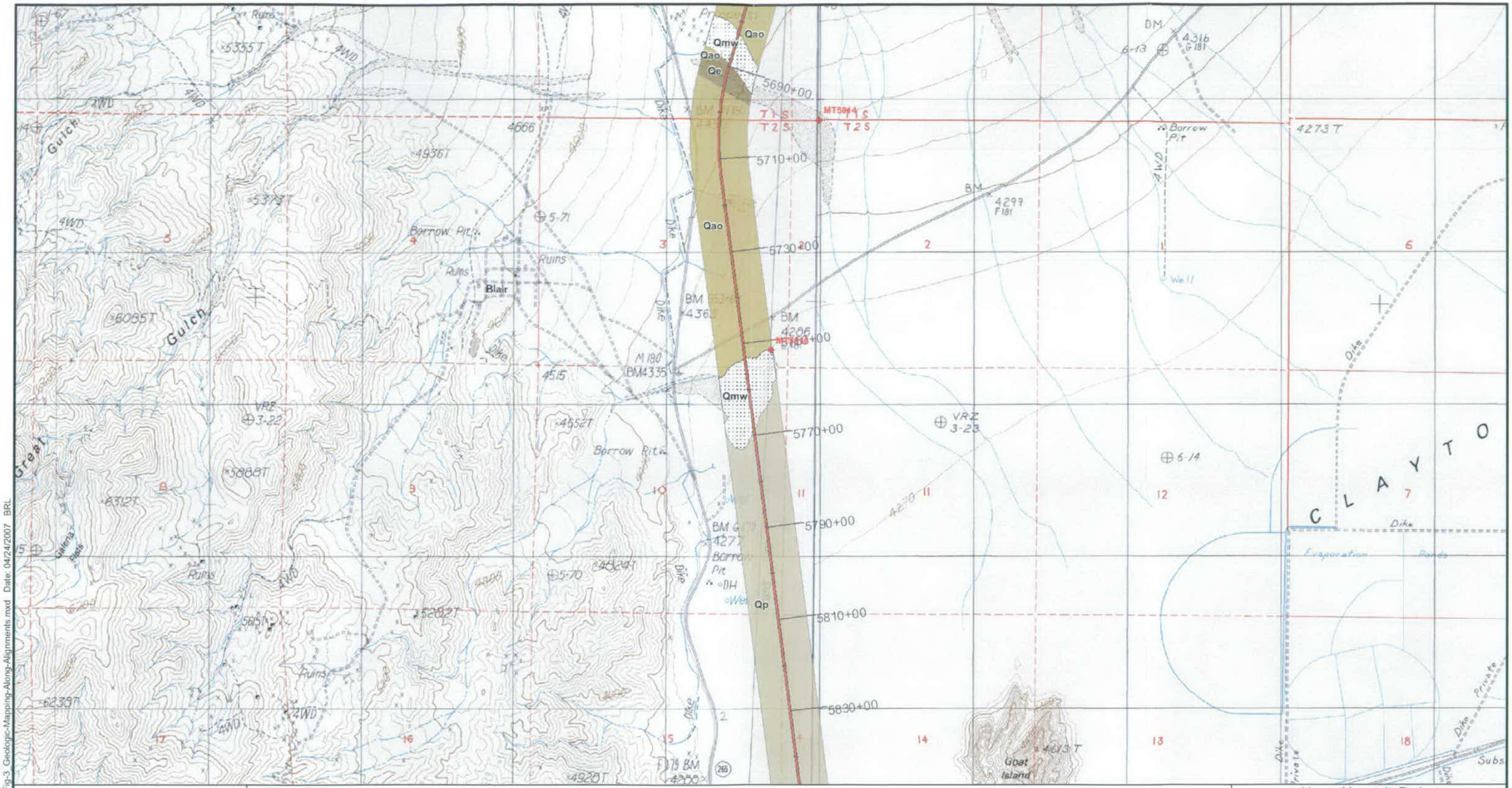

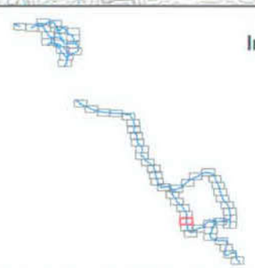

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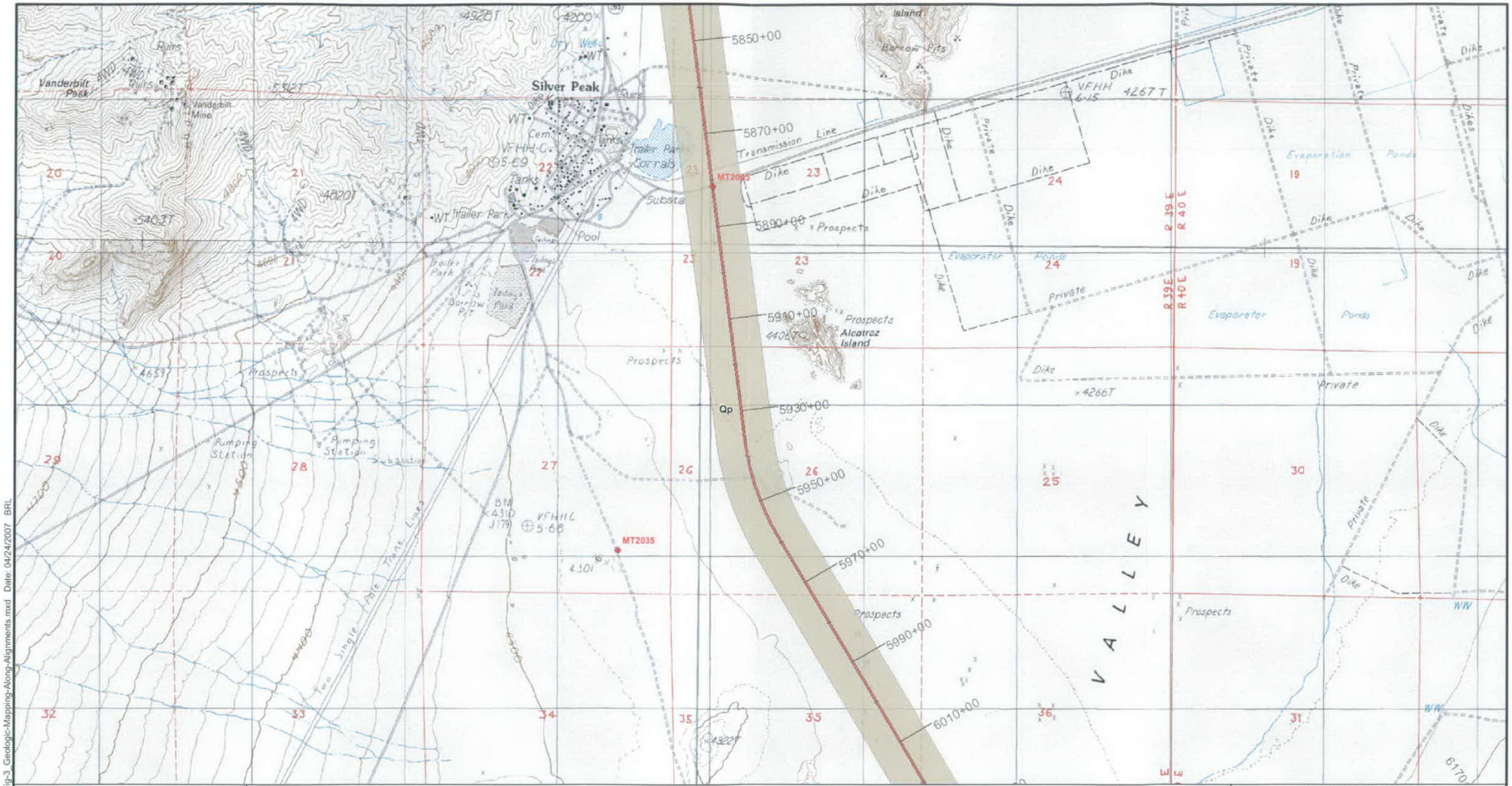

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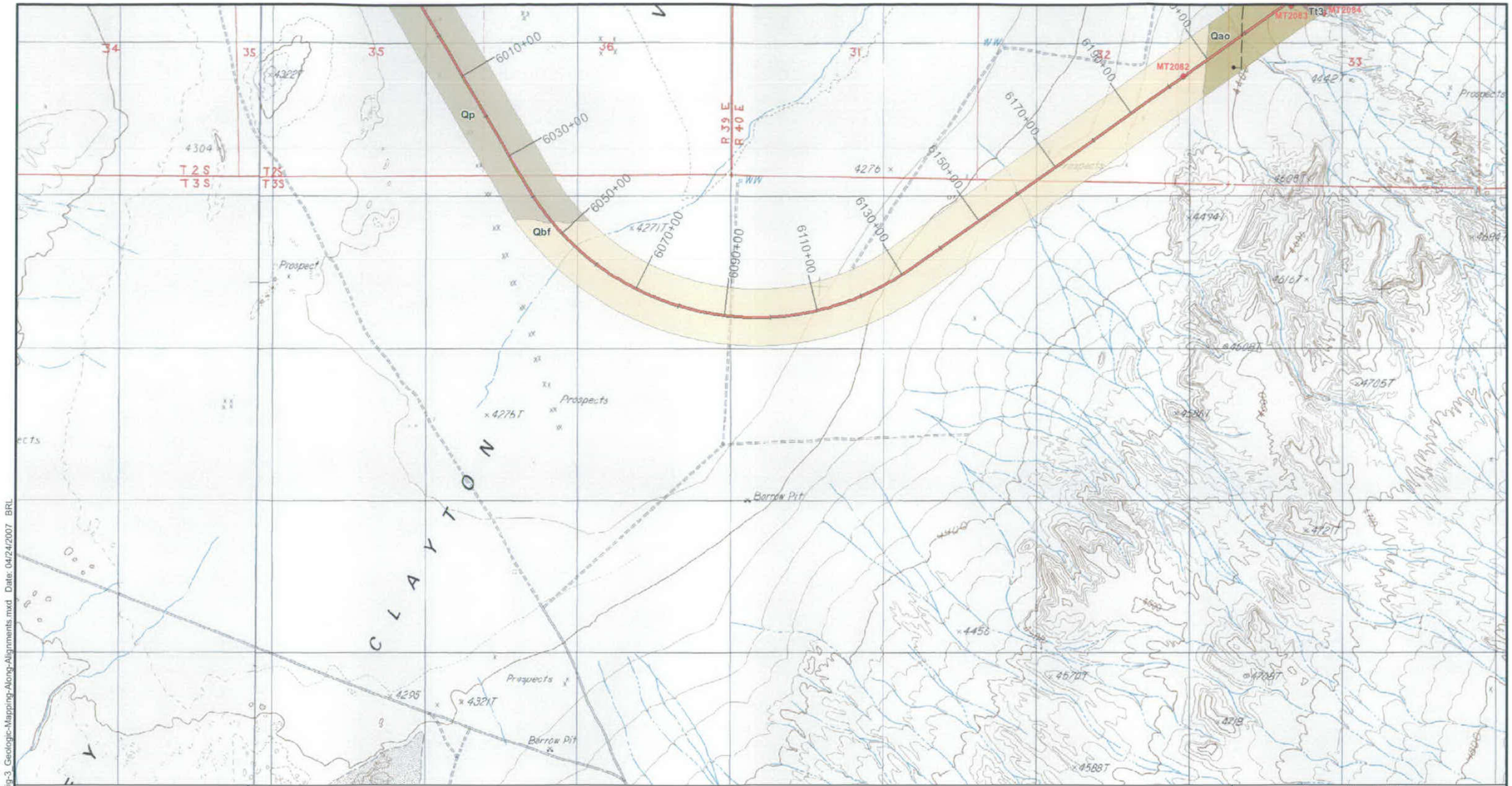

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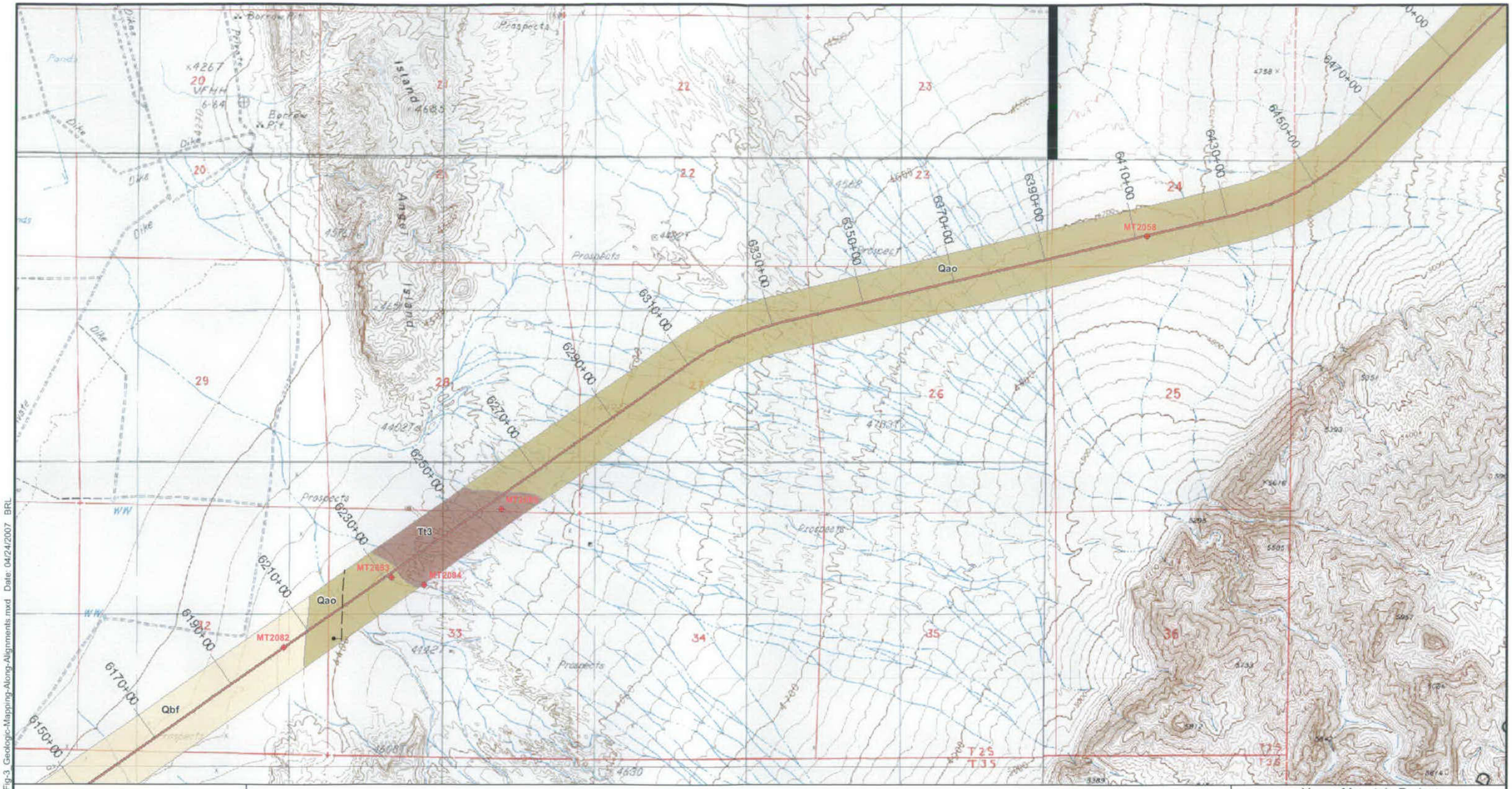

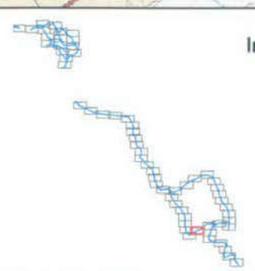

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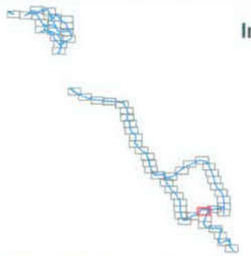

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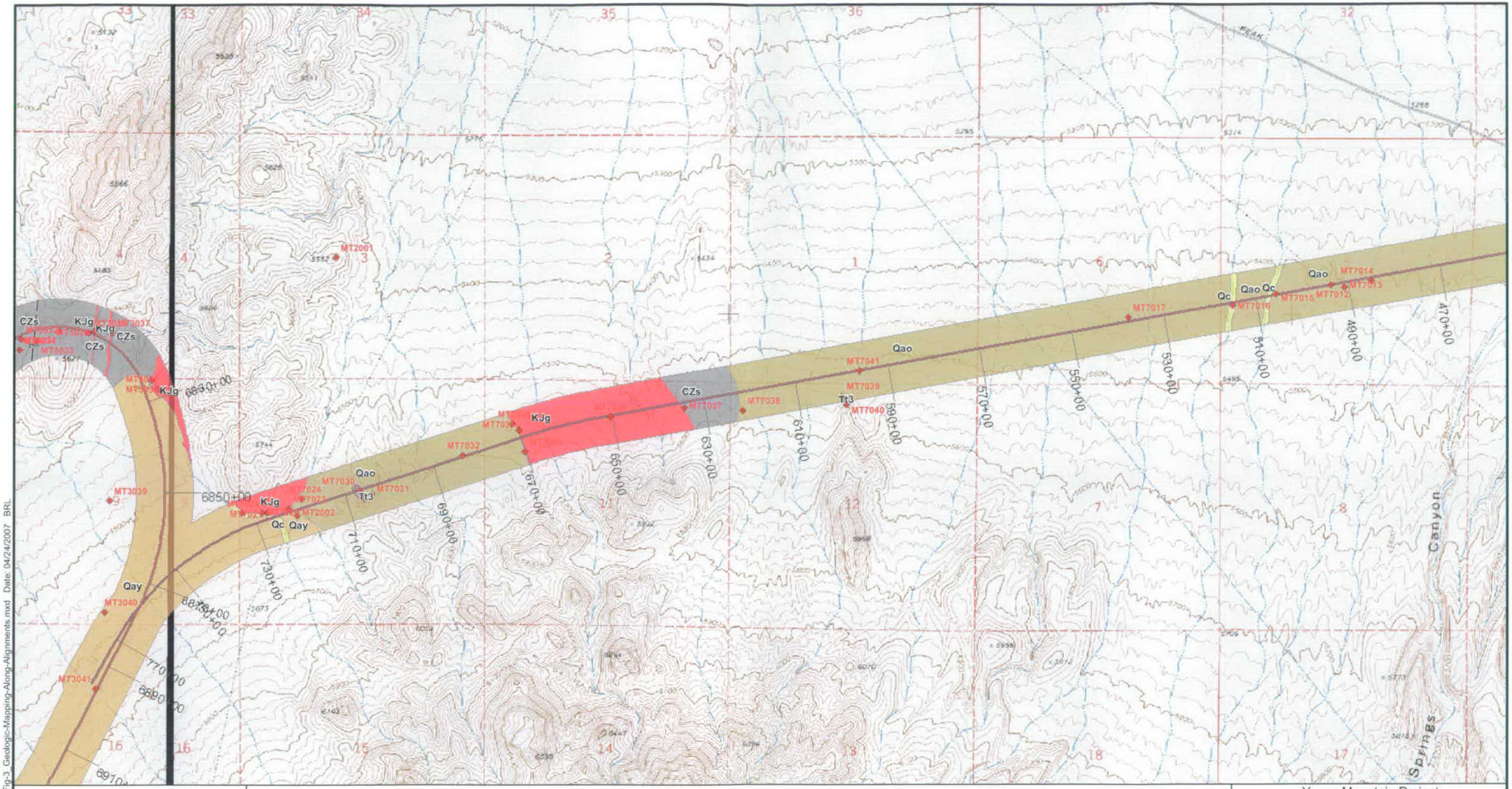

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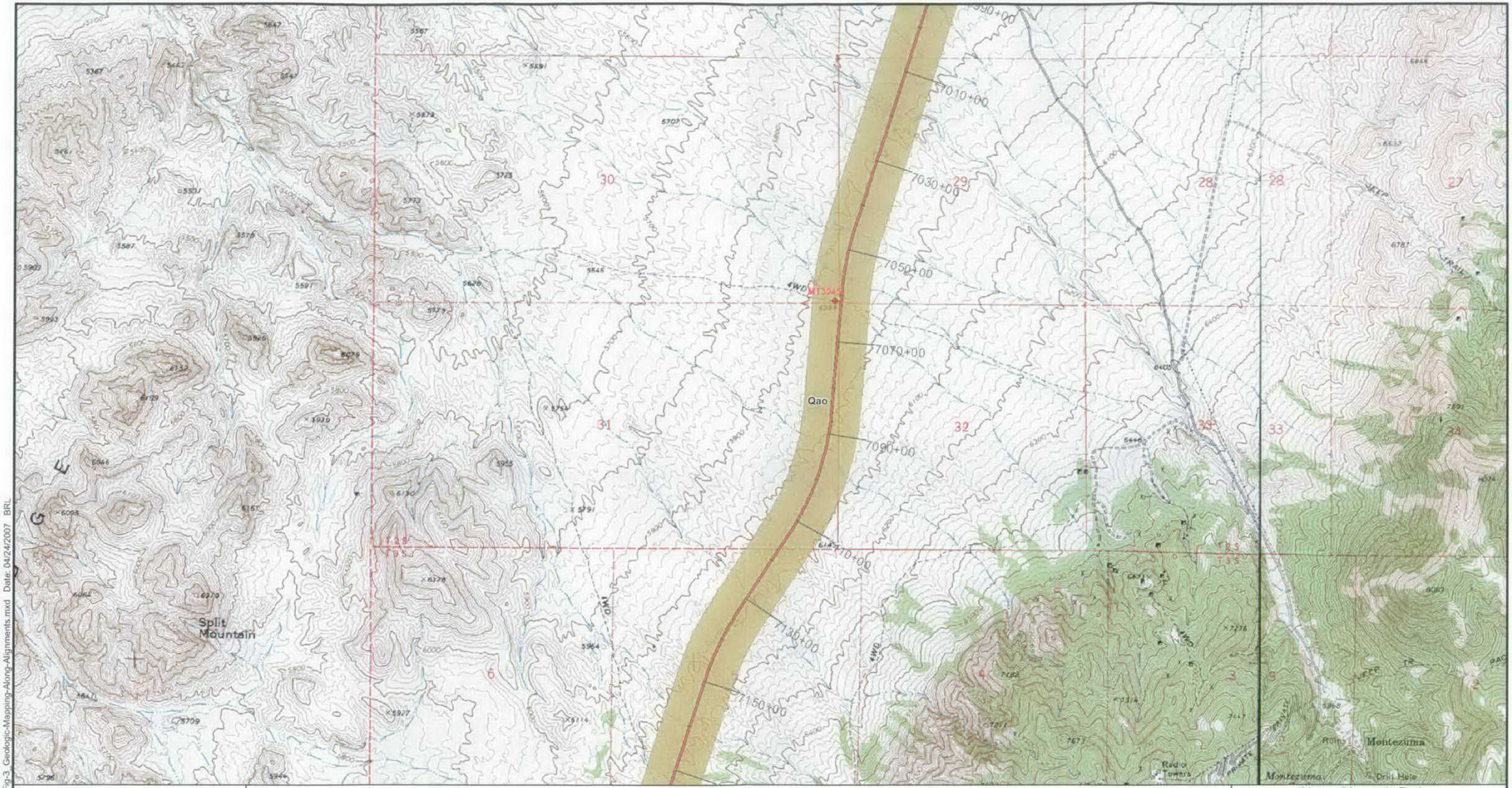

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0 2,000 4,000 Feet

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FIG. 3
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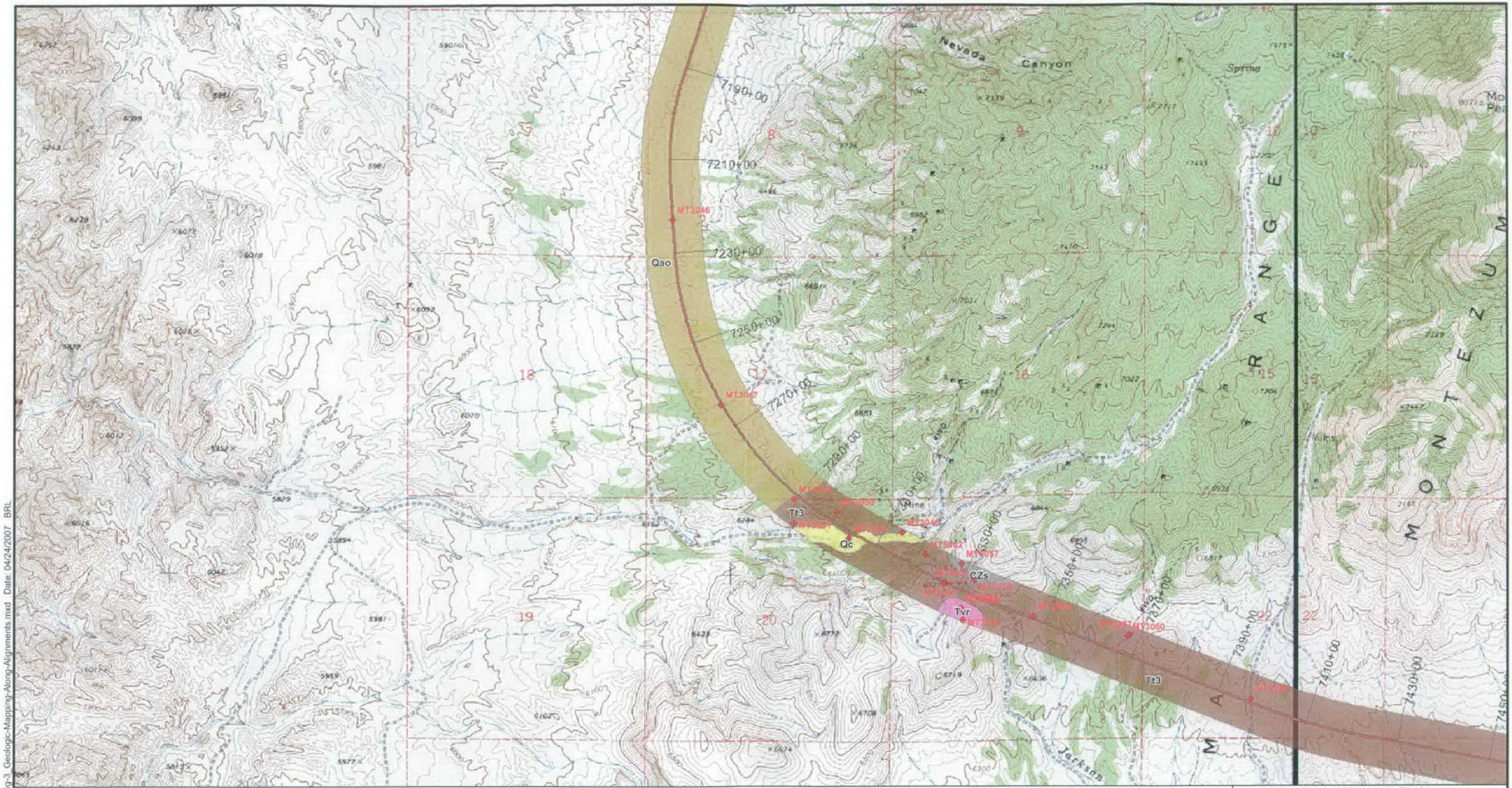

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NOTE

The Black Color On This Map Are Pixels Imbedded In The Image That Contain No Color Value And Cannot Be Removed.

0 2,000 4,000 Feet

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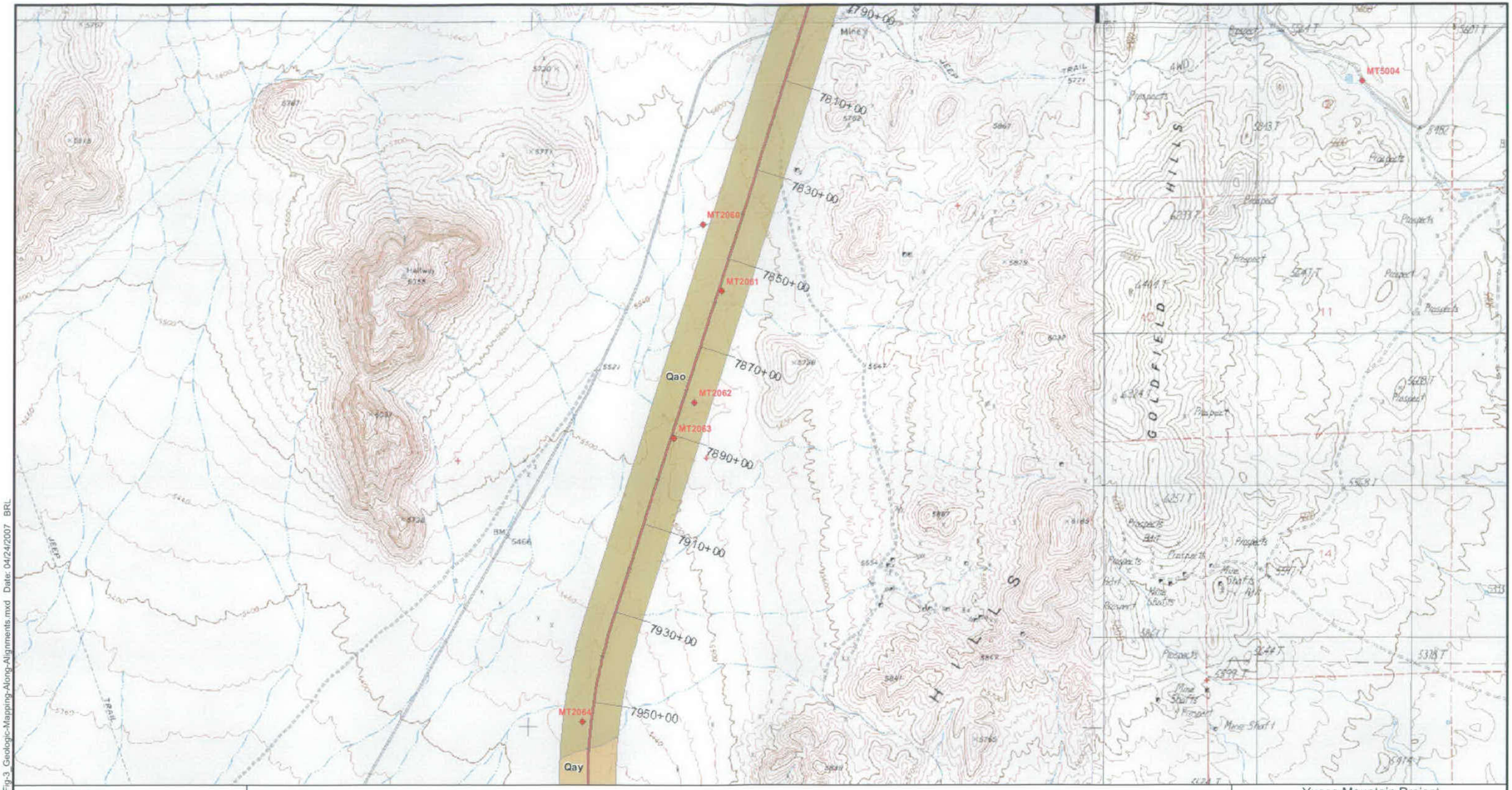

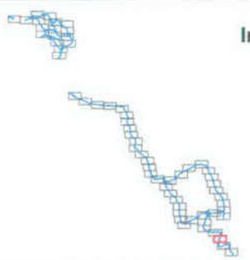

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0 2,000 4,000 Feet

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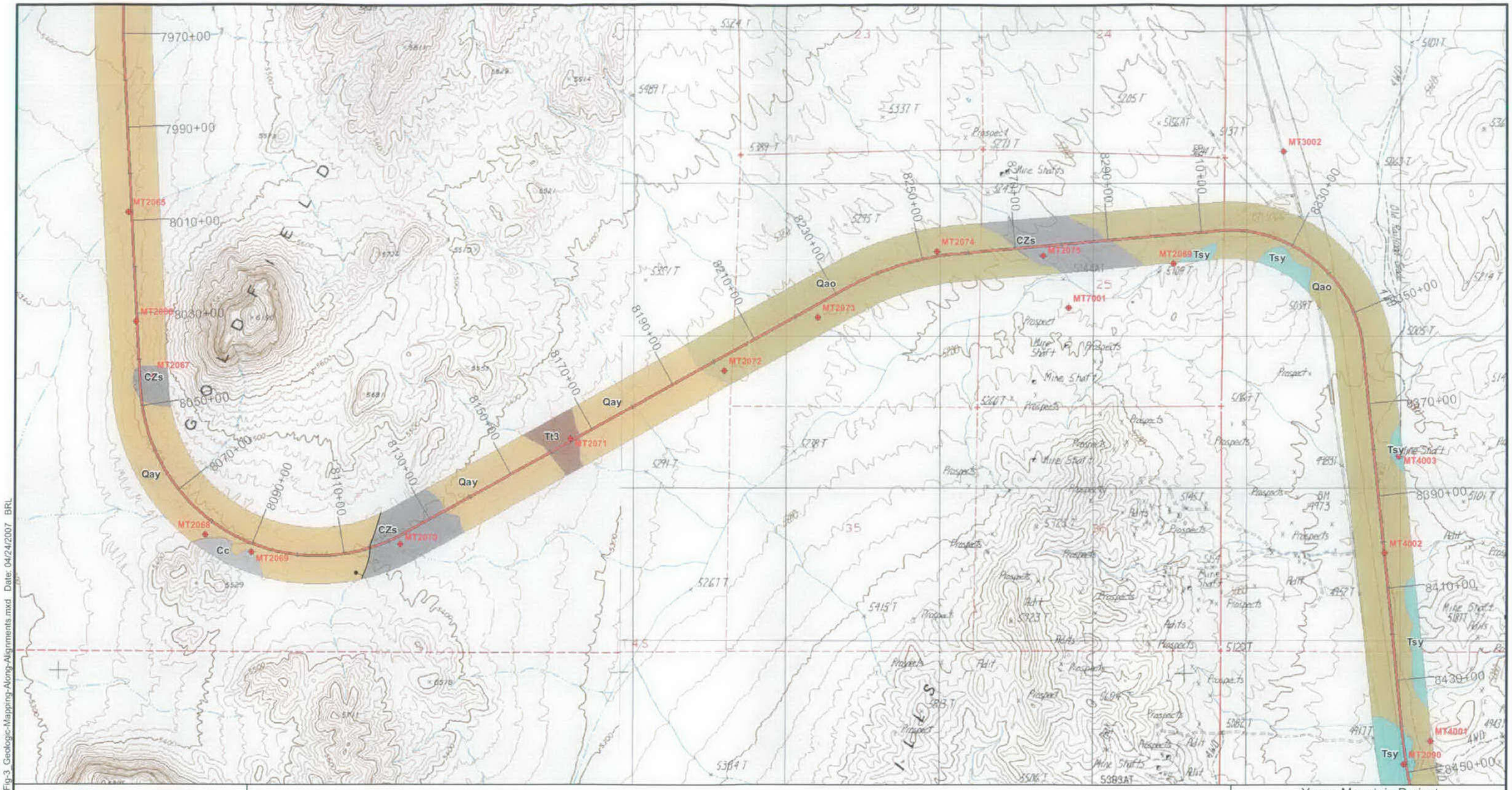

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Tsy
Qao
Cuprite
Qbf
8470+00
8490+00
8510+00
8530+00
8550+00
8570+00
8590+00
8610+00
8630+00
Telephone Line
Old Railroad Grade
LIDA JUNCTION AIRSTRIP
AIRSTRIP
MT3001
BM LIDA 4696
BM 4709
BM 4715
BM 4721
BM 4670
BM 4647
XBM 4658
Gravel Pit
Mine Shaft
Prospect
Prospects
R42E
R43E
ESMERALDA CO
NYE CO

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FIG. 3
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