

MAINE DEPARTMENT OF TRANSPORTATION
HIGHWAY PROGRAM
GEOTECHNICAL GROUP
AUGUSTA, MAINE

**SUBSURFACE INVESTIGATION FOR
RECONSTRUCTION OF ROUTE 15
ORRINGTON, MAINE**

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Hancock County
PIN 9204.10

Soils Report No. 2010-16

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1.0 Introduction

1.1 Project Overview

Maine DOT proposes to rehabilitate and reconstruct a section of Route 15 in the Town of Orrington. This roadway is not on the National Highway System. The project scope includes short sections of vertical realignment where full depth reconstruction is needed. Most of the project is close to the existing alignment and rehabilitation or partial depth reconstruction will be done. This report describes conditions from Station 6+020, at railroad crossing #365453, extending 4.44 kilometers (2.75 miles) northerly to Station 10+460, approximately 0.2 miles south of railroad crossing 365455.

1.2 Summary of Recommendations

- Where the roadway subgrade will consist of blasted rock, the subgrade should be fractured to a depth of 1.2 meters below the surface to ensure pavement structure drainage.
- Where soft or loose soils are encountered at subgrade elevation, a non-woven geotextile should be used to provide a stable surface for construction.

2.0 Site and Subsurface Conditions

2.1 General Site Conditions

The existing roadway was designed as State Highway “Y” project no. 91-C in 1936 and in 1937 as project no. 91-J. The original plans show 3.05 m (10 ft) travel lanes with 0.9 m (3 ft) shoulders. The pavement surface course included 75 mm (3 inch) macadam over 125 mm (5”) crushed stone. The base course included gravel and/or stone base, 300 to 450 mm (12 to 18”) thick. The shoulders had a 75 mm (3”) gravel surface over 175 mm (7”) of base material. MaineDOT has no record of improvements since original construction, but the roadway has been widened and paved with hot mix asphalt. The paved roadway has been overlaid several times.

Land use along the project is lightly developed with primarily large lot residences and a few small businesses. The topography is gently rolling with moderate slopes. No significant streams cross the highway although there are many small swales and drainage runs.

Existing ditches are inadequate, and subsurface drainage problems add to the pavement distress along this road. The existing pavement section includes 120 mm to 170 mm of HMA and 60 to 150 mm of macadam over sandy soils of varying thickness. It is in poor condition.

2.2 Mapped Data

Geologic mapping by the National Wetlands Inventory indicates there are no significant mapped areas of wetland soils adjacent to the highway in the area of this project. The NWI map of this area is included in Appendix A.

NRCS mapping indicates a variety of soils throughout the project. Scantic, Suffield, Bangor, Dixmont and Thorndike soils are prevalent, although pockets of other soils are indicated. These soils are listed as ML-CL in Unified Classification and as A-6 in AASHTO classification except for Thorndike at the northern end of the project, which is shown as GM,SM and A1. The NRCS map and soils data for the area of this project are included in Appendix B.

The Surficial Geology Map the Bucksport Quadrangle by Maine Geologic Survey shows the southern portion of the project to be clayey silts of the Presumpscot Formation. Till or till over shallow bedrock is indicated for the remainder of the project. A section of the Surficial Geology map is included in Appendix C.

2.3 Subsurface Investigation

The subsurface investigations for this project were started by Maine DOT in December, 2001 and included 12 solid stem auger borings and FWD testing. Additional investigations including 9 hollow stem auger borings with SPTs, bedrock probes and pavement cores were completed in August, 2005.

2.4 Native soils

Native soils underlying this roadway include glacial till soils. These are predominantly sandy SILT and silty SAND, and include both clay and coarse grained soils. Most of these soils are poorly drained and frost susceptible. Native soils in most borings were medium dense to dense, although pockets of loose and soft soils were found. Shallow

groundwater was observed in some borings, and shallow bedrock is common in much of this project. The native soils are generally described in the following table:

Table 1 - Native Soils

<u>Station</u>	<u>Depth</u>	<u>Material</u>
6+070	0.82	silty SAND
6+195	1.13	SILT, trace clay
6+395	0.85	sandy SILT
6+700	1.37	SILT, trace sand
6+960	1.52	silty SAND, little gravel
7+095	1.55	bedrock surface
7+500	1.07	silty SAND, little gravel
7+760	1.07	silty GRAVEL, trace sand
7+895	0.85	clayey SILT
8+160	1.10	sandy SILT, little gravel
8+395	0.49	sandy SILT, bedrock at 1.19 m
8+530	1.22	Sandy SILT, trace gravel
8+695	0.70	sandy SILT
8+802	1.13	silty SAND, little gravel
9+095	1.07	clayey SILT
9+400	0.76	silty SAND, little gravel
9+700	1.07	sandy SILT, little gravel
9+845	0.76	sandy SILT, trace clay
10+295	0.34	Sandy SILT, bedrock at 1.58 m

Although SPT testing was done in the preliminary investigation, densities may have been affected by frost in the ground. Most subsurface soils were medium dense to dense in the final investigation undertaken in August. All boring logs and probe data are included in Appendix C and lab test data is in Appendix D.

2.5 Existing Pavement Section

Pavement cores were taken at Stations 6+697, 7+498, 8+158, and 9+398. These cores showed a variable pavement thickness. Borings through the existing pavement also indicated pavement depth, and many of these borings listed “penetrated gravel” which is sometimes macadam. Table 2 shows the HMA surface thickness encountered in cores.

Table 2 - Pavement Cores

<u>Station</u>	<u>Offset (m)</u>	<u>Thickness</u>
6+097.5	1.1 Rt	140 mm, no macadam
7+498	2.0 Rt	120 mm, no macadam
8+158	1.8 Rt	170 mm, macadam apparent
9+398	1.9 Rt	170 mm, no macadam

The lack of macadam in cores and some borings may be due to drilling practices and the difficulty in getting a core in this material. Additional macadam may be encountered during construction.

The soil materials under the pavement surface are generally sand and gravel; the density is variable. They are of fairly good quality but finer than gravels allowed under

Standard Specification 703.06, Aggregate for Base and Subbase. Although soils encountered under the HMA pavement surface do not meet the Maine DOT standard specification for Type D or Type E subbase gravel, many samples meet standard criteria for well-graded sands. If excavated, these sands could be used for embankment fill or other common borrow. The following table shows gravel and HMA thicknesses encountered in all borings.

**Table 3 -
Pavement and Gravel Thickness**

<u>Station</u>	<u>offset</u>	HMA (mm)	gravel depth (mm)	Total thickness
6+070	5.2 Rt	40	780	820
6+195	2.2 Rt	120	820	940
6+395	2.3 RT	130	720	850
6+700	1.6 Rt	140	770	910
6+960	1.7 Rt	120	640	760
7+095	2.2 Rt	130	940	1070
7+500	2.2 Lt	120	640	760
7+760	2.1 Rt	120	610	730
7+895	2.1 Rt	160	690	850
8+160	2.2 Rt	170	590	760
8+395	2.1 Rt	160	330	490
8+530	3.8 Lt	120	640	760
8+695	2.5 Rt	170	530	700
8+802	2.6 Rt	120	640	760
9+095	2.5 Rt	150	670	820
9+400	2.3 Rt	170	590	760
9+700	2.1 Rt	140	590	730
9+845	2.8 Rt	170	590	760
10+295	1.0 Rt	170	350	520

Subsurface Bedrock

Subsurface bedrock was encountered in many borings and probes along this project. Shallow bedrock encountered in probe and boring data is shown in the following table:

Table 4 - Shallow Bedrock

<u>Station to Station</u>
7+040 to 7+200
7+920 to 7+980
8+380 to 8+460
8+880 to 9+000
9+200 to 9+200
9+380
9+980
10+100
10+220 to 10+460

Additional areas of shallow bedrock may be found during construction. Some of these areas are under fill sections, and not all areas shown may require bedrock excavation for construction of this project.

2.7 Groundwater

Shallow groundwater was found in borings at Stations 7+095 and 8+530, both over areas of shallow bedrock with poor subsurface drainage. Other areas of shallow groundwater may be encountered during construction.

3.0 **Design Recommendations**

3.1 Pavement Design

Most of this project is close to the existing alignment, and rehabilitation or partial depth reconstruction will be done. Full depth construction will be needed from Station 6+030 to 6+125 and from Station 8+370 to 8+640 where the vertical alignment will be changed substantially.

A resilient Modulus of 37,000 kPa was used for pavement design on this project. A single HMA structure will be used throughout the project. This project will include a single alternate for the pavement structural section for the mainline, as follows:

210 mm HMA
550 mm Type D, ASCG

This design meets structural requirements to support projected future traffic loadings for a 20-year design life. The HMA should extend at least 200 mm beyond the shoulder break to better support off-tracking and reduce cracking at the shoulder break.

The following section will be used for the shoulders:

75 mm HMA
685 mm Type D, ASCG

Where pockets of soft or loose soils are found at subgrade, non-woven geotextile meeting MaineDOT Standard Specification 722, Stabilization/Reinforcement geotextile may be used to help support the subbase soils and construction traffic. This geotextile should be placed as shown in Standard Detail 620.03.

3.2 Embankment fills

A vertical alignment change between Station 8+460 and Station 8+600 will require construction of a new embankment over the existing roadway. Fills will be needed throughout the project to widen the shoulders. The maximum height of the new roadway surface over existing ground surface is less than 2 meters, and we do not anticipate slope stability problems in any of these areas if the surface soils are adequately prepared and the embankments are properly constructed. Existing pavement must be removed in this area to ensure that water is not trapped above the original pavement.

A geotextile may be needed to facilitate construction of new embankment in the area of the wetland soils near Station 8+530. The boring was done in August, and groundwater

may be higher during construction of this area. The sandy silt soils in this area will be sensitive to disturbance, and more so if wet.

3.3 Surface Water Drainage

Existing surface water drainage is inadequate and new ditches and underdrains will be constructed as part of this project.

3.4 Subsurface Bedrock

Borings indicate that shallow bedrock may need to be removed in several areas of this project.

Full construction will be required in the area surrounding the hilltop at Station 8+400. Bedrock removal is anticipated both for subbase construction and for underdrains. Fracture blasting will be required in all cuts where bedrock will form or be shallow below the new highway subgrade to promote subsurface drainage. Fracturing should be extended to a depth of 1.2 meters below the bottom of the subbase to prevent formation of trapped water pockets. After detonation, any rock extending into the subbase should be removed, and compaction of the blast areas will be needed to ensure that the fractured rock material forms a stable base for the roadway.

Bedrock excavation may be required for construction of underdrain in the following areas:

- Station 7+040 to 7+120
- Station 7+920 to 7+960
- Station 8+380 to 8+440
- Station 8+880 to 9+000
- Station 10+200 to 10+440

It appears from our borings that bedrock near the hilltop at Station 8+850 may be below the depth of frost, although excavation is anticipated for construction of underdrains.

Subsurface bedrock under the hilltop at Station 10+240 appears to slope to the right. Care should be taken during construction to ensure that the slope on the top of rock is adequate to prevent the formation of ice pockets. This may require further explorations during construction and fracture blasting as needed.

The bedrock lines shown on the plans are for estimating purposes only, and were interpolated from a limited amount of data. Actual depth to bedrock and bedrock quantities will be determined in the field during construction.

3.5 Groundwater

The groundwater encountered at Station 8+530 is in an area where the embankment will be raised over an existing wetland. The roadway centerline will be raised approximately 1.6 m over the existing centerline elevation at the culvert. This should be enough to eliminate groundwater effects on the roadway, however construction of the new embankment may be difficult. A boring through the roadway indicates that the native soils here are silts and sandy silts. A geotextile may be needed under new embankment fills to obtain stability and compaction of the lower lifts in this area.

Only a small change in alignment is being made at Station 7+095 where the groundwater is close to the pavement structure, but the addition of underdrain in this

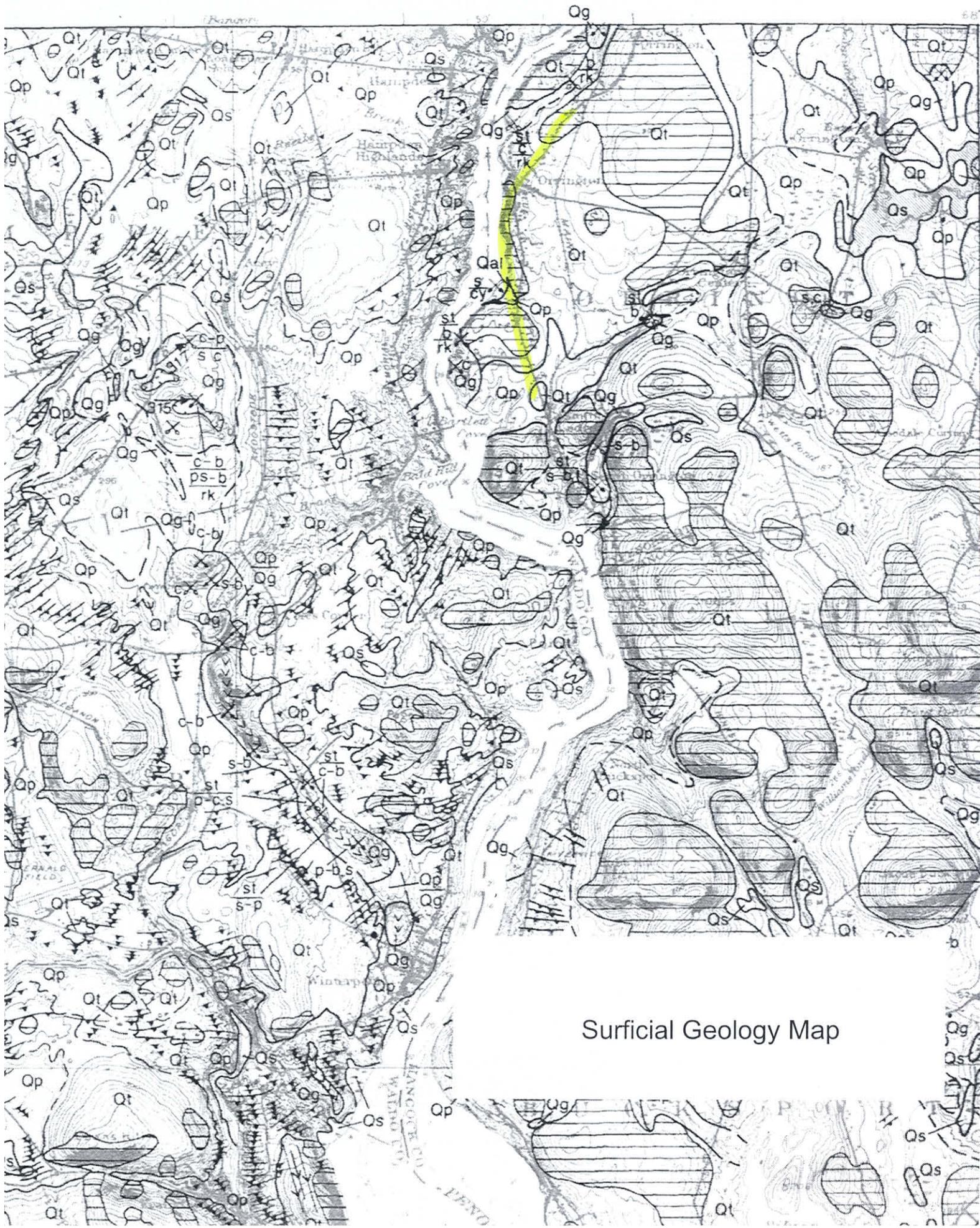
area should minimize problems associated with groundwater. The native soils in this area appear from our boring to be sand and gravel, and we do not anticipate construction difficulty.

3.6 Frost Action

The Design Freezing Index for these soils is 1600, with a mean freezing index of 1150. Frost penetration into fine-grained subgrade soils is estimated as 865 mm, with a design frost penetration of 1270 mm under snow-free pavement.

Soils in this area are generally fine grained and are frost susceptible. Any water trapped in the upper subgrade will freeze, and could cause frost heaves in winter and thaw weakening in the spring. It is critical that adequate drainage be constructed to ensure that surface water is does not infiltrate and any groundwater is removed to the depth of frost.

Appendix A
Resource Maps
Surficial Geology
NRCS Soils Survey
National Wetlands Inventory



Surficial Geology Map

MAP LEGEND

 Area of Interest (AOI)	 Very Stony Spot
 Soils	 Wet Spot
 Area of Interest (AOI)	 Other
 Soil Map Units	Special Line Features
Special Point Features	 Gully
 Blowout	 Short Steep Slope
 Borrow Pit	 Other
 Clay Spot	Political Features
 Closed Depression	 Cities
 Gravel Pit	Water Features
 Gravelly Spot	 Oceans
 Landfill	 Streams and Canals
 Lava Flow	Transportation
 Marsh or swamp	 Rails
 Mine or Quarry	 Interstate Highways
 Miscellaneous Water	 US Routes
 Perennial Water	 Major Roads
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	
 Spoil Area	
 Stony Spot	

MAP INFORMATION

Map Scale: 1:25,000 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Penobscot County, Maine
 Survey Area Data: Version 9, Jul 27, 2009

Soil Survey Area: Penobscot County, Maine, Southern Part
 Survey Area Data: Not available

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Date(s) aerial images were photographed: 5/9/1996; 5/16/1996; 4/27/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

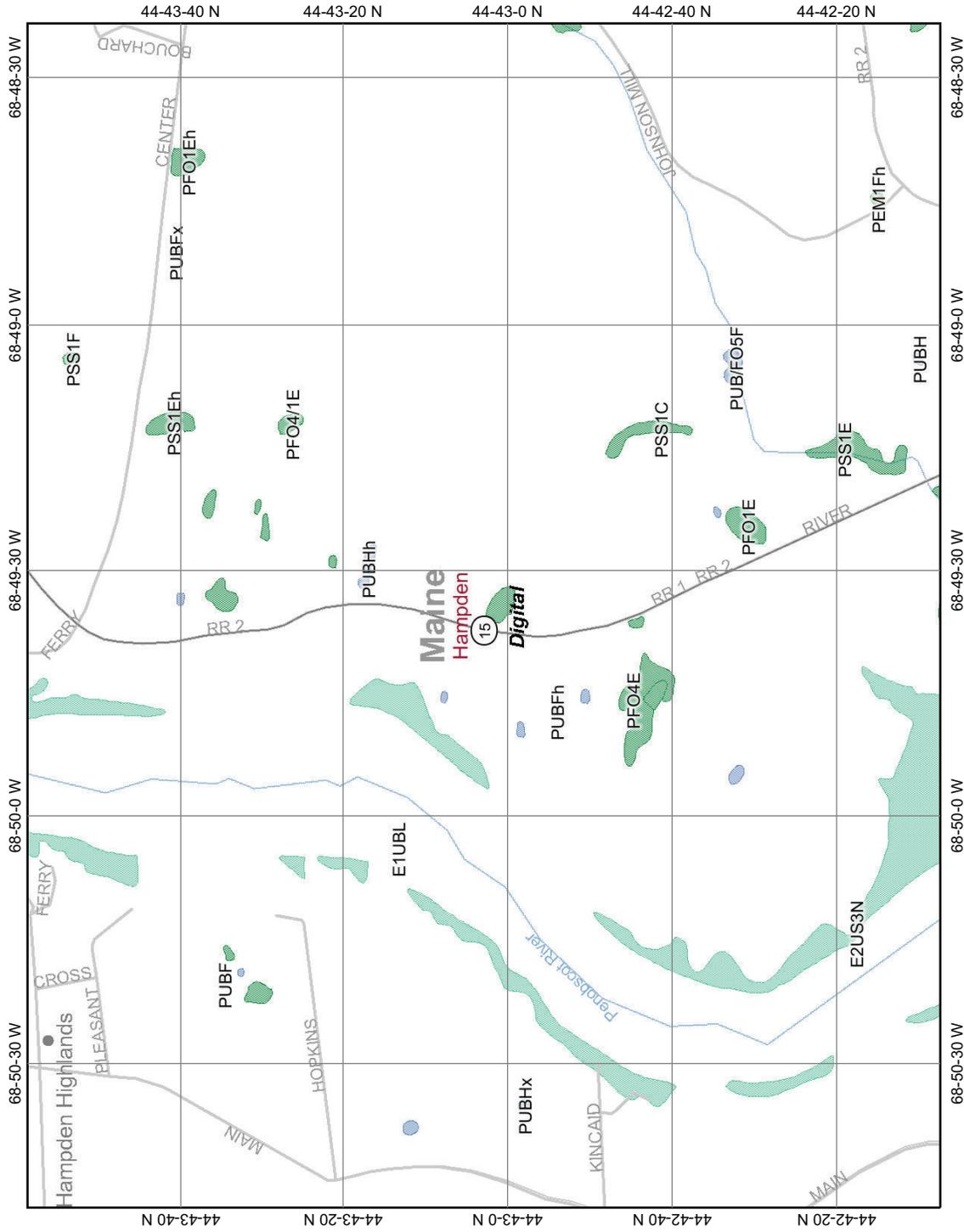
Penobscot County, Maine (ME614)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaB	Adams loamy sand, 0 to 8 percent slopes	3.2	0.1%
AgB	Allagash fine sandy loam, 2 to 8 percent slopes	1.2	0.1%
BaB	Bangor silt loam, 2 to 8 percent slopes	233.9	10.4%
BaC	Bangor silt loam, 8 to 15 percent slopes	105.5	4.7%
BaD	Bangor silt loam, 15 to 25 percent slopes	28.0	1.2%
BmC	Bangor silt loam, moderately deep, 8 to 15 percent slopes	14.9	0.7%
BmD	Bangor silt loam, moderately deep, 15 to 35 percent slopes	2.0	0.1%
BnB	Bangor very stony silt loam, 0 to 8 percent slopes	11.5	0.5%
BnC	Bangor very stony silt loam, 8 to 15 percent slopes	18.7	0.8%
BnD	Bangor very stony silt loam, 15 to 25 percent slopes	4.9	0.2%
BoA	Biddeford silt loam, 0 to 3 percent slopes	93.8	4.2%
BrA	Burnham silt loam, 0 to 3 percent slopes	20.9	0.9%
BuA	Buxton silt loam, 0 to 2 percent slopes	11.5	0.5%
BuB	Buxton silt loam, 2 to 8 percent slopes	14.3	0.6%
BxB	Buxton, Scantic, and Biddeford stony silt loams, 0 to 8 percent slopes	19.6	0.9%
CcC	Colton cobbly sandy loam, dark materials, 8 to 15 percent slopes	10.9	0.5%
CcD	Colton cobbly sandy loam, dark materials, 15 to 25 percent slopes	8.8	0.4%
CnB	Colton gravelly sandy loam, dark materials, 2 to 8 percent slopes	4.3	0.2%
CnD	Colton gravelly sandy loam, dark materials, 15 to 25 percent slopes	0.1	0.0%
CnE	Colton gravelly sandy loam, dark materials, 25 to 45 percent slopes	11.0	0.5%
CsA	Colton loamy fine sand, dark materials, 0 to 2 percent slopes	24.5	1.1%
DxA	Dixmont silt loam, 0 to 2 percent slopes	5.6	0.2%
DxB	Dixmont silt loam, 2 to 8 percent slopes	137.1	6.1%
DyB	Dixmont very stony silt loam, 2 to 8 percent slopes	62.2	2.8%
DyC	Dixmont very stony silt loam, 8 to 15 percent slopes	10.8	0.5%
EwB	Elmwood fine sandy loam, 0 to 8 percent slopes	4.8	0.2%

Penobscot County, Maine (ME614)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaB	Machias fine sandy loam, 0 to 8 percent slopes	5.4	0.2%
MeA	Melrose fine sandy loam, 0 to 2 percent slopes	8.4	0.4%
MeB	Melrose fine sandy loam, 2 to 8 percent slopes	15.7	0.7%
MoB	Monarda silt loam, 0 to 8 percent slopes	2.8	0.1%
MrB	Monarda and Burnham very stony silt loams, 0 to 8 percent slopes	145.5	6.5%
MsC	Monarda and Burnham extremely stony silt loams, 0 to 15 percent slopes	8.8	0.4%
PgB	Plaisted gravelly loam, 2 to 8 percent slopes	8.4	0.4%
PgC	Plaisted gravelly loam, 8 to 15 percent slopes	11.6	0.5%
PgD	Plaisted gravelly loam, 15 to 25 percent slopes	16.5	0.7%
PrC	Plaisted very stony loam, 5 to 15 percent slopes	2.9	0.1%
PrE	Plaisted very stony loam, 15 to 45 percent slopes	5.6	0.2%
Py	Podunk fine sandy loam	2.5	0.1%
RaB	Red Hook and Atherton silt loams, 0 to 8 percent slopes	1.2	0.1%
RmD	Rockland, thorndike material, strongly sloping	76.0	3.4%
Sa	Saco silt loam	19.1	0.8%
ScB	Scantic silt loam, 0 to 8 percent slopes	100.4	4.5%
SfE	Stetson-Suffield complex, 15 to 45 percent slopes	40.1	1.8%
SpD	Stony land, plaisted material, strongly sloping	22.3	1.0%
SuA	Suffield silt loam, 0 to 2 percent slopes	8.0	0.4%
SuB	Suffield silt loam, 2 to 8 percent slopes	158.5	7.0%
SuC	Suffield silt loam, 8 to 15 percent slopes	106.9	4.8%
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	16.0	0.7%
SuD	Suffield silt loam, 15 to 25 percent slopes	11.9	0.5%
SuD2	Suffield silt loam, 15 to 25 percent slopes, eroded	11.7	0.5%
SuE	Suffield silt loam, 25 to 45 percent slopes	39.6	1.8%
SvB	Suffield very fine sandy loam, 2 to 8 percent slopes	2.3	0.1%
SvC	Suffield very fine sandy loam, 8 to 15 percent slopes	19.1	0.8%

Penobscot County, Maine (ME614)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SvD	Suffield very fine sandy loam, 15 to 25 percent slopes	12.8	0.6%
ThB	Thorndike shaly silt loam, 2 to 8 percent slopes	59.8	2.7%
ThC	Thorndike shaly silt loam, 8 to 15 percent slopes	47.7	2.1%
ThD	Thorndike shaly silt loam, 15 to 25 percent slopes	6.2	0.3%
TkB	Thorndike very rocky silt loam, 2 to 8 percent slopes	4.0	0.2%
TkC	Thorndike very rocky silt loam, 8 to 15 percent slopes	60.7	2.7%
TvD	Thorndike very stony silt loam, 15 to 35 percent slopes	0.8	0.0%
W	Water bodies	326.6	14.5%
Subtotals for Soil Survey Area		2,249.9	100.0%
Totals for Area of Interest		2,249.9	100.0%

Penobscot County, Maine, Southern Part (ME612)			
No soil data available for this soil survey area.			
Totals for Area of Interest		2,249.9	100.0%

Orrington, PIN 9204.00



Map center: 44° 43' 3" N, 68° 49' 35" W



Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America



Scale: 1:24,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Appendix B

Geoplans

METRIC 1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	1	25

9204,10



Date: 5/24/2010

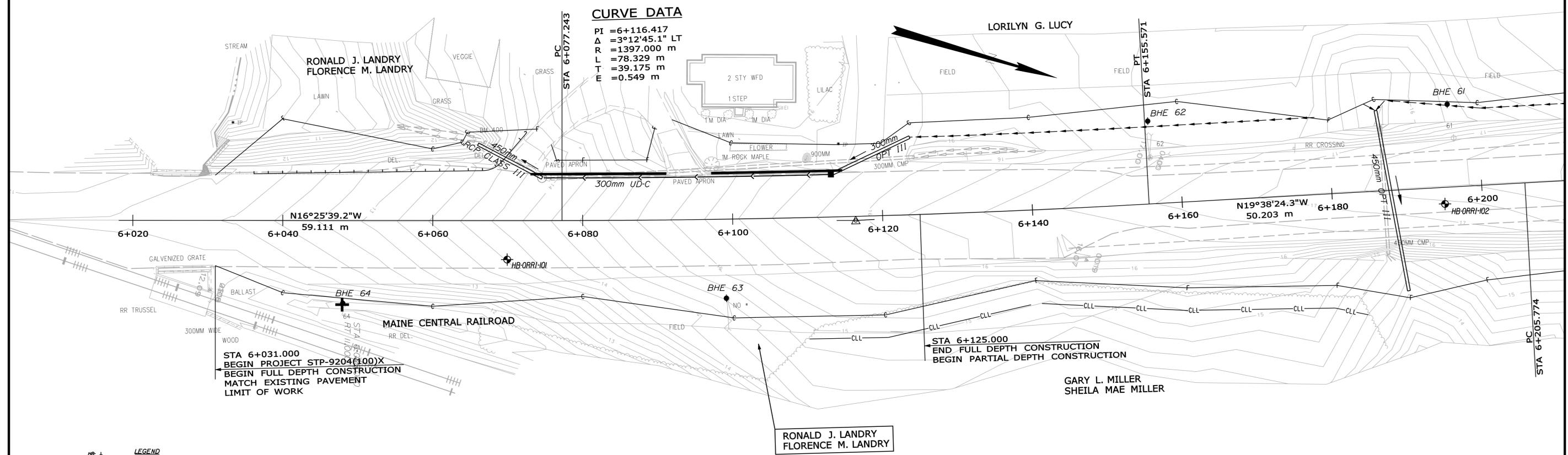
Username: kity.breskin

Division: GEOTECH

Filename: ... \GEOTECH\STA\001_Ceoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV 2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



CURVE DATA
 PI = 6+116.417
 Δ = 3°12'45.1" LT
 R = 1397.000 m
 L = 78.329 m
 T = 39.175 m
 E = 0.549 m

STA 6+031.000
 BEGIN PROJECT STP-9204(100)X
 BEGIN FULL DEPTH CONSTRUCTION
 MATCH EXISTING PAVEMENT
 LIMIT OF WORK

STA 6+125.000
 END FULL DEPTH CONSTRUCTION
 BEGIN PARTIAL DEPTH CONSTRUCTION

LEGEND
 HB: SOLID STEM AUGER W/DESCRIPTIONS
 P: POWER AUGER PROBE
 PC: PAVEMENT CORE

KEY
 R - Refusal of auger's factual nature of refusal surface (untrue)
 NR - No Refusal surface encountered
 W - Weathered rock, top of

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
6+069.5, LT	GRAVEL	-
6+094.2, LT	GRAVEL	6.0m
6+119.8, LT	FIELD (GRASS)	-

TERMINAL END - SINGLE RAIL - GALV. STEEL

STATION	OFFSET
6+071.727	10.765m, LT

GUARDRAIL - TYPE 3c - SINGLE RAIL

STATION	OFFSET TO STATION	OFFSET	LENGTH
6+030.475	6.138m, LT	6+065.912	6,600m, LT 35.439m

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\002_Geoplan2.dgn

9204.10

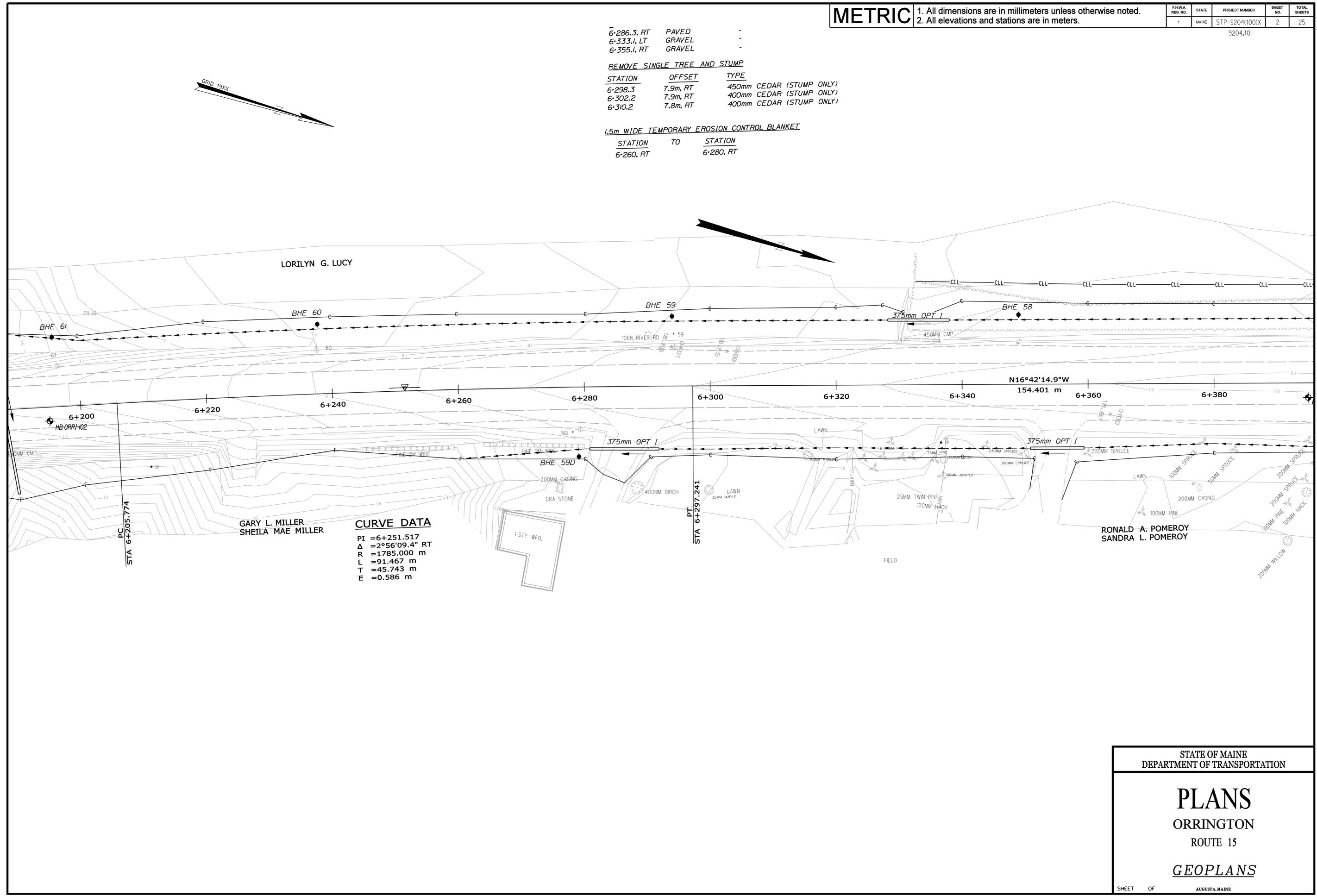
6+286.3, RT	PAVED	-
6+333.1, LT	GRAVEL	-
6+355.1, RT	GRAVEL	-

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
6+298.3	7.9m, RT	450mm CEDAR (STUMP ONLY)
6+302.2	7.9m, RT	400mm CEDAR (STUMP ONLY)
6+310.2	7.8m, RT	400mm CEDAR (STUMP ONLY)

1.5m WIDE TEMPORARY EROSION CONTROL BLANKET

STATION	TO	STATION
6+260, RT		6+280, RT



CURVE DATA
 PI = 6+251.517
 Δ = 2°56'09.4" RT
 R = 1785.000 m
 L = 91.467 m
 T = 45.743 m
 E = 0.586 m

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV/2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	3	25

9204,10

CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET	LENGTH
6+470.000	6.000m, LT	6+484.975	6.000m, LT	14.95m
6+492.991	6.000m, LT	6+524.584	6.000m, LT	31.53m
6+530.586	6.000m, LT	6+596.153	6.000m, LT	65.57m

CURVE DATA

PI = 6+488.719
 $\Delta = 1^\circ 22' 20.1''$ LT.
 R = 3096.000 m
 L = 74.150 m
 T = 37.077 m
 E = 0.222 m

Date: 5/24/2010

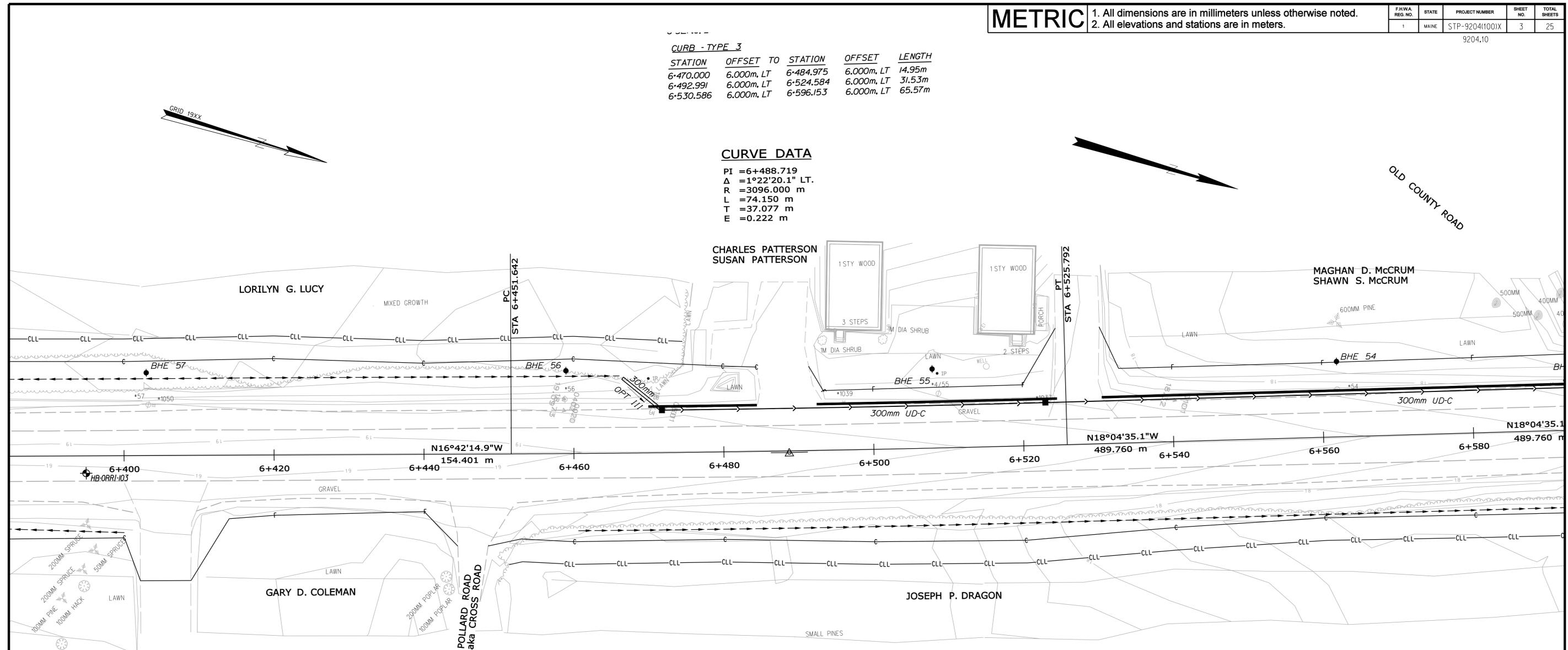
Username: kilty.breskin

Division: GEOTECH

Filename: ... \geotech\msta\003_Geoplan3.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV 2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
6+559.8	9.8m, LT	500mm (STUMP ONLY)

1.5m WIDE TEMPORARY EROSION CONTROL BLANKET

STATION	TO	STATION
6+460, RT		6+616, RT

REMOVE SINGLE TREE AND STUMP

STATION
6+561.7
6+591.3
6+592.9
6+603.9
6+606.7
6+616.2
1.5m WIDE
STATION
6+627, RT
2.0m WIDE
STATION
6+643, LT

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	4	25

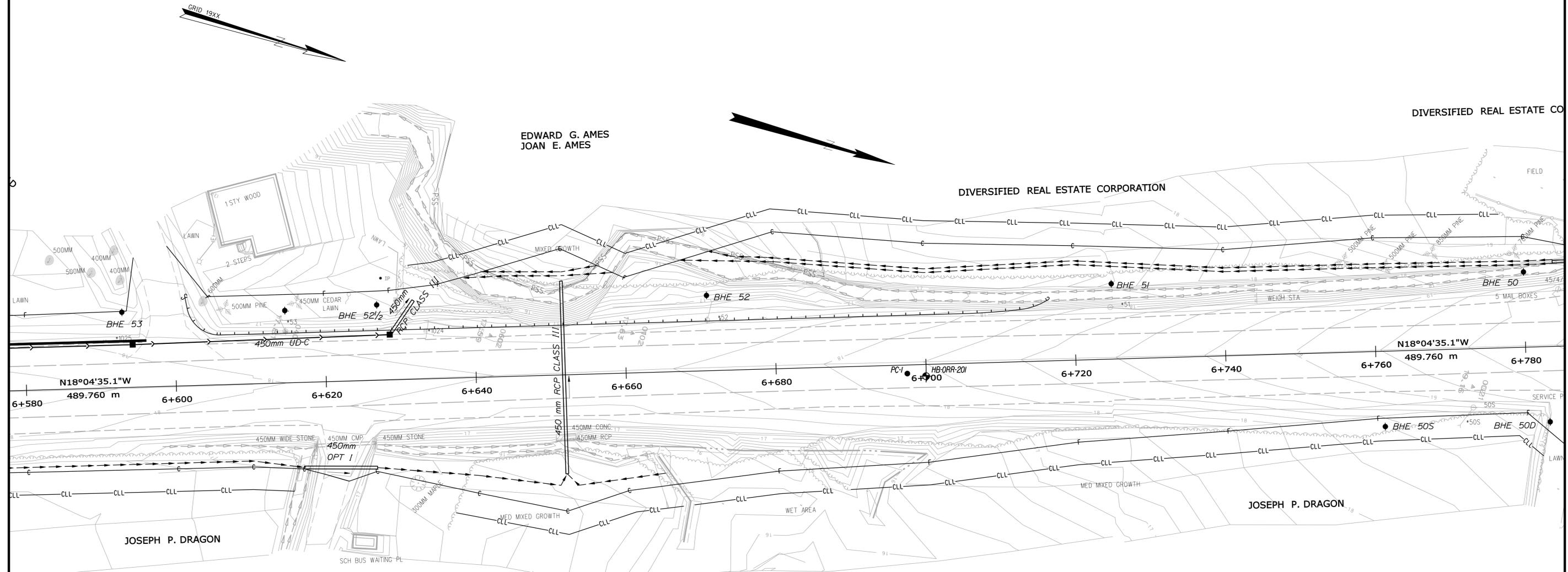
9204,10

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\004_Geoplan4.dgn



PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
6+561.7	10.5m, LT	500mm (STUMP ONLY)
6+591.3	10.2m, LT	500mm (STUMP ONLY)
6+592.9	10.3m, LT	400mm (STUMP ONLY)
6+603.9	11.1m, LT	600mm (STUMP ONLY)
6+606.7	10.1m, LT	500mm PINE
6+616.2	10.6m, LT	450mm CEDAR

1.5m WIDE TEMPORARY EROSION CONTROL BLANKET

STATION	TO	STATION
6+627, RT		6+665, RT

CONSTRUCT ENTRANCES

STATION	TYPE
6+601.1, LT	GRAVEL
6+621.7, RT	GRAVEL

CURB OPENING

-

EROSION CONTROL GEOTEXTILE

STATION	TO	STATION
6+627.00, LT		6+634.73, LT

GUARDRAIL 350 FLARED TERMINAL

STATION	TO	STATION
6+615.000, LT		6+626.400, LT
6+692.600, LT		6+704.000, LT

CONSTRUCT ENTRANCES

STATION	TYPE
6+789.5, RT	PAVE
6+793.2, LT	GRAV
6+853.4, RT	FIEL
6+885.2, LT	GRAV
6+912.4, LT	GRAV

REMOVE SINGLE TREE

STATION	OFF
6+761.5	11.1m,
6+817.7	8.2m,

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	5	25

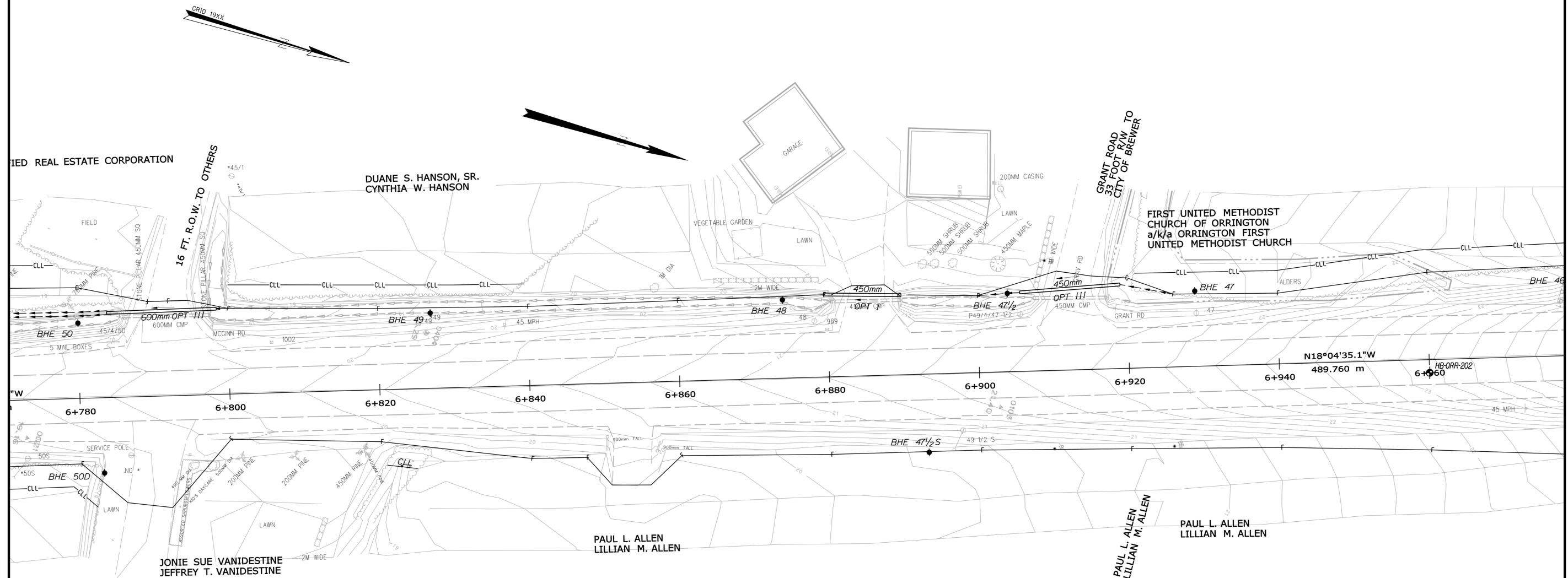
9204,10

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\005_Geoplans.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV/2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
6+789.5, RT	PAVED	-
6+793.2, LT	GRAVEL	-
6+853.4, RT	FIELD (GRASS)	-
6+885.2, LT	GRAVEL	-
6+912.4, LT	GRAVEL	-

CONS
STAT
7-047.
7-071.7
7-073.1
CURB
STAT
7-028.
7-052.
7-074.
7-076.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	6	25

9204,10

Date: 5/24/2010

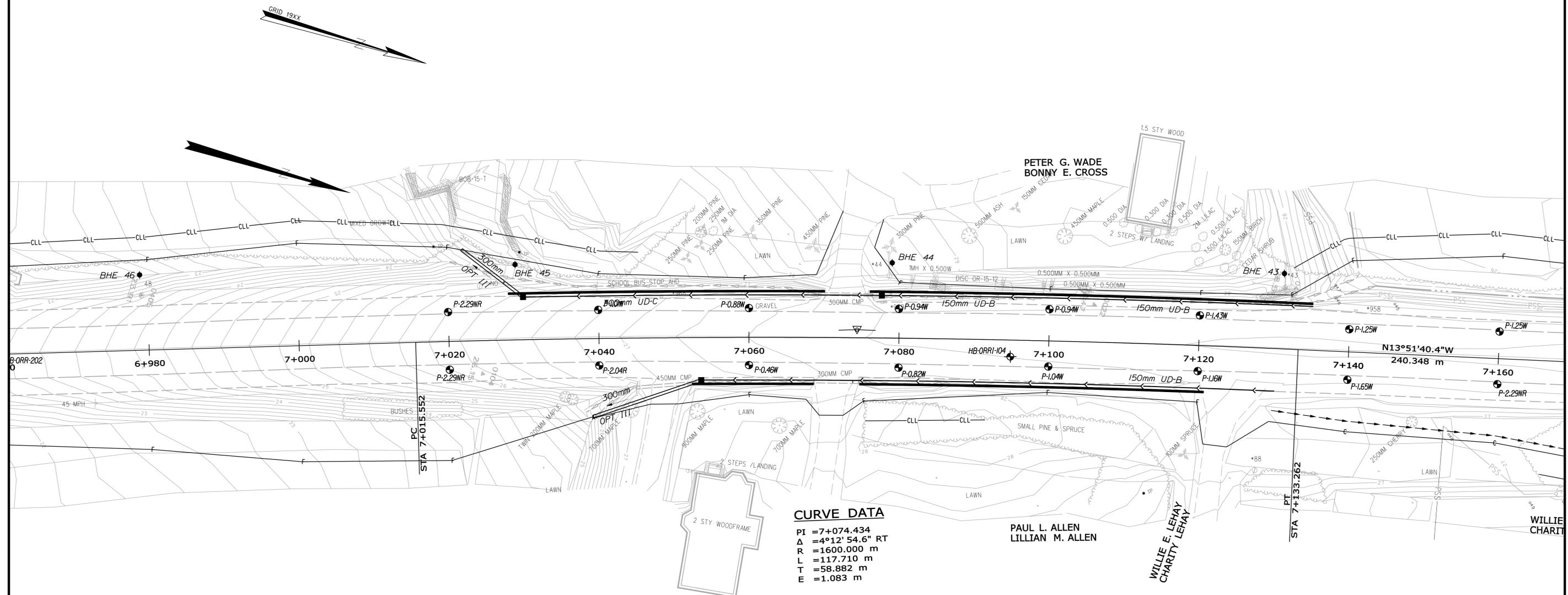
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\006_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



CURVE DATA
 PI = 7+074.434
 Δ = 4°12' 54.6" RT
 R = 1600.000 m
 L = 117.710 m
 T = 58.882 m
 E = 1.083 m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
7+047.3, RT	GRAVEL	-
7+071.7, RT	GRAVEL	6.0m
7+073.1, LT	PAVED	6.0m

CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET	LENGTH
7+028.000	6.000m, LT	7+070.091	6.000m, LT	42.09m
7+052.358	6.000m, RT	7+068.661	6.000m, RT	16.24m
7+074.742	6.000m, RT	7+120.817	6.000m, RT	45.90m
7+076.077	6.000m, LT	7+135.000	6.000m, LT	59.14m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
7+125.6, RT	PAVED	-
7+242.6, RT	GRAVEL	-

EROSION CONTROL GEOTEXTILE

STATION TO	STATION
7+180.207, RT	7+181.207, RT

PLAIN RIPRAP

STATION TO	STATION
7+180.207, RT	7+181.207, RT

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	7	25

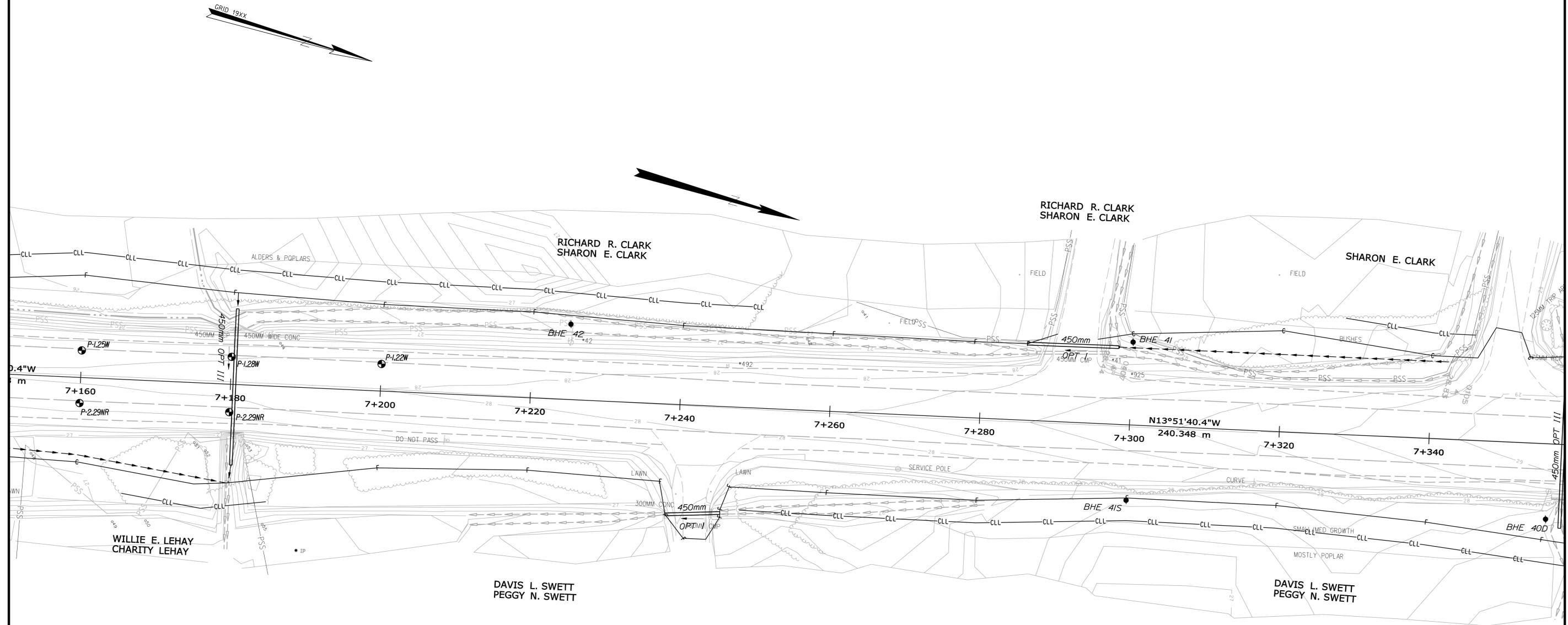
9204,10

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\007_Geoplan7.dgn



PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

CB OPENING

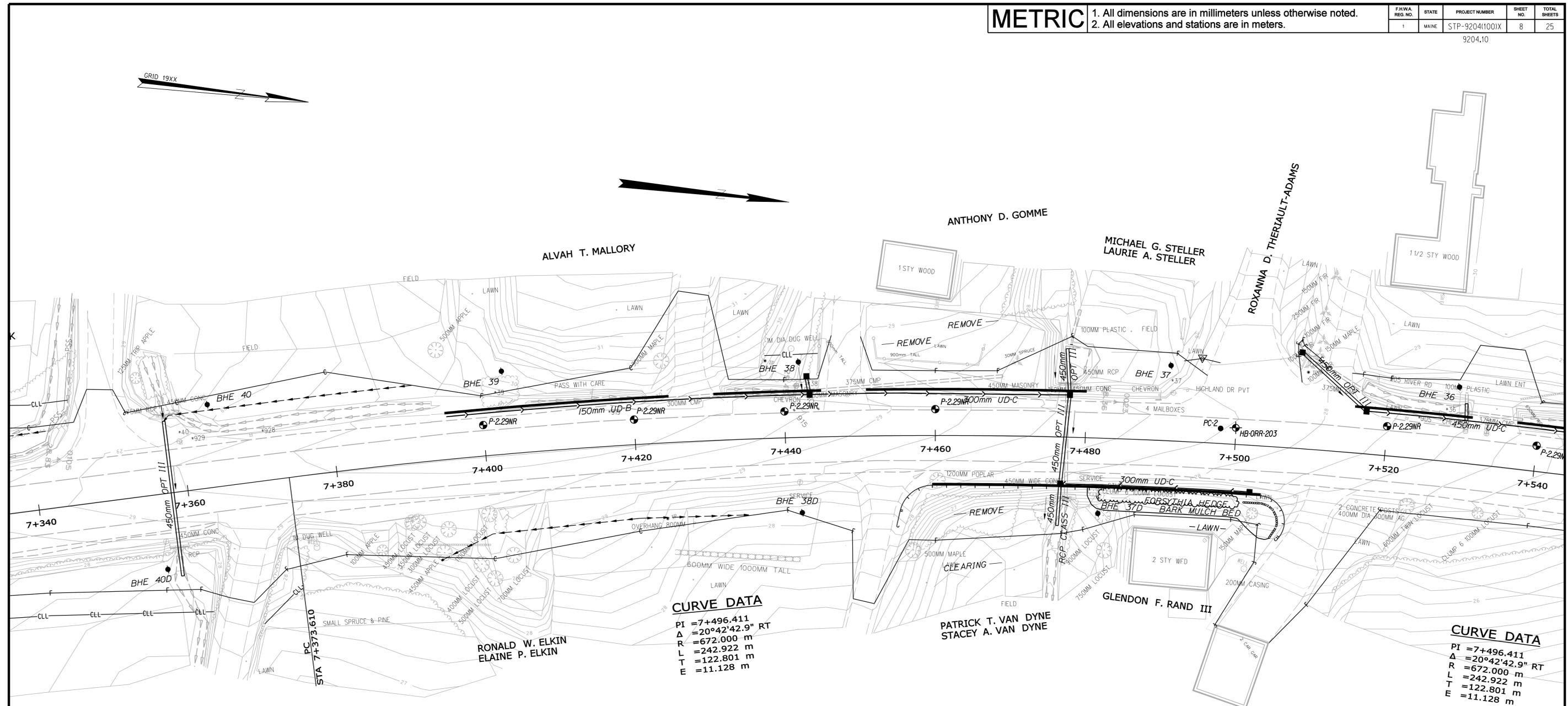
CONSTRUCT ENTRANCES		
STATION	TYPE	CURB OPENING
7+292.5, LT	GRAVEL	-
7+349.4, LT	FIELD (GRAVEL)	-
7+366.8, RT	PAVED	-
7+427.7, LT	PAVED	-
7+447.1, LT	GRAVEL	6.0m
7+452.7, RT	PAVED	6.0m
		13.3m

CURB - TYPE 3
 STATION -

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE



CURVE DATA
 PI = 7+496.411
 Δ = 20°42'42.9" RT
 R = 672.000 m
 L = 242.922 m
 T = 122.801 m
 E = 11.128 m

CURVE DATA
 PI = 7+496.411
 Δ = 20°42'42.9" RT
 R = 672.000 m
 L = 242.922 m
 T = 122.801 m
 E = 11.128 m

GUARDRAIL 350 FLARED TERMINAL
 STATION TO STATION
 7+407.569, RT 7+419.197, RT

TERMINAL END - SINGLE RAIL - GALV. STEEL
 STATION OFFSET
 7+450.233 10.064m, RT
 0.801m, RT

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
7+501.7, LT	GRAVEL	-
7+510.8, LT	GRAVEL	-
7+512.2, RT	PAVED	-
7+534.1, LT	LAWN	-
7+571.6, RT	PAVED	6.0m
7+577.1, LT	PAVED	-
7+624.1, LT	FIELD (GRASS)	6.0m
7+633.5, RT	FIELD (GRASS)	-

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\008_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	9	25

9204,10

GUARDRAIL REMOVE & DISPOSE

GRID 19XX	STATION	TO STATION	LENGTH
	7+58.099, RT	7+723.573, RT	87.609m

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
7+460.3	5.9m, RT	1200mm POPLAR
7+482.7	10.2m, RT	900mm LOCUST
7+523.5	6.4m, RT	600mm TWIN LOCUST
7+585.9	7.1m, RT	500mm LOCUST

Date: 5/24/2010

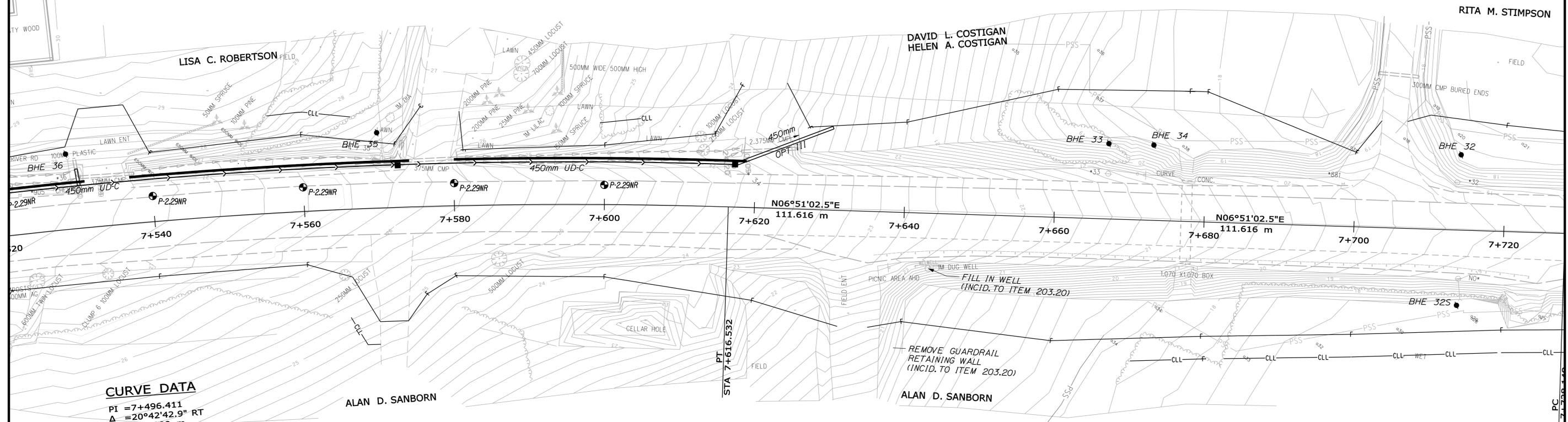
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\009_Geoplans9.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



CURVE DATA

PI = 7+496.411
 Δ = 20°42'42.9" RT
 R = 672.000 m
 L = 242.922 m
 T = 122.801 m
 E = 11.128 m

CONSTRUCT ENTRANCES

STATION	TYPE
7+501.7, LT	GRAVEL
7+510.8, LT	GRAVEL
7+512.2, RT	PAVED
7+534.1, LT	LAWN
7+571.6, RT	PAVED
7+577.1, LT	PAVED
7+624.1, LT	FIELD (GRASS)
7+633.5, RT	FIELD (GRASS)

CURB OPENING

STATION	TYPE
7+501.7, LT	GRAVEL
7+510.8, LT	GRAVEL
7+512.2, RT	PAVED
7+534.1, LT	LAWN
7+571.6, RT	PAVED
7+577.1, LT	PAVED
7+624.1, LT	FIELD (GRASS)
7+633.5, RT	FIELD (GRASS)

1.8m WIDE
RIPRAP DOWNSPOUT

STATION TO STATION
7+625.000, RT 7+626.800, RT

GUARDRAIL 350 FLARED TERMINAL

STATION TO STATION
7+504.475, RT

EROSION CONTROL GEOTEXTILE

STATION	TO STATION
7+723.600, RT	7+725.400, RT
7+738.070, LT	7+739.407, LT
7+750.097, RT	7+751.513, RT

PLAIN RIPRAP

STATION	TO STATION
7+738.070, LT	7+739.407, LT
7+750.097, RT	7+751.513, RT

CONSTRUCT ENTRANCES

STATION	TYPE
7+704.9, LT	PAVED
7+753.6, RT	GRAVEL

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(10)X	10	25

9204,10

CURB - TYPE 3

STATION	OFFSET TO	STATION
7-820.604	6.000m, LT	7-836.364
7-842.364	6.000m, LT	7-923.754
7-877.981	6.000m, LT	7-894.518
7-900.518	6.000m, RT	7-938.646
7-950.646	6.000m, RT	7-962.307
7-960.124	6.000m, LT	7-982.958
7-988.999	6.000m, LT	8-014.067

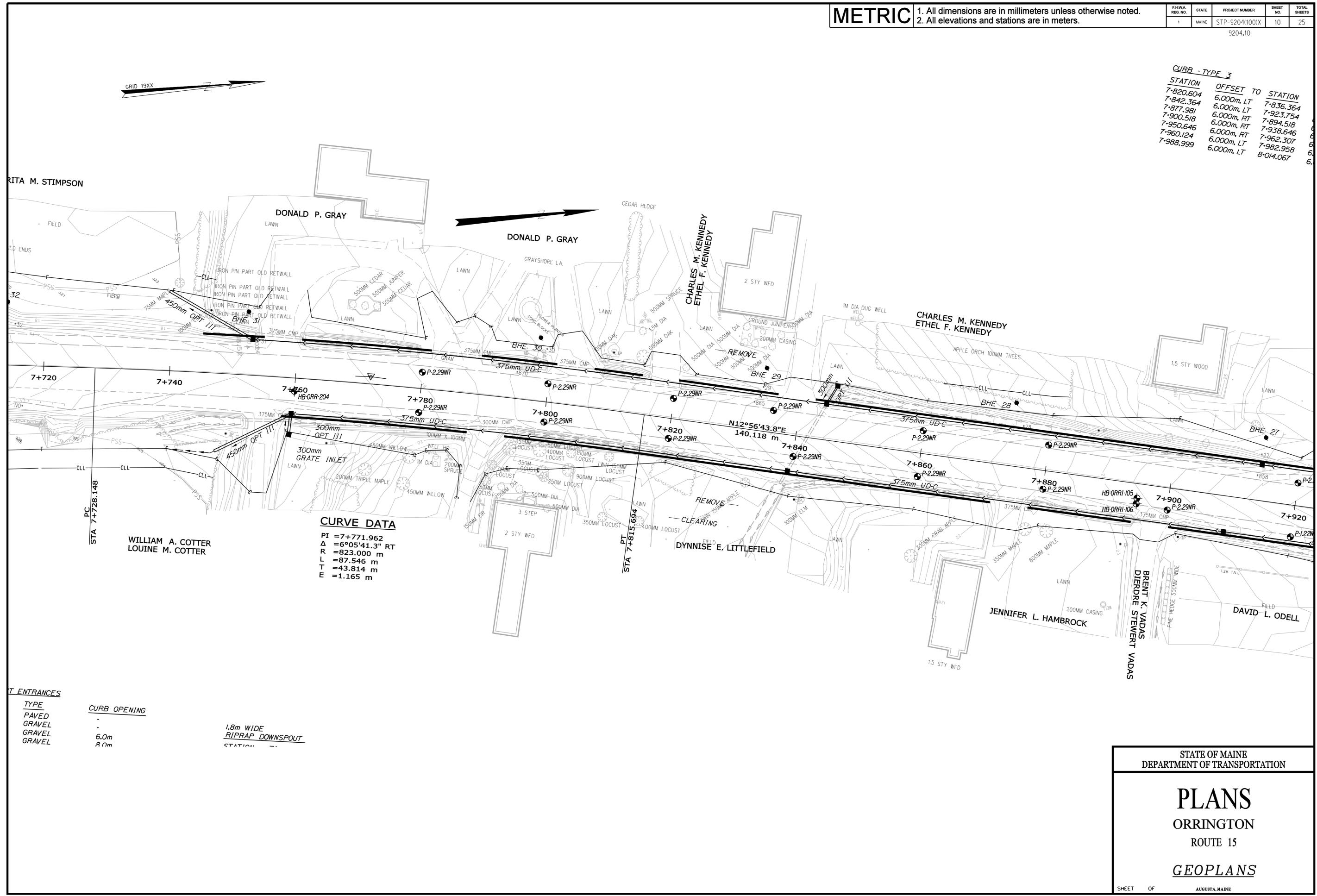
Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\010_Geoplans10.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K.BRESKIN	T. WHITE	NOV/2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		



CURVE DATA
 PI = 7+771.962
 Δ = 6°05'41.3" RT
 R = 823.000 m
 L = 87.546 m
 T = 43.814 m
 E = 1.165 m

ENTRANCES

TYPE	CURB OPENING	1.8m WIDE
PAVED	-	RIPRAP DOWNSPOUT
GRAVEL	6.0m	STATION -
GRAVEL	8.0m	

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	11	25

9204,10

Date: 5/24/2010

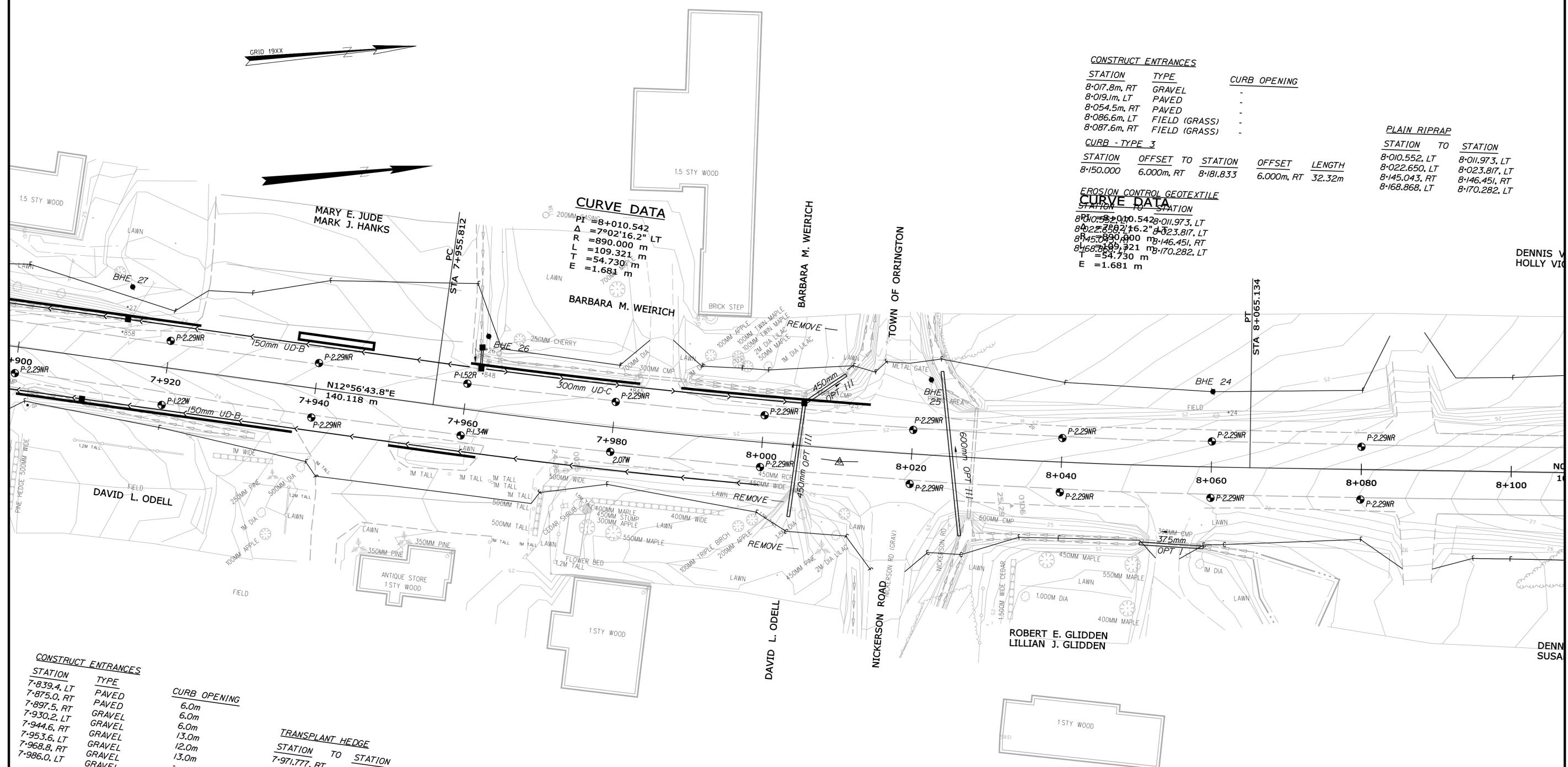
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msto\011_Ceoplant1.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



CURVE DATA
 PC STA 7+955.812
 PI = 8+010.542
 Δ = 7°02'16.2" LT
 R = 890.000 m
 L = 109.321 m
 T = 54.730 m
 E = 1.681 m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
8+07.8m, RT	GRAVEL	-
8+09.1m, LT	PAVED	-
8+054.5m, RT	PAVED	-
8+086.6m, LT	FIELD (GRASS)	-
8+087.6m, RT	FIELD (GRASS)	-

CURB - TYPE 3

STATION	OFFSET TO STATION	OFFSET	LENGTH
8+150.000	6.000m, RT	8+181.833	6.000m, RT 32.32m

EROSION CONTROL GEOTEXTILE CURVE DATA

STATION TO STATION	STATION TO STATION
8+010.542 to 8+011.973, LT	8+010.542 to 8+011.973, LT
8+022.882 to 8+023.817, LT	8+022.882 to 8+023.817, LT
8+145.890 to 8+146.451, RT	8+145.890 to 8+146.451, RT
8+168.889 to 8+170.282, LT	8+168.889 to 8+170.282, LT
T = 54.730 m	E = 1.681 m

PLAIN RIPRAP

STATION TO STATION	STATION TO STATION
8+010.552, LT	8+011.973, LT
8+022.650, LT	8+023.817, LT
8+145.043, RT	8+146.451, RT
8+168.868, LT	8+170.282, LT

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
7+839.4, LT	PAVED	6.0m
7+875.0, RT	PAVED	6.0m
7+897.5, RT	GRAVEL	6.0m
7+930.2, LT	GRAVEL	6.0m
7+944.6, RT	GRAVEL	13.0m
7+953.6, LT	GRAVEL	12.0m
7+968.8, RT	GRAVEL	13.0m
7+986.0, LT	GRAVEL	6.0m

TRANSPLANT HEDGE

STATION TO STATION	STATION TO STATION
7+971.777, RT	7+974.686, RT

EROSION CONTROL GEOTEXTILE

STATION TO STATION	STATION TO STATION
7+836.273, RT	7+873.581, RT

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204100X	13	25

STATION	OFFSET TO	STATION	OFFSET	LENGTH	RADIUS
8-490.113, LT	8-492.081, LT	8-490.000, RT	10704.10	8-491.800, LT	
8-508.630, RT	8-510.019, RT	8-508.630, RT	6.600m, RT	8-510.019, RT	2.400m
8-531.286, LT	8-533.425, LT	8-531.286, LT	6.600m, LT	8-533.425, LT	4.400m
8-539.123, RT	8-540.463, RT	8-539.123, RT	6.600m, RT	8-540.463, RT	4.400m

GUARDRAIL - TYPE 3c - 4.5m RADIUS AND LESS

STATION	OFFSET TO	STATION	OFFSET	LENGTH	RADIUS
8-462.758	6.600m, RT	8-464.423	10.728m, RT	5.699m	2.400m
8-481.760	9.718m, LT	8-485.921	6.600m, LT	5.600m	4.400m
8-499.001	9.794m, RT	8-503.282	6.600m, RT	5.700m	4.400m

GUARDRAIL - TYPE 3c - SINGLE RAIL

STATION	OFFSET TO	STATION	OFFSET	LENGTH
8-436.000	6.600m, RT	8-462.758	6.600m, RT	26.757m
8-485.921	6.600m, LT	8-590.016	6.600m, LT	104.866m
8-503.282	6.600m, RT	8-543.009	6.600m, RT	39.432m

GUARDRAIL 350 FLARED TERMINAL

STATION TO STATION

8-424.691, RT	8-436.000, RT
---------------	---------------

TERMINAL END - SINGLE RAIL - GALV. STEEL

STATION OFFSET

8-464.423	10.728m, RT
8-481.760	9.718m, LT
8-499.001	9.794m, RT

CURVE DATA

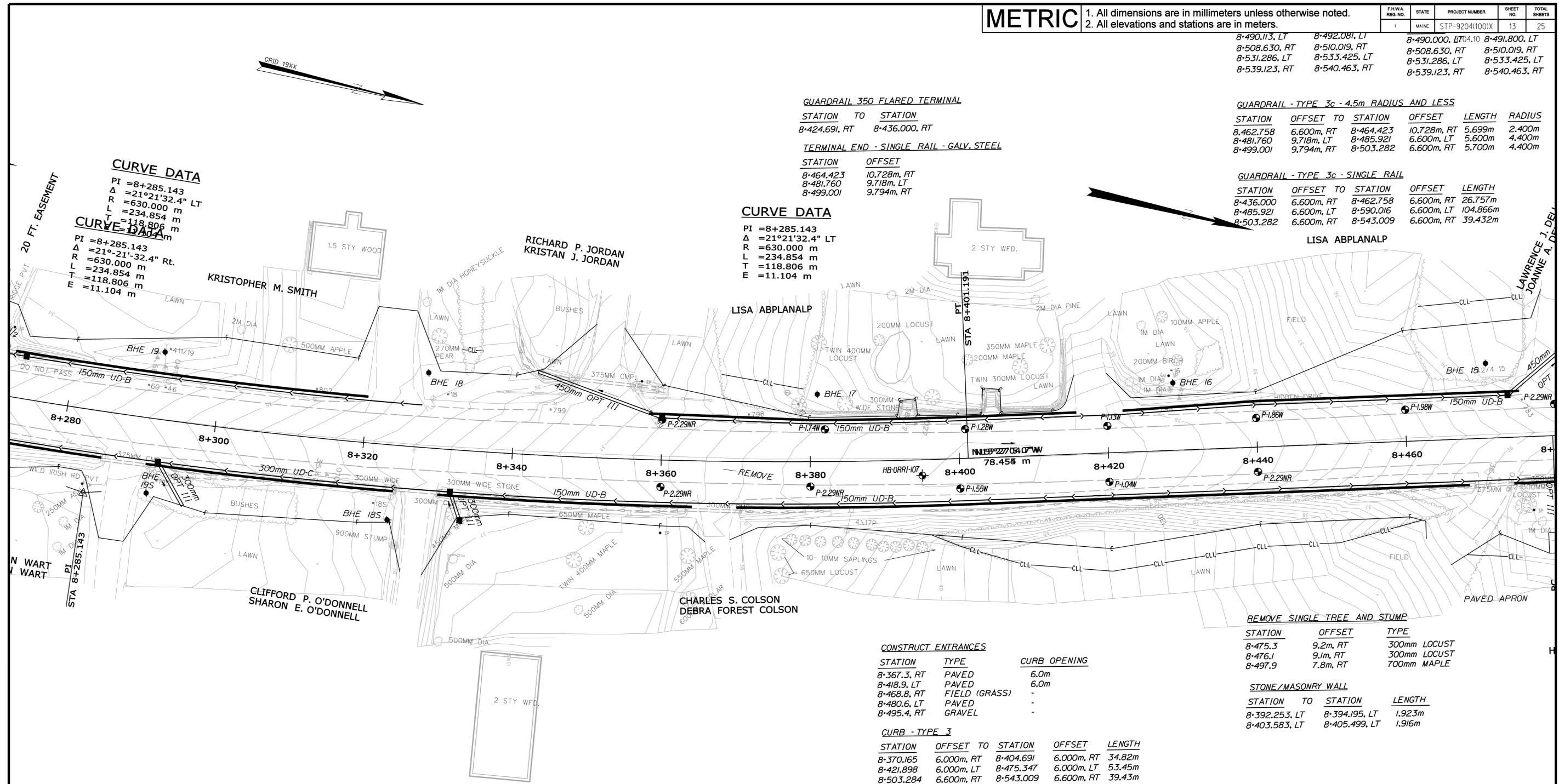
PI = 8+285.143
 Δ = 21°21'32.4" LT
 R = 630.000 m
 L = 234.854 m
 T = 118.806 m
 E = 11.104 m

CURVE DATA

PI = 8+285.143
 Δ = 21°21'32.4" LT
 R = 630.000 m
 L = 234.854 m
 T = 118.806 m
 E = 11.104 m

CURVE DATA

PI = 8+285.143
 Δ = 21°21'32.4" RT
 R = 630.000 m
 L = 234.854 m
 T = 118.806 m
 E = 11.104 m



CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
8-367.3, RT	PAVED	6.0m
8-418.9, LT	PAVED	6.0m
8-468.8, RT	FIELD (GRASS)	-
8-480.6, LT	PAVED	-
8-495.4, RT	GRAVEL	-

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
8-475.3	9.2m, RT	300mm LOCUST
8-476.1	9.1m, RT	300mm LOCUST
8-497.9	7.8m, RT	700mm MAPLE

STONE/MASONRY WALL

STATION TO	STATION	LENGTH
8-392.253, LT	8-394.195, LT	1.923m
8-403.583, LT	8-405.499, LT	1.916m

CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET	LENGTH
8-370.165	6.000m, RT	8-404.691	6.000m, RT	34.82m
8-421.898	6.000m, LT	8-475.347	6.000m, LT	53.45m
8-503.284	6.600m, RT	8-543.009	6.600m, RT	39.43m

1.8m WIDE RIPRAP DOWNSPOUT

STATION TO STATION

8-490.000, LT	8-491.800, LT
---------------	---------------

ONLY) STABILIZATION/REINFORCEMENT GEOTEXTILE
 STATION TO STATION
 8-240.000 TO 8-700.000

CURB - TYPE 3
 STATION OFFSET TO

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\013_Geoplans13.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K.BRESKIN	T. WHITE	NOV/2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	14	25

9204.10

EROSION CONTROL GEOTEXTILE

STATION TO	STATION
8+490.000, LT	8+491.800, LT
8+508.630, RT	8+510.019, RT
8+531.286, LT	8+533.425, LT
8+539.123, RT	8+540.463, RT

AND LESS

OFFSET	LENGTH	RADIUS
0.728m, RT	5.699m	2.400m
5.600m, LT	5.600m	4.400m
5.600m, RT	5.700m	4.400m

OFFSET LENGTH

OFFSET	LENGTH
5.600m, RT	26.757m
5.600m, LT	104.866m
5.600m, RT	39.432m

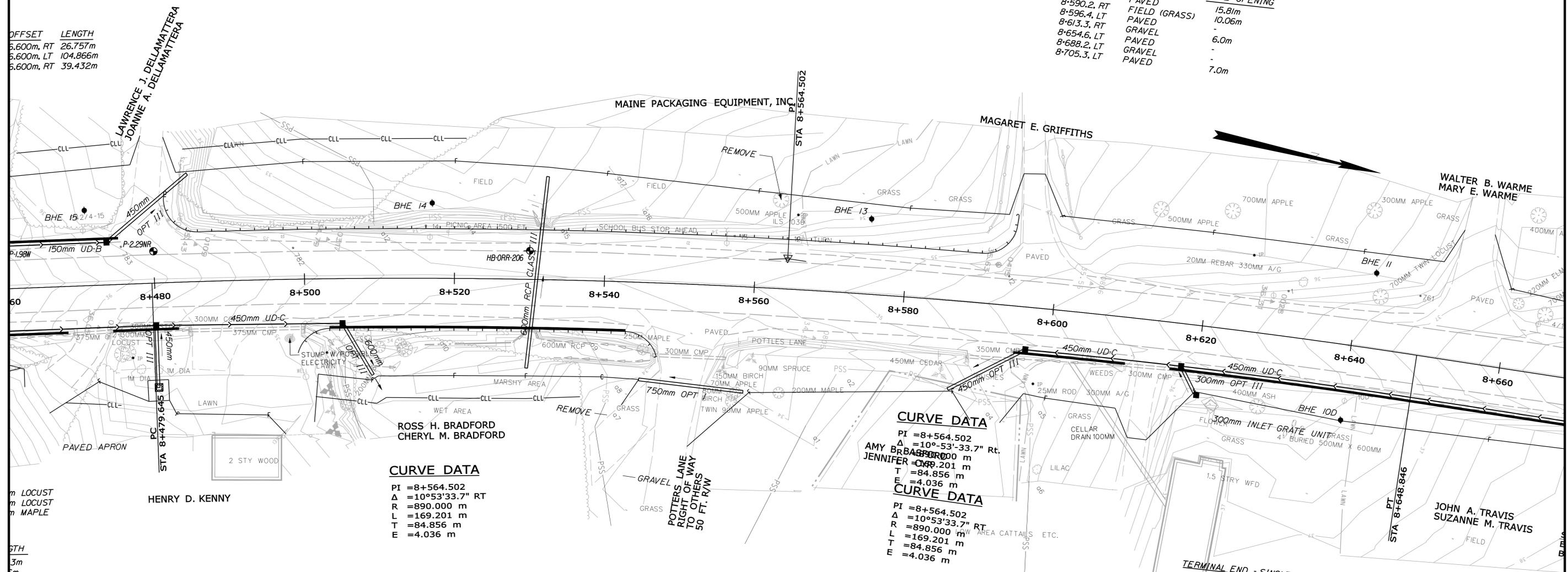


CONSTRUCT WALK

STATION	TYPE	WIDTH
8+709.3, LT	PAVED	0.826m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
8+551.0, RT	PAVED	15.81m
8+590.2, RT	FIELD (GRASS)	10.06m
8+596.4, LT	PAVED	-
8+613.3, RT	GRAVEL	6.0m
8+654.6, LT	PAVED	-
8+688.2, LT	GRAVEL	-
8+705.3, LT	PAVED	7.0m



CURVE DATA

PI = 8+564.502
Δ = 10°53'33.7" RT
R = 890.000 m
L = 169.201 m
T = 84.856 m
E = 4.036 m

CURVE DATA

PI = 8+564.502
Δ = 10°53'33.7" Rt.
R = 890.000 m
L = 169.201 m
T = 84.856 m
E = 4.036 m

CURVE DATA

PI = 8+564.502
Δ = 10°53'33.7" RT
R = 890.000 m
L = 169.201 m
T = 84.856 m
E = 4.036 m

TERMINAL END - SINGLE RAIL - GALV. STEEL

STATION	OFFSET
8+547.291	9.794m, RT
8+554.647	9.793m, RT
8+589.377	9.793m, RT
8+594.204	9.814m, LT
8+598.424	11.699m, LT

CURB - TYPE 3

STATION	OFFSET TO STATION	OFFSET	LENGTH	GUARDRAIL
8+558.932	6.600m, RT	8+585.000		
8+595.218				

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\014_Geoplans4.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV/2009

DESIGN-DETAILED	CHECKED	REVISIONS	FIELD CHANGES

PLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	15	25

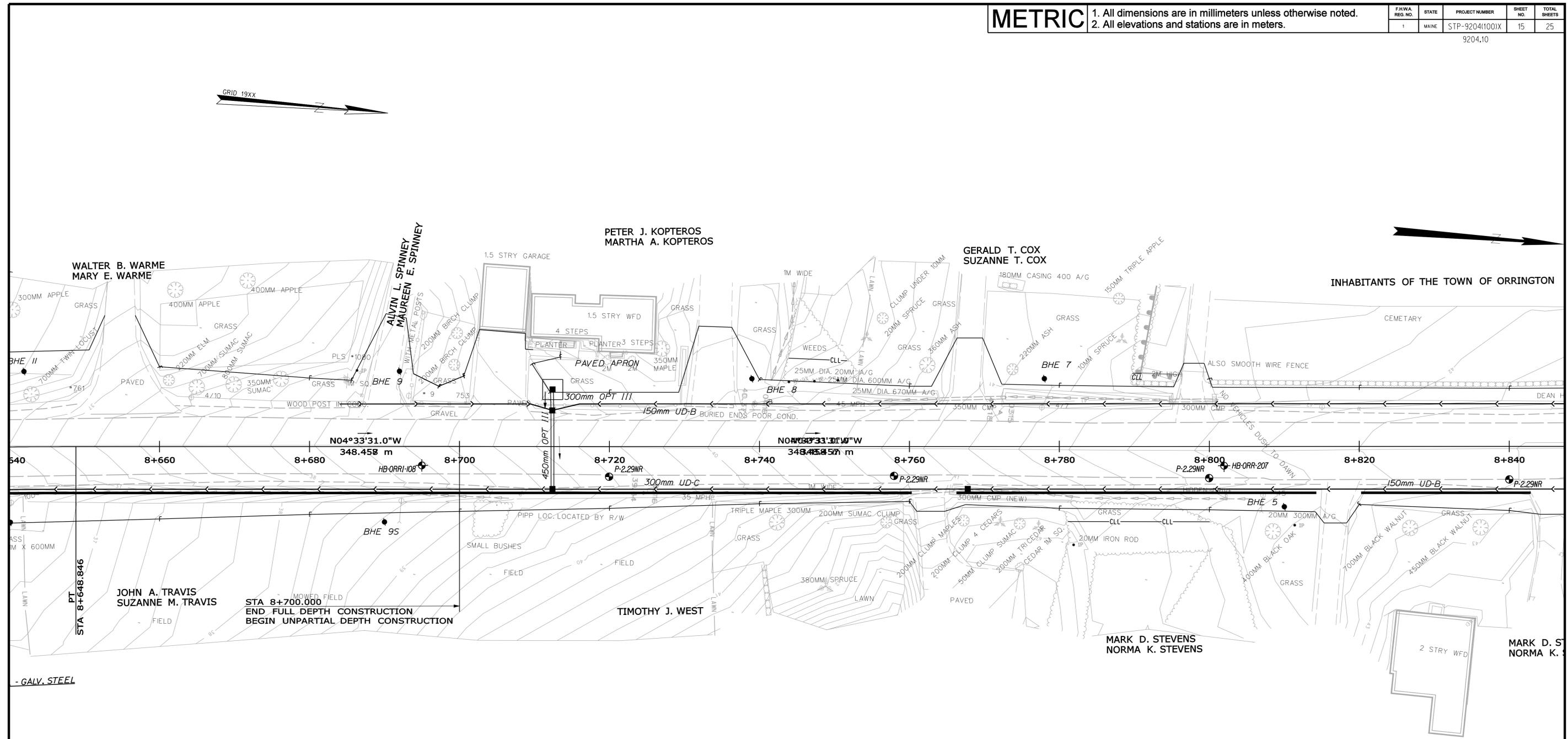
9204,10

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\015_Geoplans.dgn



- GALV. STEEL

GUARDRAIL - TYPE 3c - 4.5m RADIUS AND LESS						
STATION	OFFSET	LENGTH	STATION	OFFSET TO	STATION	OFFSET LENGTH RADIUS
85.096	6.600m, RT	25.97m	8-543.009	6.600m, RT	8-547.291	9.794m, RT 5.700m 4.400m
0.246	6.000m, RT	14.93m	8-554.647	9.793m, RT	8-558.929	6.600m, RT 5.700m 4.400m
50.288	6.000m, RT	143.78m	8-585.096	6.600m, RT	8-589.377	9.793m, RT 5.700m 4.400m
01.812	6.000m, LT	9.21m	8-590.016	6.600m, LT	8-594.204	9.814m, LT 5.700m 4.400m
51.076	6.000m, LT	22.26m	8-598.424	11.699m, LT	8-602.857	6.600m, LT 5.792m 4.400m

REMOVE SINGLE TREE AND STUMP		
STATION	OFFSET	TYPE
8-563.0	11.8m, LT	500mm APPLE
8-643.0	7.0m, LT	700mm TWIN LOCUST

CONSTRUCT ENTRANCES		
STATION	TYPE	CURB OPENING
8-736.3, LT	GRAVEL	-
8-763.3, RT	PAVED	6.0m
8-767.8, LT	PAVED	-
8-797.8, LT	GRAVEL	-
8-817.3, RT	FIELD (GRASS)	6.0m
8-845.8, RT	PAVED	6.0m
8-858.6, LT	GRAVEL	-
8-867.6, LT	GRAVEL	6.0m
8-876.7, RT	PAVED	6.0m
8-893.4, LT	PAVED	6.0m

REMOVE SINGLE TREE AND STUMP		
STATION	OFFSET	TYPE
8-840.6	8.2m, RT	700mm (STUMP ONLY)
8-870.9	7.2m, LT	600mm (STUMP ONLY)
8-876.0	7.1m, LT	750mm MAPLE
8-881.2	7.2m, RT	650mm LOCUST
8-885.3	7.0m, LT	670mm (STUMP ONLY)

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC 1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	16	25

STATION	TYPE	CURB OPENING
8+911.9, RT	PAVED	8.0m
8+925.4, RT	PAVED	13.0m
8+951.1, LT	PAVED	6.0m
8+958.2, RT	PAVED	6.0m
8+989.2, LT	PAVED	-
9+018.9, RT	PAVED	11.0m
9+029.8, RT	GRAVEL	6.0m
9+061.8, RT	PAVED	8.0m

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\016_Geoplans6.dgn

PROJECT DESIGN ENGINEER	DATE
K. BRESKIN	NOV 2009
T. WHITE	
CHECKED	
REVISIONS	
FIELD CHANGES	

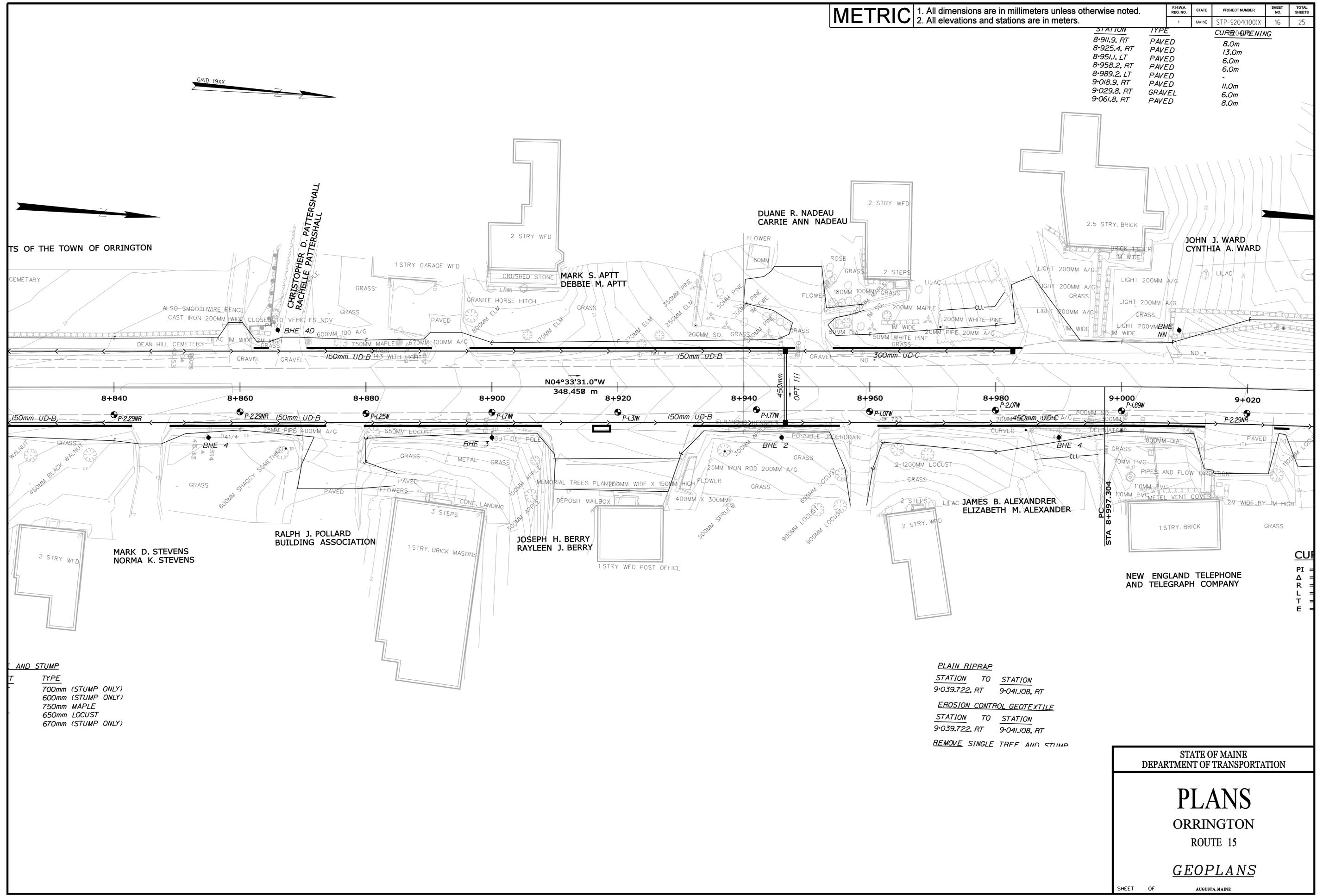
PLANS

AND STUMP	TYPE
700mm	(STUMP ONLY)
600mm	(STUMP ONLY)
750mm	MAPLE
650mm	LOCUST
670mm	(STUMP ONLY)

PLAIN RIPRAP
 STATION TO STATION
 9+039.722, RT 9+041.108, RT

EROSION CONTROL GEOTEXTILE
 STATION TO STATION
 9+039.722, RT 9+041.108, RT

REMOVE SINGLE TRFF AND STUMP



STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-92041001X	17	25

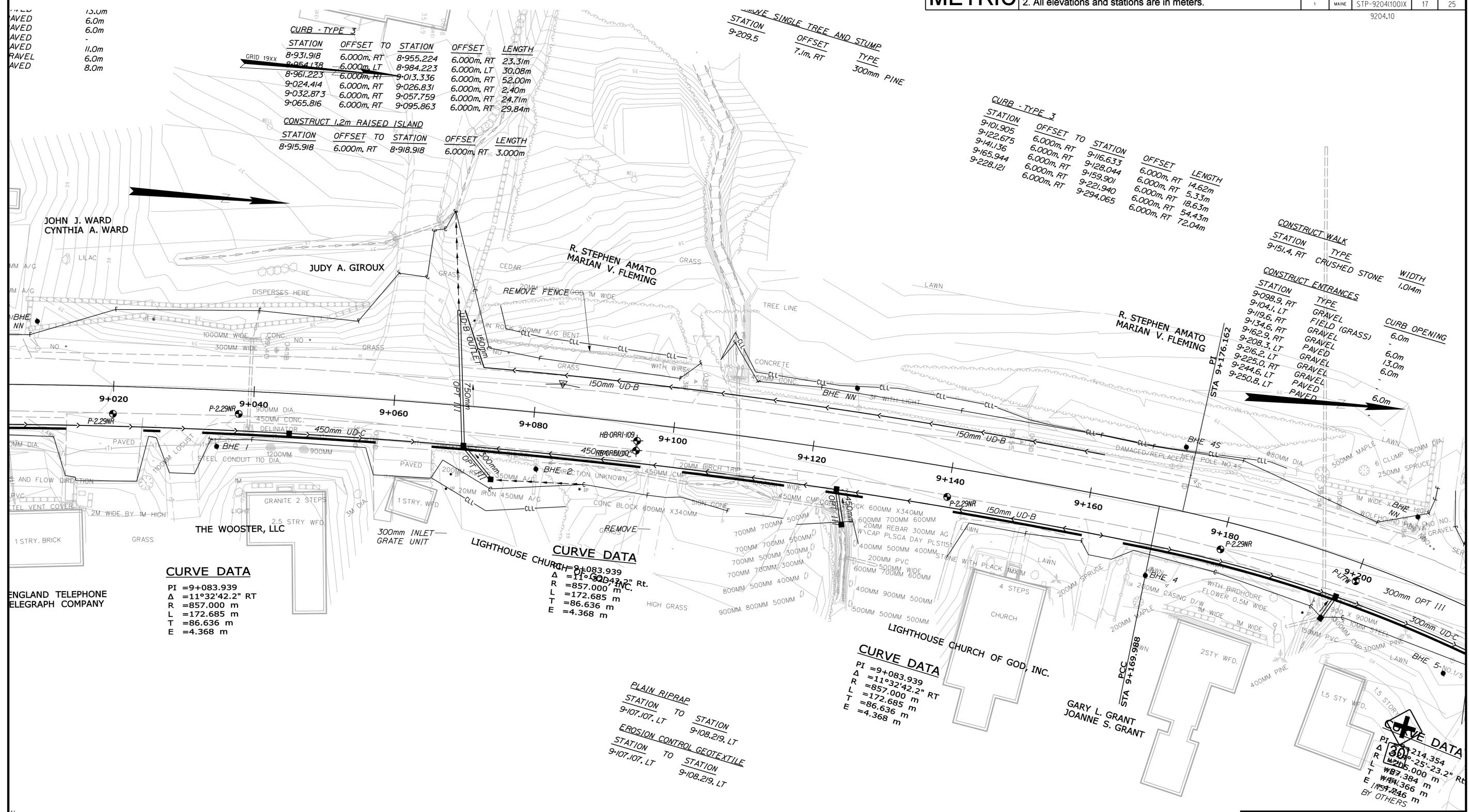
9204.10

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\017_Geoplans17.dgn



CURB - TYPE 3

STATION	OFFSET	TO STATION	OFFSET	LENGTH
8-931.918	6.000m, RT	8-955.224	6.000m, RT	23.31m
8-954.138	6.000m, LT	8-984.223	6.000m, LT	30.08m
8-961.223	6.000m, RT	9-013.336	6.000m, RT	52.00m
9-024.414	6.000m, RT	9-026.831	6.000m, RT	2.40m
9-032.873	6.000m, RT	9-057.759	6.000m, RT	24.71m
9-065.816	6.000m, RT	9-095.863	6.000m, RT	29.84m

CONSTRUCT 1.2m RAISED ISLAND

STATION	OFFSET	TO STATION	OFFSET	LENGTH
8-915.918	6.000m, RT	8-918.918	6.000m, RT	3.000m

CURB - TYPE 3

STATION	OFFSET	TO STATION	OFFSET	LENGTH
9-101.905	6.000m, RT	9-116.633	6.000m, RT	14.62m
9-122.675	6.000m, RT	9-128.044	6.000m, RT	5.33m
9-141.136	6.000m, RT	9-159.901	6.000m, RT	18.63m
9-165.944	6.000m, RT	9-221.940	6.000m, RT	54.43m
9-228.121	6.000m, RT	9-294.065	6.000m, RT	72.04m

CONSTRUCT WALK

STATION	TYPE	CRUSHED STONE	WIDTH
9-151.4, RT			1.014m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
9-098.9, RT	GRAVEL	6.0m
9-104.1, LT	FIELD (GRASS)	6.0m
9-119.6, RT	GRAVEL	6.0m
9-162.9, RT	GRAVEL	13.0m
9-208.3, LT	GRAVEL	6.0m
9-216.2, LT	GRAVEL	6.0m
9-225.0, RT	GRAVEL	6.0m
9-244.6, LT	GRAVEL	6.0m
9-250.8, LT	GRAVEL	6.0m

CURVE DATA

PI = 9+083.939
Δ = 11°32'42.2" RT
R = 857.000 m
L = 172.685 m
T = 86.636 m
E = 4.368 m

CURVE DATA

PI = 9+083.939
Δ = 11°32'42.2" Rt.
R = 857.000 m
L = 172.685 m
T = 86.636 m
E = 4.368 m

CURVE DATA

PI = 9+083.939
Δ = 11°32'42.2" RT
R = 857.000 m
L = 172.685 m
T = 86.636 m
E = 4.368 m

CURVE DATA

PI = 9+214.354
Δ = 25°25'23.2" Rt.
R = 215.000 m
L = 107.384 m
T = 53.366 m
E = 17.446 m

PROJECT DESIGN ENGINEER	DATE
K. BRESKIN	NOV 2009
T. WHITE	
CHECKED	
REVISIONS	
FIELD CHANGES	

PLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\mst\018_Geoplans18.dgn

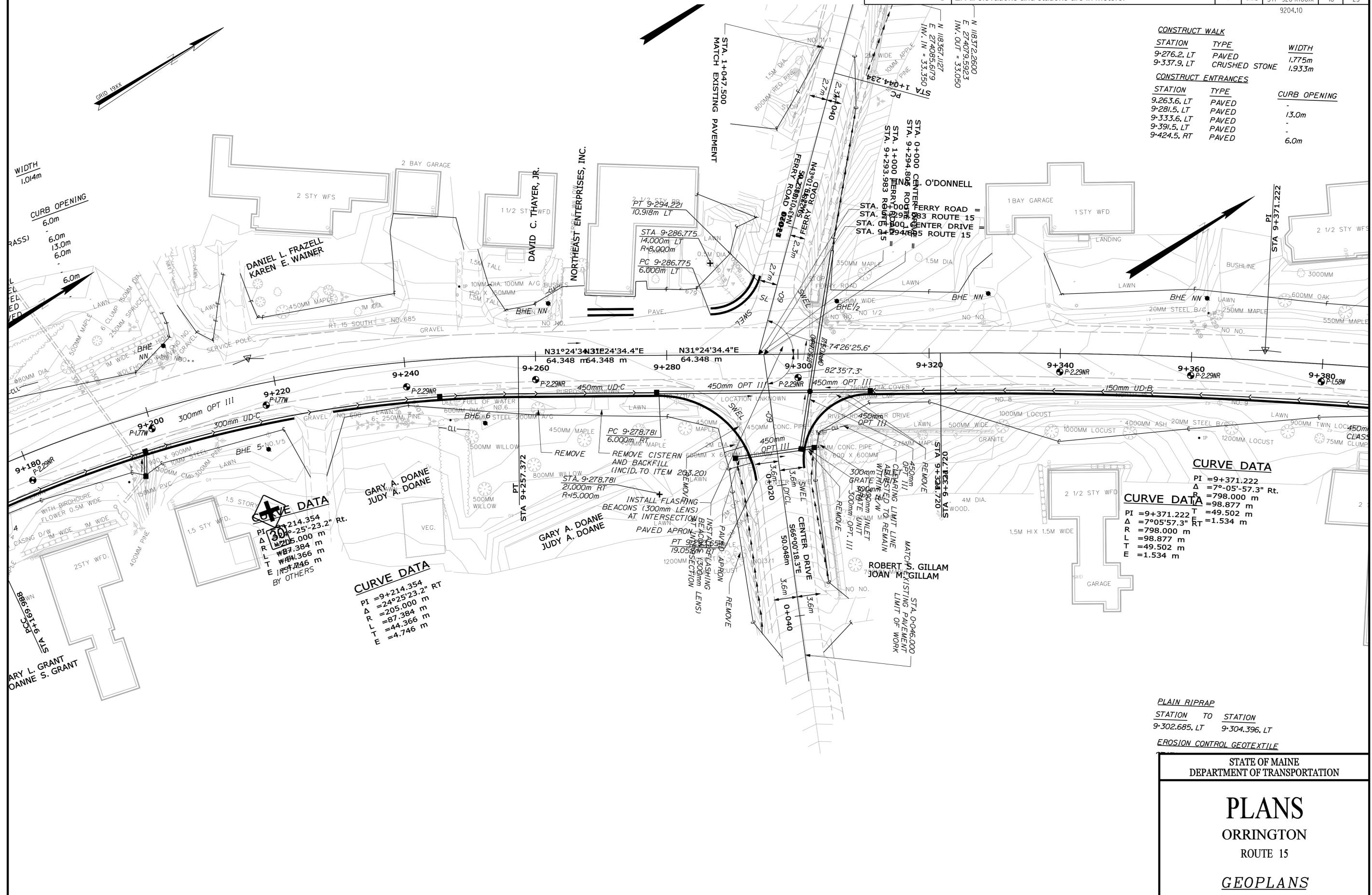
PROJECT DESIGN ENGINEER	DATE
DESIGN-DETAILED	NOV2009
CHECKED	
REVISIONS	
FIELD CHANGES	

PLANS

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-92041001X	18	25



CONSTRUCT WALK

STATION	TYPE	WIDTH
9-276.2, LT	PAVED	1.775m
9-337.9, LT	CRUSHED STONE	1.933m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
9,263.6, LT	PAVED	-
9-281.5, LT	PAVED	13.0m
9-333.6, LT	PAVED	-
9-391.5, LT	PAVED	-
9-424.5, RT	PAVED	6.0m

CURVE DATA

PI = 9+371.222	Δ = 7°-05'-57.3" Rt.
R = 798.000 m	T = 49.502 m
L = 98.877 m	E = 1.534 m

CURVE DATA

PI = 9+214.354	Δ = 24°-25'-23.2" Rt.
R = 205.000 m	L = 87.384 m
T = 44.366 m	E = 4.746 m

CURVE DATA

PI = 9+214.354	Δ = 24°-25'-23.2" RT
R = 205.000 m	L = 87.384 m
T = 44.366 m	E = 4.746 m

PLAIN RIPRAP

STATION TO STATION
 9-302.685, LT 9-304.396, LT

EROSION CONTROL GEOTEXTILE

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS

ORRINGTON
 ROUTE 15

GEOPLANS

SHEET OF AUGUSTA, MAINE

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\019_Geoplans19.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

METRIC		1. All dimensions are in millimeters unless otherwise noted. 2. All elevations and stations are in meters.			
FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS	
1	MAINE	STP-92041001X	19	25	

WIDTH
STONE 1.775m
CURB OPENING 1.933m

CURB OPENING
13.0m
6.0m

STATION 9+449.9, LT
TYPE BRICK

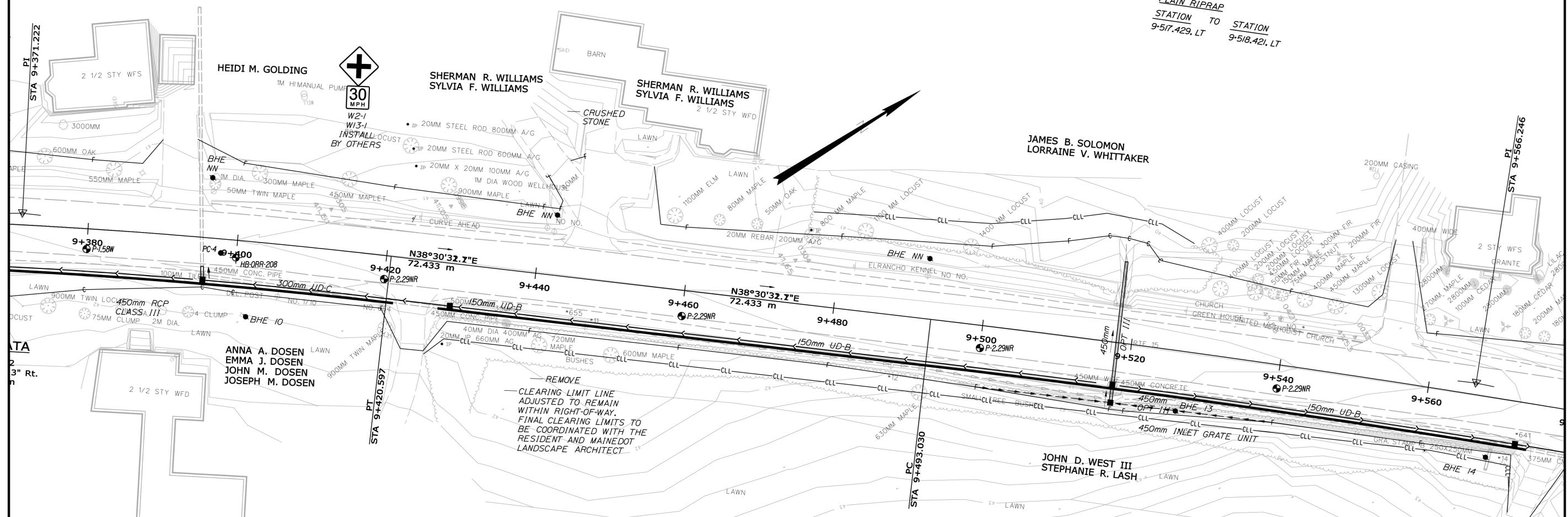
CONSTRUCT ENTRANCES
STATION 9+446.8, LT
9+554.5, LT
9+577.2, RT
TYPE PAVED
PAVED
PAVED

WIDTH .987m
CURB OPENING 6.0m

CURB - TYPE 3
STATION 9+580.211
OFFSET TO STATION 6.000m, RT
STATION 9+661.284
OFFSET 6.000m, RT
LENGTH 80.87m

1.5m WIDE TEMPORARY EROSION CONTROL BLANKET
STATION 9+500, RT
TO STATION 9+540, RT

PLAIN RIPRAP
STATION 9+517.429, LT
TO STATION 9+518.421, LT



CURVE DATA

PI	= 9+566.298	566.246
Δ	= 4° 42' 27.27"	80.2° RT
R	= 175.000	1750.000 m
L	= 146.846	146.346 m
T	= 73.276	73.216 m
E	= 1.531	1.531m

EROSION CONTROL GEOTEXTILE
STATION TO STATION
9+517.429, LT 9+518.421, LT

REMOVE SINGLE TREE AND ...
STATION

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\020_Geoplan20.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

METRIC

1. All dimensions are in millimeters unless otherwise noted.
 2. All elevations and stations are in meters.

FWHA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-92041001X	20	25

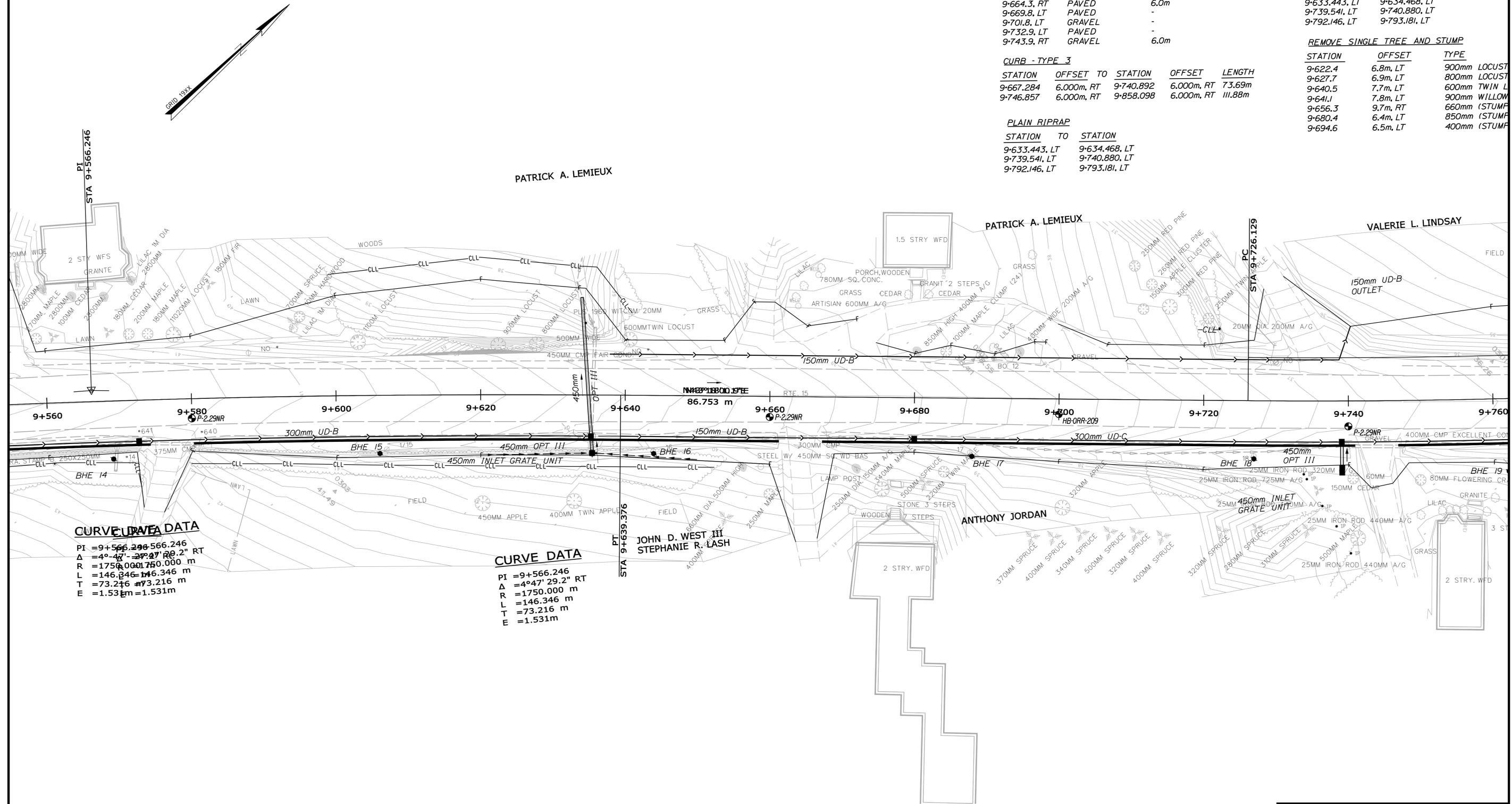
STATION	TYPE	CURB OPENING
9-658.0, LT	FIELD (GRASS)	-
9-664.3, RT	PAVED	6.0m
9-669.8, LT	PAVED	-
9-701.8, LT	GRAVEL	-
9-732.9, LT	PAVED	-
9-743.9, RT	GRAVEL	6.0m

STATION	TO	STATION
9-633.443, LT		9-634.468, LT
9-739.541, LT		9-740.880, LT
9-792.146, LT		9-793.181, LT

CURB - TYPE 3				
STATION	OFFSET TO	STATION	OFFSET	LENGTH
9-667.284	6.000m, RT	9-740.892	6.000m, RT	73.69m
9-746.857	6.000m, RT	9-858.098	6.000m, RT	111.88m

REMOVE SINGLE TREE AND STUMP		
STATION	OFFSET	TYPE
9-622.4	6.8m, LT	900mm LOCUST
9-627.7	6.9m, LT	800mm LOCUST
9-640.5	7.7m, LT	600mm TWIN L
9-641.1	7.8m, LT	900mm WILLOW
9-656.3	9.7m, LT	660mm (STUMP)
9-680.4	6.4m, RT	850mm (STUMP)
9-694.6	6.5m, LT	400mm (STUMP)

PLAIN RIPRAP		
STATION	TO	STATION
9-633.443, LT		9-634.468, LT
9-739.541, LT		9-740.880, LT
9-792.146, LT		9-793.181, LT



CURVE DATA
 PI = 9+566.246
 $\Delta = 4^\circ 47' 29.2''$ RT
 R = 1750.000 m
 L = 146.346 m
 T = 73.216 m
 E = 1.531 m

CURVE DATA
 PI = 9+566.246
 $\Delta = 4^\circ 47' 29.2''$ RT
 R = 1750.000 m
 L = 146.346 m
 T = 73.216 m
 E = 1.531 m

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS

ORRINGTON
 ROUTE 15

GEOPLANS

SHEET OF AUGUSTA, MAINE

PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
STP-9204(100)X	21	25

CONSTRUCTION STATION	TYPE	WIDTH
920+400	PAVED	6.0m
9-861.1, RT	PAVED	6.0m
9-862.0, LT	PAVED	-
9-889.4, LT	GRAVEL	7.2m
9-889.8, RT	GRAVEL	6.0m
9-912.9, RT	FIELD (GRASS)	6.0m
9-940.6, LT	GRAVEL	6.0m
9-955.1, RT	GRAVEL	6.0m
9-969.7, RT	GRAVEL	6.0m

CONTROL GEOTEXTILE TO STATION
 13, LT 9+634.468, LT
 1, LT 9+740.880, LT
 6, LT 9+793.181, LT

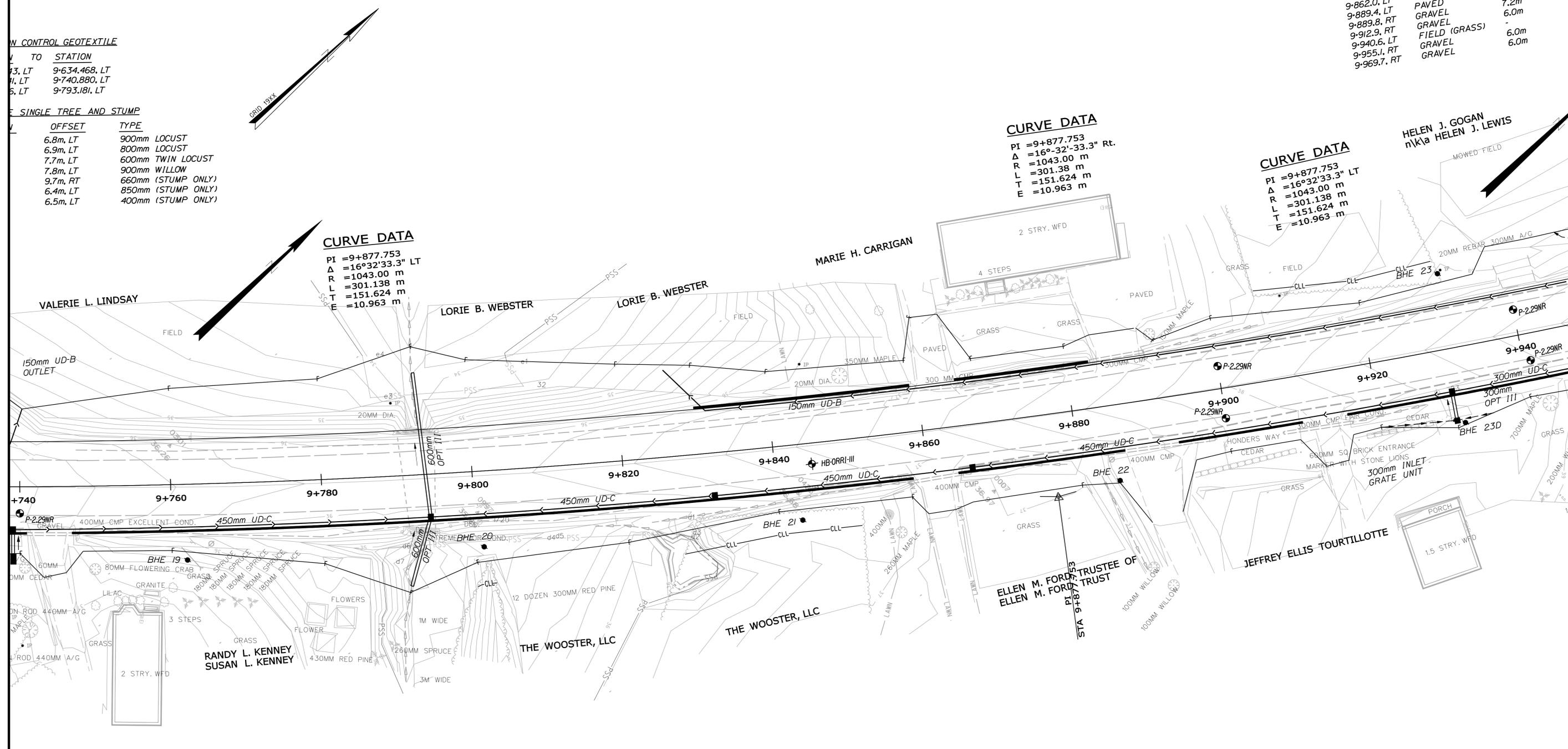
SINGLE TREE AND STUMP

OFFSET	TYPE
6.8m, LT	900mm LOCUST
6.9m, LT	800mm LOCUST
7.7m, LT	600mm TWIN LOCUST
7.8m, LT	900mm WILLOW
9.7m, RT	660mm (STUMP ONLY)
6.4m, LT	850mm (STUMP ONLY)
6.5m, LT	400mm (STUMP ONLY)

CURVE DATA
 PI =9+877.753
 Δ =16°32'33.3" LT
 R =1043.00 m
 L =301.138 m
 T =151.624 m
 E =10.963 m

CURVE DATA
 PI =9+877.753
 Δ =16°32'33.3" Rt.
 R =1043.00 m
 L =301.38 m
 T =151.624 m
 E =10.963 m

CURVE DATA
 PI =9+877.753
 Δ =16°32'33.3" LT
 R =1043.00 m
 L =301.138 m
 T =151.624 m
 E =10.963 m



Date: 5/24/2010
 Username: kity.breskin
 Division: GEOTECH
 Filename: ... \geotech\msta\021_Geoplan21.dgn

PROJECT DESIGN ENGINEER	DATE
K. BRESKIN	NOV2009
DESIGN-DETAILED	
CHECKED	
REVISIONS	
FIELD CHANGES	

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

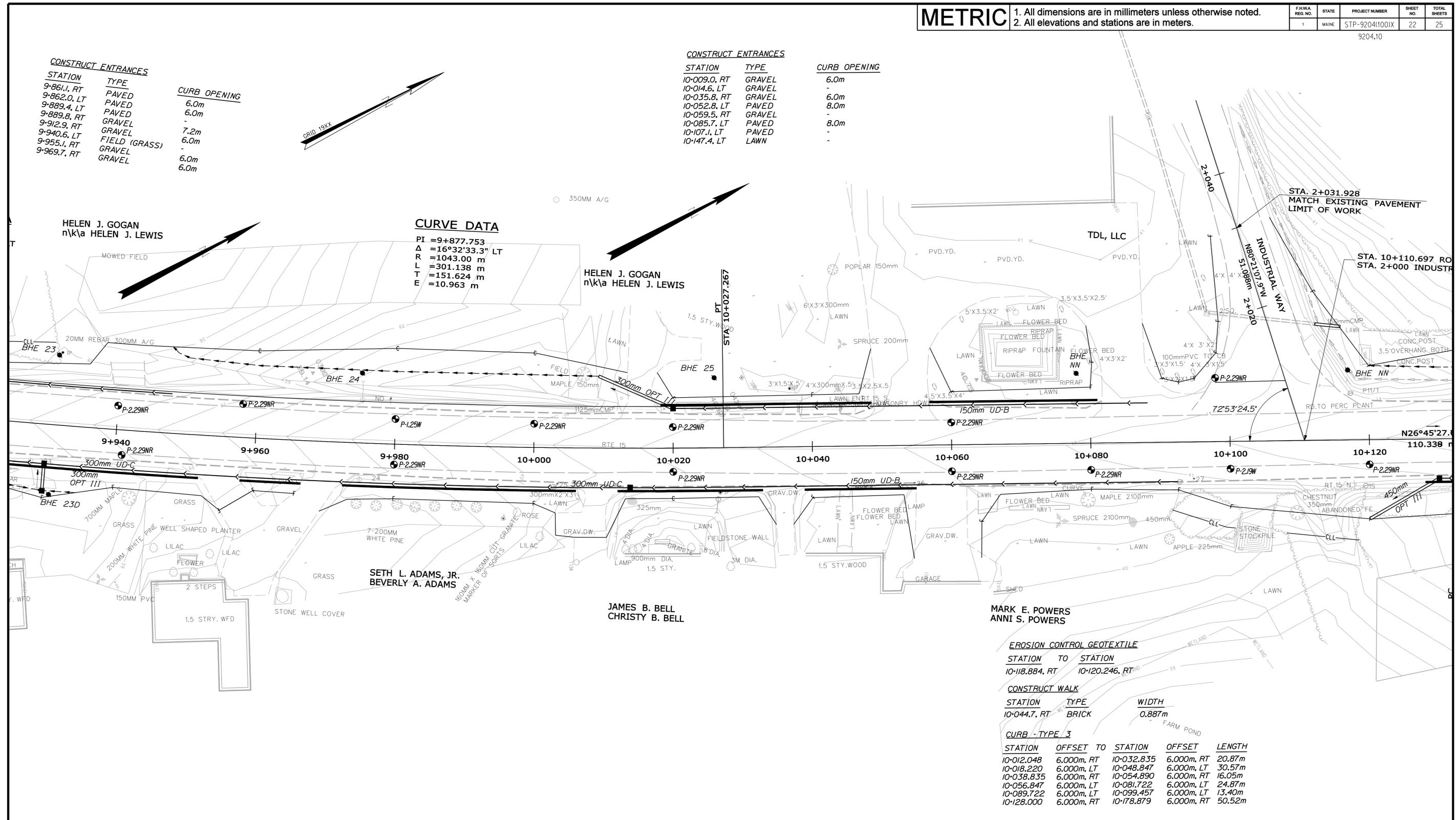
CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
9+861.1, RT	PAVED	6.0m
9+862.0, LT	PAVED	6.0m
9+889.4, LT	PAVED	6.0m
9+889.8, RT	PAVED	6.0m
9+912.9, RT	GRAVEL	7.2m
9+940.6, LT	GRAVEL	6.0m
9+955.1, RT	FIELD (GRASS)	-
9+969.7, RT	GRAVEL	6.0m
9+969.7, RT	GRAVEL	6.0m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
10+009.0, RT	GRAVEL	6.0m
10+014.6, LT	GRAVEL	-
10+035.8, RT	GRAVEL	6.0m
10+052.8, LT	PAVED	8.0m
10+059.5, RT	GRAVEL	-
10+085.7, LT	PAVED	8.0m
10+107.1, LT	PAVED	-
10+147.4, LT	LAWN	-

CURVE DATA
 PI = 9+877.753
 Δ = 16°32'33.3" LT
 R = 1043.00 m
 L = 301.138 m
 T = 151.624 m
 E = 10.963 m



EROSION CONTROL GEOTEXTILE

STATION TO	STATION
10+118.884, RT	10+120.246, RT

CONSTRUCT WALK

STATION	TYPE	WIDTH
10+044.7, RT	BRICK	0.887m

CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET	LENGTH
10+012.048	6.000m, RT	10+032.835	6.000m, RT	20.87m
10+018.220	6.000m, LT	10+048.847	6.000m, LT	30.57m
10+038.835	6.000m, RT	10+054.890	6.000m, RT	16.05m
10+056.847	6.000m, LT	10+081.722	6.000m, LT	24.87m
10+089.722	6.000m, LT	10+099.457	6.000m, LT	13.40m
10+128.000	6.000m, RT	10+178.879	6.000m, RT	50.52m

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\mst\022_Geoplan22.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	NOV2009
DESIGN-DETAILED		
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE
 DEPARTMENT OF TRANSPORTATION

PLANS
 ORRINGTON
 ROUTE 15
 GEOPLANS

SHEET OF AUGUSTA, MAINE

Date: 5/24/2010

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\023_Geoplan23.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV/2009
CHECKED	K. BRESKIN	
REVISIONS		
FIELD CHANGES		

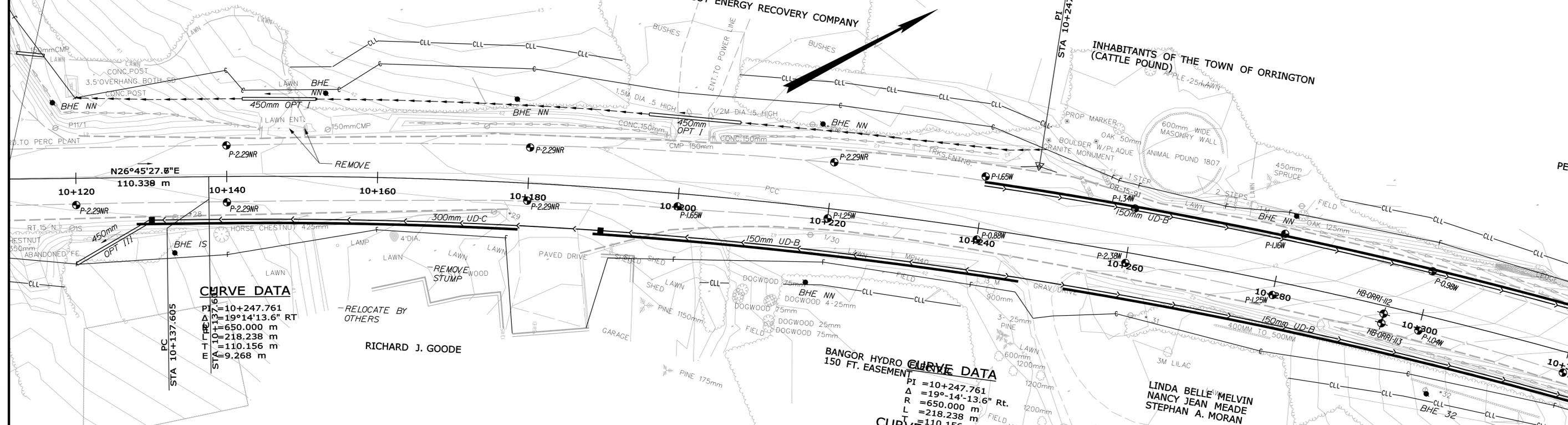
2+031.928
CH. EXISTING PAVEMENT
T. OF WORK

STA. 10+110.697 ROUTE 15 =
STA. 2+000 INDUSTRIAL WAY

PENOBSCOT ENERGY RECOVERY COMPANY

PENOBSCOT ENERGY RECOVERY COMPANY

INHABITANTS OF THE TOWN OF ORRINGTON
(CATTLE POUND)



CURVE DATA
 PI = 10+247.761
 Δ = 19°14'13.6" RT
 R = 650.000 m
 L = 218.238 m
 T = 110.156 m
 E = 9.268 m
 PC STA 10+137.605
 PT STA 10+110.697

CURVE DATA
 PI = 10+247.761
 Δ = 19°14'13.6" Rt.
 R = 650.000 m
 L = 218.238 m
 T = 110.156 m
 E = 9.268 m

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
10+162.4	7.6m, RT	1220mm (STUMP ONLY)

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
10+183.9, RT	PAVED	10.0m
10+201.3, LT	FIELD (GRAVEL)	-
10+249.3, RT	GRAVEL	6.0m
10+335.3, RT	FIELD (GRASS)	6.0m

CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET
10+188.974	6.000m, RT	10+246.222	15m
10+241.000	6.000m, LT		
10+252.317			

REMOVE SINGLE TREE AND STUMP
 OFFSET TYPE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	24	25

9204.10



CURB - TYPE 3

STATION	OFFSET TO	STATION	OFFSET	LENGTH
10+379.564	6.000m, LT	10+398.435	6.000m, LT	18.87m
10+404.435	6.000m, LT	10+448.313	6.000m, LT	43.88m
10+447.127	6.000m, RT	10+460.000	6.000m, RT	12.87m
10+454.313	6.000m, LT	10+460.000	6.000m, LT	5.69m

CONSTRUCT ENTRANCES

STATION	TYPE	CURB OPENING
10+376.6, LT	LAWN	6.0m
10+401.4, LT	PAVED	6.0m
10+444.1, RT	GRAVEL	6.0m
10+451.3, LT	PAVED	6.0m

REMOVE SINGLE TREE AND STUMP

STATION	OFFSET	TYPE
10+381.7	8.5m, RT	450mm OAK
10+390.3	9.3m, RT	350mm SPRUCE

Date: 5/24/2010

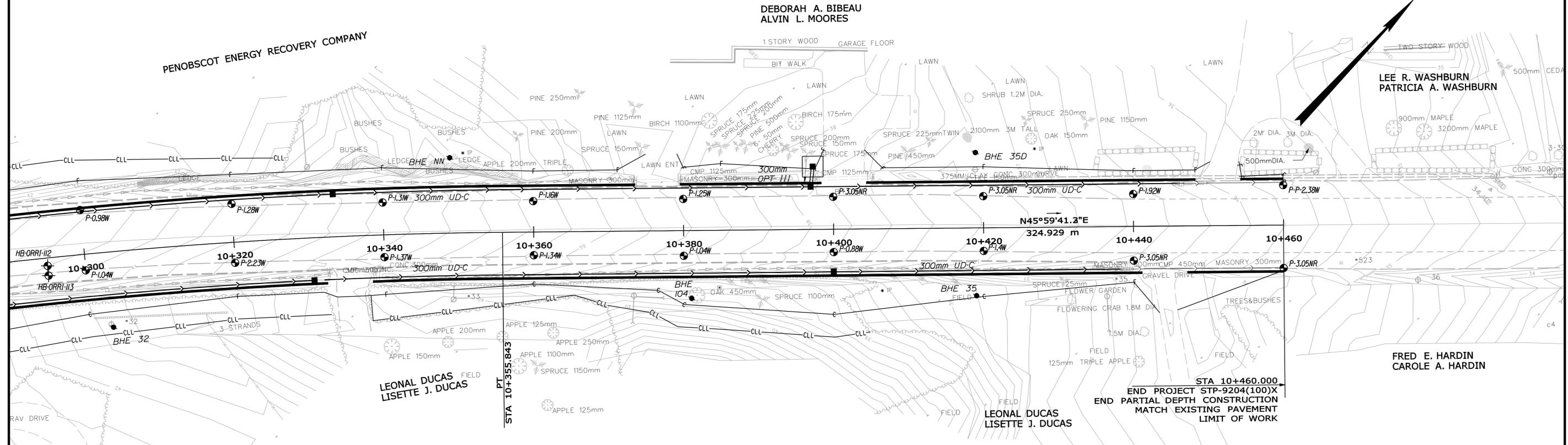
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\024_Geoplan24.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



STA 10+460.000
END PROJECT STP-9204(100)X
END PARTIAL DEPTH CONSTRUCTION
MATCH EXISTING PAVEMENT
LIMIT OF WORK

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.
2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-9204(100)X	25	25

9204,10

Date: 5/24/2010

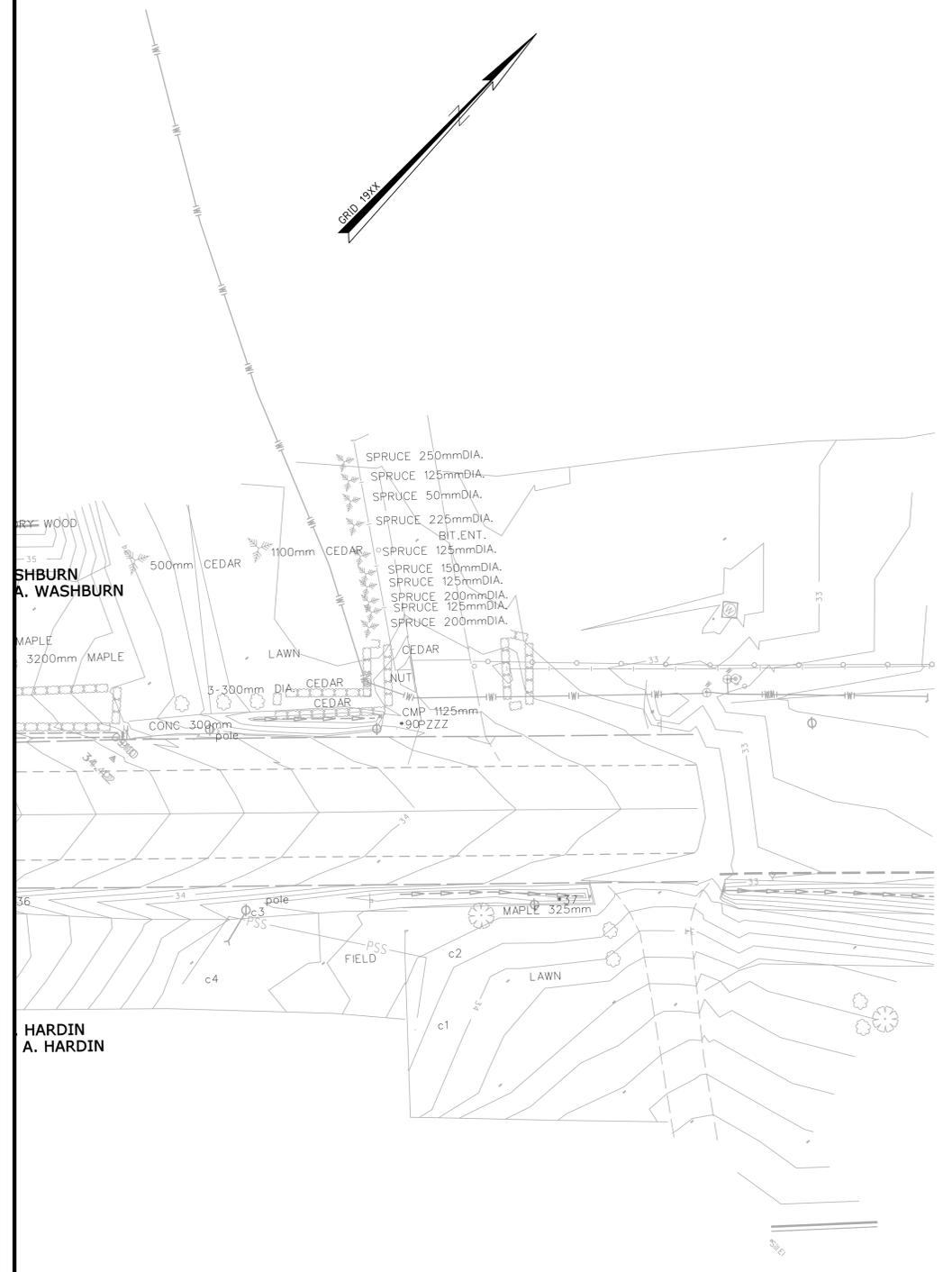
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\025_Geoplan25.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	T. WHITE	NOV2009
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PLANS
ORRINGTON
ROUTE 15
GEOPLANS

SHEET OF AUGUSTA, MAINE

Appendix C
Field Exploration Data
Soils Descriptions
Boring Logs
Probe Summary Sheet
FWD Analysis

UNIFIED SOIL CLASSIFICATION SYSTEM				TERMS DESCRIBING DENSITY/CONSISTENCY																							
MAJOR DIVISIONS		GROUP SYMBOLS		TYPICAL NAMES																							
COARSE-GRAINED SOILS (more than half of material is larger than No. 200 sieve size)	GRAVELS (more than half of coarse fraction is larger than No. 4 sieve size)	CLEAN GRAVELS	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	<p>Coarse-grained soils (more than half of material is larger than No. 200 sieve): Includes (1) clean gravels; (2) silty or clayey gravels; and (3) silty, clayey or gravelly sands. Consistency is rated according to standard penetration resistance.</p> <p style="text-align: center;">Modified Burmister System</p> <table border="0"> <tr> <td style="text-align: center;"><u>Descriptive Term</u></td> <td style="text-align: center;"><u>Portion of Total</u></td> </tr> <tr> <td>trace</td> <td>0% - 10%</td> </tr> <tr> <td>little</td> <td>11% - 20%</td> </tr> <tr> <td>some</td> <td>21% - 35%</td> </tr> <tr> <td>adjective (e.g. sandy, clayey)</td> <td>36% - 50%</td> </tr> </table> <table border="0"> <tr> <td style="text-align: center;"><u>Density of Cohesionless Soils</u></td> <td style="text-align: center;"><u>Standard Penetration Resistance N-Value (blows per foot)</u></td> </tr> <tr> <td>Very loose</td> <td>0 - 4</td> </tr> <tr> <td>Loose</td> <td>5 - 10</td> </tr> <tr> <td>Medium Dense</td> <td>11 - 30</td> </tr> <tr> <td>Dense</td> <td>31 - 50</td> </tr> <tr> <td>Very Dense</td> <td>> 50</td> </tr> </table>	<u>Descriptive Term</u>	<u>Portion of Total</u>	trace	0% - 10%	little	11% - 20%	some	21% - 35%	adjective (e.g. sandy, clayey)	36% - 50%	<u>Density of Cohesionless Soils</u>	<u>Standard Penetration Resistance N-Value (blows per foot)</u>	Very loose	0 - 4	Loose	5 - 10	Medium Dense	11 - 30	Dense	31 - 50	Very Dense	> 50
		<u>Descriptive Term</u>	<u>Portion of Total</u>																								
		trace	0% - 10%																								
		little	11% - 20%																								
	some	21% - 35%																									
	adjective (e.g. sandy, clayey)	36% - 50%																									
<u>Density of Cohesionless Soils</u>	<u>Standard Penetration Resistance N-Value (blows per foot)</u>																										
Very loose	0 - 4																										
Loose	5 - 10																										
Medium Dense	11 - 30																										
Dense	31 - 50																										
Very Dense	> 50																										
(little or no fines)	GP	Poorly-graded gravels, gravel sand mixtures, little or no fines																									
GRAVEL WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.																									
	GC	Clayey gravels, gravel-sand-clay mixtures.																									
SANDS (more than half of coarse fraction is smaller than No. 4 sieve size)	CLEAN SANDS (little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines																								
		SP	Poorly-graded sands, gravelly sand, little or no fines.																								
	SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures																								
		SC	Clayey sands, sand-clay mixtures.																								
FINE-GRAINED SOILS (more than half of material is smaller than No. 200 sieve size)	SILTS AND CLAYS (liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.																								
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.																								
		OL	Organic silts and organic silty clays of low plasticity.																								
	SILTS AND CLAYS (liquid limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.																								
		CH	Inorganic clays of high plasticity, fat clays.																								
		OH	Organic clays of medium to high plasticity, organic silts																								
HIGHLY ORGANIC SOILS	Pt	Peat and other highly organic soils.																									
<p>Desired Soil Observations: (in this order)</p> <p>Color (Munsell color chart) Moisture (dry, damp, moist, wet, saturated) Density/Consistency (from above right hand side) Name (sand, silty sand, clay, etc., including portions - trace, little, etc.) Gradation (well-graded, poorly-graded, uniform, etc.) Plasticity (non-plastic, slightly plastic, moderately plastic, highly plastic) Structure (layering, fractures, cracks, etc.) Bonding (well, moderately, loosely, etc., if applicable) Cementation (weak, moderate, or strong, if applicable, ASTM D 2488) Geologic Origin (till, marine clay, alluvium, etc.) Unified Soil Classification Designation Groundwater level</p>				<p>Rock Quality Designation (RQD):</p> <p>RQD = $\frac{\text{sum of the lengths of intact pieces of core}^* > 100 \text{ mm}}{\text{length of core advance}}$</p> <p>*Minimum NQ rock core (1.88 in. OD of core)</p> <p style="text-align: center;">Correlation of RQD to Rock Mass Quality</p> <table border="0"> <tr> <td style="text-align: center;"><u>Rock Mass Quality</u></td> <td style="text-align: center;"><u>RQD</u></td> </tr> <tr> <td>Very Poor</td> <td><25%</td> </tr> <tr> <td>Poor</td> <td>26% - 50%</td> </tr> <tr> <td>Fair</td> <td>51% - 75%</td> </tr> <tr> <td>Good</td> <td>76% - 90%</td> </tr> <tr> <td>Excellent</td> <td>91% - 100%</td> </tr> </table> <p>Desired Rock Observations: (in this order)</p> <p>Color (Munsell color chart) Texture (aphanitic, fine-grained, etc.) Lithology (igneous, sedimentary, metamorphic, etc.) Hardness (very hard, hard, mod. hard, etc.) Weathering (fresh, very slight, slight, moderate, mod. severe, severe, etc.) Geologic discontinuities/jointing: -dip (horiz - 0-5, low angle - 5-35, mod. dipping - 35-55, steep - 55-85, vertical - 85-90) -spacing (very close - <5 cm, close - 5-30 cm, mod. close 30-100 cm, wide - 1-3 m, very wide >3 m) -tightness (tight, open or healed) -infilling (grain size, color, etc.) Formation (Waterville, Ellsworth, Cape Elizabeth, etc.) RQD and correlation to rock mass quality (very poor, poor, etc.) ref: AASHTO Standard Specification for Highway Bridges 17th Ed. Table 4.4.8.1.2A Recovery</p>		<u>Rock Mass Quality</u>	<u>RQD</u>	Very Poor	<25%	Poor	26% - 50%	Fair	51% - 75%	Good	76% - 90%	Excellent	91% - 100%										
<u>Rock Mass Quality</u>	<u>RQD</u>																										
Very Poor	<25%																										
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Good	76% - 90%																										
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<p>Maine Department of Transportation Geotechnical Section Key to Soil and Rock Descriptions and Terms Field Identification Information</p>				<p>Sample Container Labeling Requirements:</p> <table border="0"> <tr> <td>PIN</td> <td>Blow Counts</td> </tr> <tr> <td>Bridge Name / Town</td> <td>Sample Recovery</td> </tr> <tr> <td>Boring Number</td> <td>Date</td> </tr> <tr> <td>Sample Number</td> <td>Personnel Initials</td> </tr> <tr> <td>Sample Depth</td> <td></td> </tr> </table>		PIN	Blow Counts	Bridge Name / Town	Sample Recovery	Boring Number	Date	Sample Number	Personnel Initials	Sample Depth													
PIN	Blow Counts																										
Bridge Name / Town	Sample Recovery																										
Boring Number	Date																										
Sample Number	Personnel Initials																										
Sample Depth																											

Driller: MaineDOT	Elevation (m): 18.16	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/9/05; 08:00-08:45	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+700, 1.6 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/25.4	0.15 - 0.76	83/55/57/33	112		18.02	[Pattern]	PAVEMENT.	-0.14	G#180840 A-1-a, GM WC=1.7%
								[Pattern]	Brown, damp, very dense, sandy GRAVEL, little silt, (Fill).		
	2D	61.0/30.5	0.76 - 1.37	13/34/30/40	64		17.25	[Pattern]	[STRONG ODOR IN 2D]	-0.91	
1.2							17.18	[Pattern]	Penetrated gravel layer.	-0.98	
	3D	61.0/35.6	1.52 - 2.13	4/4/5/7	9	▽	16.79	[Pattern]	Brown, damp, very dense, GRAVEL, little fine to coarse sand, trace silt, (Fill).	-1.37	
							16.33	[Pattern]	Brown, moist, stiff, SILT, trace fine sand.	-1.83	
2.4							16.03	[Pattern]	Similar to above, but brown and green.	-2.13	
									Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL		
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 23.10	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/9/05; 08:55-09:20	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 6+960, 1.7 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D/AB	61.0/25.4	0.15 - 0.76	26/37/25/48	62		22.98		PAVEMENT.	G#180841 A-1-a, GW-GM WC=1.9% G#180842 A-1-b, SM WC=5.0% G#180843 A-1-b, GM WC=6.0%	
							22.93		Penetrated Gravel.		
							22.64		(1D/A) 0.15-0.46 m bgs.		
	2D	61.0/20.3	0.76 - 1.37	17/12/17/21	29		22.34		Brown, damp, very dense, sandy GRAVEL, trace silt, (Fill).		
									(1D/B) 0.46-0.76 m bgs.		
1.2									Brown, damp, very dense, sandy gravel, little silt, (Fill).		
	3D	18.3/5.1	1.52 - 1.71	13/50(30)	---		21.58		Brown, damp, medium dense, GRAVEL, some silty fine to coarse sand, (Fill).		
							21.39				
							21.15		Brown, moist, silty, fine to medium SAND, little gravel.		
2.4							20.66		BOULDER.		
								Brown, damp, sandy SILT, little gravel.			
								Bottom of Exploration at 2.44 m below ground surface. NO REFUSAL			

Remarks:

Driller: MaineDOT	Elevation (m): 28.18	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/9/05; 14:25-14:50	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+500, 2.2 Lt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D/AB	61.0/35.6	0.15 - 0.76	23/34/24/35	58	SSA	28.06		PAVEMENT.		
							27.72		Brown, damp, very dense, sandy GRAVEL, trace silt, (Fill). (1D/A) 0.15-0.46 m bgs.	-0.12	G#180844
							27.42		(1D/B) 0.46-0.76 m bgs.	-0.46	A-1-a, GW-GM
1.2	2D	61.0/22.9	1.07 - 1.68	13/22/19/14	41		27.11		Brown, damp, very dense, fine to coarse SAND, little gravel, little silt, (Fill).		WC=1.8% G#180845
							26.50		BOULDER.	-0.76	A-1-b, SM
	3D	61.0/40.6	1.68 - 2.29	5/6/7/8	13		25.89		Brown, damp, dense, silty fine to medium SAND, some gravel, some silt, (Till).	-1.07	WC=5.2% G#180846
2.4									Similar to above, but moist, medium dense, (Till).	-1.68	A-1-b, SM
									Bottom of Exploration at 2.29 m below ground surface. NO REFUSAL	-2.29	WC=7.7%
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 19.30	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/9/05; 15:50-16:15	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 7+760, 2.1 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/30.5	0.15 - 0.76	22/41/43/27	84	SSA	19.18 19.13		PAVEMENT. Penetrated Gravel.	G#180847 A-1-a, GW-GM WC=2.2%	
							18.57		Brown, damp, very dense, GRAVEL, some fine to coarse sand, little silt (Fill).	G#180848 A-1-a, GM WC=2.9%	
1.2	2D/AB	61.0/27.9	0.76 - 1.37	9/9/5/12	14		18.23		Brown, damp, very dense, fine to coarse SAND, some gravel, little silt, (Fill). (2D/A) 0.76-1.07 m bgs.		
							17.78		(2D/B) 1.01-1.37 m bgs. Brown, moist, medium dense, SILT, little ??		
2.4	3D	61.0/22.9	1.52 - 2.13	3/4/5/5	9		17.17		Brown, moist, loose, silty fine to medium SAND, trace coarse sand, trace gravel.		
									Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 29.30	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/10/05; 14:40-15:10	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 8+160, 2.2 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/35.6	0.15 - 0.76	14/38/27/35	65	SSA	29.13	[Hatched Pattern]	PAVEMENT.		
								[Hatched Pattern]	Brown, damp, very dense, sandy GRAVEL, little silt (Fill).	-0.17	
	2D/AB	30.5/20.3	0.76 - 1.07				28.54	[Dotted Pattern]	(2D/A) 0.76-1.01 m bgs.	-0.76	
1.2							28.29	[Dotted Pattern]	Brown, damp, fine to medium SAND, some silt, little gravel, (Fill).	-1.01	
							28.20	[Dotted Pattern]	(2D/B) 1.01-1.07 m bgs.	-1.01	
	3D	61.0/25.4	1.52 - 2.13	8/9/4/3	13			[Dotted Pattern]	Penetrated Gravel, [STRONG ODOR IN 2D/B].	-1.10	
								[Dotted Pattern]	Brown, damp, medium dense, sandy SILT, little gravel, (Till).	-1.10	
2.4							27.17	[Dotted Pattern]	Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL	-2.13	
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 34.50	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/11/05; 10:20-11:30	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 8+530, 3.8 Lt.	Casing ID/OD: N/A	Water Level*: 3.05 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
0	1D	61.0/35.6	0.15 - 0.76	25/22/19/21	41	SSA	34.38	34.32	PAVEMENT.											
									Penetrated Gravel. Discarded 0.15-0.18 m bgs.	-0.18	A-1-a, GW-GM WC=3.4%									
	2D/AB	61.0/12.7	0.76 - 1.37	3/4/4/9	8		33.74	33.74	Brown, damp, dense, sandy GRAVEL, little silt (Fill).	-0.76	G#180944									
1.2							33.28	33.28	(2D/A) 0.76-1.22 m bgs. Brown, damp, loose, fine to coarse SAND, some gravel, some silt (Fill).	-1.22	A-2-4, SM WC=4.5%									
	3D	61.0/5.1	1.52 - 2.13	9/7/7/6	14		32.21	32.21	(2D/B) 1.22-1.37 m bgs. Brown, moist, medium dense, sandy SILT, trace gravel.											
2.4	4D	61.0/40.6	2.29 - 2.90	3/4/6/9	10		31.45	31.45	Brown and grey, moist, stiff CLAY, some silt, little sand.	-2.29	G#180945									
	MV	0.0/0.0	3.05 - 3.05	Could not Push	-		31.45	31.45	Failed vane attempt.	-3.05	A-6, CL WC=19.9% LL=29 PL=18 PI=11									
3.6	5D	61.0/35.6	3.05 - 3.66	3/4/8/13	12		30.75	30.75	Brown, wet, medium dense, sandy SILT, little gravel, (Till).											
							30.60	30.60	Weathered ROCK.	-3.75										
									Bottom of Exploration at 3.90 m below ground surface. REFUSAL	-3.90										

Remarks:
Left offset limited by overhead wires.

Driller: MaineDOT	Elevation (m): 42.00	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/11/05; 15:30-16:00	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 8+802, 2.6 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/22.9	0.15 - 0.76	8/32/27/23	59	SSA	41.88		PAVEMENT.	G#180946 A-1-b, GM WC=3.0%	
							41.82		Penetrated Gravel. Discarded 0.15-0.18 m bgs.		
							41.24		Damp, very dense, sandy GRAVEL, little silt (Fill).	G#180947 A-1-b, SM WC=2.6%	
	2D/AB	61.0/20.3	0.76 - 1.37	7/9/16/19	25		40.87	(2D/A) 0.76-1.28 m bgs.			
1.2							40.48		Brown, damp, medium dense, fine to coarse SAND, some gravel, little silt, (Fill).		
	3D	61.0/27.9	1.52 - 2.13	8/18/37/30	55		39.87		(2D/B) 1.28-1.37 m bgs.		
2.4									Brown, moist, medium dense, silty fine to medium SAND, little gravel, (Till).		
									Brown, damp, very dense, silty fine to coarse SAND, cobbles, little gravel, (Till).		
									Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL		
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 41.70	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/12/05; 09:30-10:05	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+400, 2.3 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/38.1	0.15 - 0.76	42/43/30/33	73	SSA	41.53		PAVEMENT.	G#180948 A-1-a, GW-GM WC=2.1%	
							41.47		Penetrated Gravel. Discarded 0.15-0.23 m bgs.		
							40.94		Damp, very dense, sandy GRAVEL, trace silt (Fill).		
1.2	2D	61.0/17.8	0.76 - 1.37	10/23/10/9	33		40.94		Brown, moist, dense, silty fine to medium SAND, little gravel, trace coarse sand, (Till).		
							40.18		Similar to above, but medium dense, (Till).		
							39.57				
2.4	3D	61.0/33.0	1.52 - 2.13	5/10/11/10	21						Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL

Remarks:

Driller: MaineDOT	Elevation (m): 38.20	Auger ID/OD: 125 mm
Operator: E. Giguere	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 8/12/05; 11:00-11:20	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: 9+700, 2.1 Rt.	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	61.0/27.9	0.15 - 0.76	14/35/31/17	66	SSA	38.06 38.00		PAVEMENT. Penetrated Gravel. Discarded 0.15-0.20 m bgs.	G#180949 A-1-a, GM WC=2.0%	
1.2	2D/AB	61.0/20.3	0.76 - 1.37	5/10/9/8	19		37.47 37.13		Damp, very dense, sandy GRAVEL, little silt (Fill). Brown, damp, medium dense, fine to coarse sandy GRAVEL, little silt (Fill). (2D/A) 0.76-1.07 m bgs.	G#180950 A-1-a, GW-GM WC=1.4%	
2.4	3D	61.0/45.7	1.52 - 2.13	3/7/12/12	19		36.07		(2D/B) 1.07-1.37 m bgs. Brown, moist, medium dense, sandy SILT, little gravel, (Till).		
Bottom of Exploration at 2.13 m below ground surface. NO REFUSAL											
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 13.60	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: N/A
Date Start/Finish: 12/3/01-12/3/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 6+070, 5.2 RT (FWD 75M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	13.56	[Graphic Log]	PAVEMENT		
							13.17		Brown, dry, sandy GRAVEL, trace silt, (Fill).	-0.04	
							12.78		Brown, dry, silty fine to coarse SAND, some gravel.	-0.43	
1.2									Brown, damp, silty fine to medium SAND.	-0.82	
							12.08		Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	-1.52	
2.4											
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 17.18	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/3/01-12/3/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 6+195, 2.2 RT (FWD 200M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	12.7/7.6	0.15 - 0.28	50	+50	SSA SPOON	17.06		PAVEMENT		
							16.90		Treated GRAVEL.		
	2D/AB	61.0/27.9	0.46 - 1.07	27/35/22/6	+50				Brown, dry, sandy GRAVEL, trace silt, (Fill). (A) 0.46-0.94 m		G #128451 A-1-a, GM WC=2.8%
							16.23		Brown, damp, silty fine to medium SAND, trace gravel, (Fill).		
1.2	3D	61.0/43.2	1.07 - 1.68	3/4/3/6	7		16.05		(B) 0.94-1.07 m		G #128391 A-4, CL-ML WC=25.9%
							15.50		Brown, mottled, damp, SILT, trace clay.		
									Bottom of Exploration at 1.68 m below ground surface. NO REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 18.80	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/3/01-12/3/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 6+395, 2.3 RT (FWD 400M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D/AB	61.0/30.5	0.15 - 0.76	67/35/33/22	+50	SSA SPOON	18.67 18.56		PAVEMENT Treated GRAVEL (A) 0.15-0.24 m	-0.13	G #128392 A-1-b, GM WC=4.1%
1.2	2D/AB	61.0/33.0	0.76 - 1.37	14/8/6/7	14		17.95		Brown, dry, sandy GRAVEL, trace silt, (Fill). (B) 0.24-0.76 m (A) 0.76-0.85 m	-0.24	G #128393 A-4, ML WC=18.2%
							17.43		Brown-gray, dry, mottled, sandy SILT. (B) 0.85-1.37 m	-0.85	
2.4									Bottom of Exploration at 1.37 m below ground surface. NO REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 27.60	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/3/01-12/3/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 7+095, 2.2 RT (FWD 1100M)	Casing ID/OD: N/A	Water Level*: WATER @ 1.16 m.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	1D	20.3/7.6	0.15 - 0.36	37/50	+50	SSA SPOON	27.47		PAVEMENT		
	2D	61.0/38.1	0.46 - 1.07	14/16/20/17	36		27.20		Penetrated GRAVEL.	-0.13	
									Brown, dry, fine to coarse SAND, some gravel, little silt.	-0.40	
1.2	3D/AB	51.3/17.8	1.07 - 1.58	12/13/17/50	30		26.44		(A) 1.07-1.55 m	-1.16	
							26.05		Brown, wet, sandy GRAVEL, little silt.	-1.55	
							26.01		Weathered ROCK.	-1.58	
									(B) 1.55-1.58 m	-1.58	
2.4									Bottom of Exploration at 1.58 m below ground surface. REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 23.14	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: N/A
Date Start/Finish: 12/3/01-12/3/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 7+895, 3.0 RT (FWD 1900M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	22.87		Brown, dry, sandy GRAVEL, trace silt, (Fill).		
									Brown and gray, dry, mottled, clayey SILT.	-0.27	
1.2						▽	21.62				
									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	-1.52	
2.4											
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 15

Location: Orrington, Maine

Boring No.: HB-ORRI-107

PIN: 9204.00

Driller: MaineDOT	Elevation (m): 38.40	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: N/A
Date Start/Finish: 12/4/01-12/4/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 8+395, 2.1 RT (FWD2400M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions:

D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
R = Rock Core Sample
V = Insitu Vane Shear Test
SSA = Solid Stem Auger

Definitions:

S_u = Insitu Field Vane Shear Strength (kPa)
T_v = Pocket Torvane Shear Strength (kPa)
q_p = Unconfined Compressive Strength (Pa)
S_u(lab) = Lab Vane Shear Strength (kPa)
WOH = weight of 64 kg hammer
WOR = weight of rods

Definitions:

WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	38.24		PAVEMENT		
							38.15		Penetrated GRAVEL.	-0.16	
							37.91		Brown, dry, sandy GRAVEL, trace silt, (Fill).	-0.24	
									Brown, dry, sandy SILT, some gravel, (Till).	-0.49	
1.2							37.21		Weathered ROCK.	-1.19	
							37.00		Bottom of Exploration at 1.40 m below ground surface.	-1.40	
									REFUSAL		
2.4											
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Driller: MaineDOT	Elevation (m): 39.30	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/4/01-12/4/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 9+095, 2.5 RT (FWD 3100M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA	39.15		PAVEMENT	
	1D	61.0/27.9	0.30 - 0.91	27/21/19/12	40	SPOON	39.06	Penetrated GRAVEL.			
								38.48		Brown, dry, sandy GRAVEL, trace silt, (Fill).	
1.2	2D/AB	61.0/20.3	0.91 - 1.52	9/6/4/5	10		38.23	Gray, dry, silty fine SAND. (A) 0.91-1.07 m			
							37.78	Brown and gray, mottled, dry, clayey SILT, trace fine sand. (B) 1.07-1.52 m			
										Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	
2.4											
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 39.30	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: N/A
Date Start/Finish: 12/4/01-12/4/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 9+095, 3.9 RT (FWD 3100M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	38.97		Brown, dry, sandy GRAVEL, trace silt, (Fill).	-0.34	
							38.33		Brown, dry, silty fine SAND.	-0.98	
1.2						↙	37.78		Brown and gray, mottled, dry, clayey SILT, trace fine sand.	-1.52	
2.4									Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 36.70	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/4/01-12/4/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 9+845, 2.8 RT (FWD 3850M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0							36.53	SSA		PAVEMENT	
	1D	61.0/25.4	0.30 - 0.91	22/27/13/8	40	SPOON	36.46	[Pattern]		Penetrated GRAVEL.	G #128398 A-1-a, GM WC=3.2%
							35.94	[Pattern]		Brown, dry, sandy GRAVEL, trace silt, (Fill).	
1.2	2D/AB	61.0/20.3	0.91 - 1.52	4/6/7/11	13		35.94	[Pattern]		Brown, mottled, damp, sandy SILT, trace clay. (A) 0.91-1.46 m	G #128399 A-4, CL-ML WC=15.2%
							35.24	[Pattern]			
							35.18	[Pattern]		Brown dry, clayey SILT, sandy SILT, some gravel, (Till). (B) 1.46-1.52 m	
2.4										Bottom of Exploration at 1.52 m below ground surface. NO REFUSAL	
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Driller: MaineDOT	Elevation (m): 41.30	Auger ID/OD: 100 mm
Operator: C.Mann	Datum: NAVD 88	Sampler: Standard Split Spoon
Logged By: G.Lidstone	Rig Type: CME-45C	Hammer Wt./Fall: 63.5 kg/760 mm
Date Start/Finish: 12/4/01-12/4/01	Drilling Method: Solid Stem Auger	Core Barrel: N/A
Boring Location: STA 10+295, 2.3 RT (FWD 4300M)	Casing ID/OD: N/A	Water Level*: None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	ID/AB	61.0/22.9	0.00 - 0.61	11/15/23/27	38	SPOON	40.97		Brown, dry, sandy GRAVEL, trace silt, (Fill). (A) 0.0-0.34 m	G #128450 A-1-b, SM WC=7.2%	
						SSA			Brown, dry, dense sandy SILT, some gravel, (Till). (B) 0.34-0.61 m		
1.2							39.72		Weathered ROCK.		
2.4							39.53		Bottom of Exploration at 1.77 m below ground surface. REFUSAL		
3.6											
4.8											
6.0											
7.2											
8.4											

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 15

Location: Orrington, Maine

Boring No.: PC-1

PIN: 9204.00

Driller: MaineDOT	Elevation (m): 18.10	Auger ID/OD: N/A
Operator: E. Giguere	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: N/A	Hammer Wt./Fall: N/A
Date Start/Finish: 8/9/05	Drilling Method: Hand Held Core Machine	Core Barrel: N/A
Boring Location: 6+697.5, 1.1 Rt.	Casing ID/OD: N/A	Water Level*: N/A

Definitions:
 D = Split Spoon Sample
 MD = Unsuccessful Split Spoon Sample attempt
 U = Thin Wall Tube Sample
 R = Rock Core Sample
 V = Insitu Vane Shear Test
 SSA = Solid Stem Auger

Definitions:
 S_u = Insitu Field Vane Shear Strength (kPa)
 T_v = Pocket Torvane Shear Strength (kPa)
 q_p = Unconfined Compressive Strength (Pa)
 S_u(lab) = Lab Vane Shear Strength (kPa)
 WOH = weight of 64 kg hammer
 WOR = weight of rods

Definitions:
 WC = water content, percent
 LL = Liquid Limit
 PL = Plastic Limit
 PI = Plasticity Index
 G = Grain Size Analysis
 C = Consolidation Test

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0	PC-1	13.7/13.7	0.00 - 0.14					17.96		PAVEMENT, Pavement Core Taken.		
1.2												
2.4												
3.6												
4.8												
6												
7.2												
8.4												

Remarks:

Driller: MaineDOT	Elevation (m): 28.20	Auger ID/OD: N/A
Operator: E. Giguere	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: N/A	Hammer Wt./Fall: N/A
Date Start/Finish: 8/9/05	Drilling Method: Hand Held Core Machine	Core Barrel: N/A
Boring Location: 7+498, 2.0 Lt.	Casing ID/OD: N/A	Water Level*: N/A

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.	
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log				
0	PC-2	12.2/12.2	0.00 - 0.12			PC	28.08			-0.12	PAVEMENT, Pavement Core taken. Bottom of Exploration at 0.12 m below ground surface.	
1.2												
2.4												
3.6												
4.8												
6												
7.2												
8.4												

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 15

Location: Orrington, Maine

Boring No.: PC-3

PIN: 9204.00

Driller: MaineDOT	Elevation (m): 29.30	Auger ID/OD: N/A
Operator: E. Giguere	Datum: NAVD 88	Sampler: N/A
Logged By: G.Lidstone	Rig Type: N/A	Hammer Wt./Fall: N/A
Date Start/Finish: 8/10/05	Drilling Method: Hand Held Core Machine	Core Barrel: N/A
Boring Location: 8+158, 1.8 Rt.	Casing ID/OD: N/A	Water Level*: N/A

Definitions:
 D = Split Spoon Sample
 MD = Unsuccessful Split Spoon Sample attempt
 U = Thin Wall Tube Sample
 R = Rock Core Sample
 V = Insitu Vane Shear Test
 SSA = Solid Stem Auger

Definitions:
 S_u = Insitu Field Vane Shear Strength (kPa)
 T_v = Pocket Torvane Shear Strength (kPa)
 q_p = Unconfined Compressive Strength (Pa)
 S_u(lab) = Lab Vane Shear Strength (kPa)
 WOH = weight of 64 kg hammer
 WOR = weight of rods

Definitions:
 WC = water content, percent
 LL = Liquid Limit
 PL = Plastic Limit
 PI = Plasticity Index
 G = Grain Size Analysis
 C = Consolidation Test

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0	PC-3	16.8/16.8	0.00 - 0.17					29.13		PAVEMENT, Pavement Core taken.		
										Bottom of Exploration at 0.17 m below ground surface.		
1.2												
2.4												
3.6												
4.8												
6												
7.2												
8.4												

Remarks:

Maine Department of Transportation

Soil/Rock Exploration Log
METRIC UNITS

Project: Route 15

Location: Orrington, Maine

Boring No.: PC-4

PIN: 9204.00

Driller:	MaineDOT	Elevation (m):	41.70	Auger ID/OD:	N/A
Operator:	E. Giguere	Datum:	NAVD 88	Sampler:	N/A
Logged By:	G.Lidstone	Rig Type:	N/A	Hammer Wt./Fall:	N/A
Date Start/Finish:	8/12/05	Drilling Method:	Hand Held Core Machine	Core Barrel:	N/A
Boring Location:	9+398, 1.9 Rt.	Casing ID/OD:	N/A	Water Level*:	N/A

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S _u = Insitu Field Vane Shear Strength (kPa) T _v = Pocket Torvane Shear Strength (kPa) q _p = Unconfined Compressive Strength (Pa) S _u (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0	PC-4	16.8/16.8	0.00 - 0.17				41.53			PAVEMENT, Pavement Core taken.	
										Bottom of Exploration at 0.17 m below ground surface.	
1.2											
2.4											
3.6											
4.8											
6											
7.2											
8.4											

Remarks:

State of Maine - Department of Transportation
Power Auger Probe Summary Sheet

Town(s): Orrington

Project Number: 9204.00

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments Date:8/9/05-8/12/05, 8/15/05
7+020	3.9 Lt.			2.29		Some original field boring logs
7+020	3.8 Rt.			2.29		offsets have been changed
7+040	3.8 Lt.	1.01	1.13			to reflect existing roadway CL
7+040	3.6 Rt.	2.04	2.13			to Proposed CL.
7+060	3.9 Lt.	0.88	1.01			
7+060	3.7 Rt.	0.46	0.98			
7+080	3.9 Lt.	0.94	1.04			
7+080	3.9 Rt.	0.82	1.07			
7+100	4.2 Lt.	0.94	1.22			
7+100	3.4 Rt.	1.04	1.25			
7+120	4.0 Lt.	1.43	1.52			
7+120	3.4 Rt.	1.16	1.83			
7+140	3.0 Lt.	1.25	1.37			
7+140	3.7 Rt.	1.65	1.89			
7+160	3.6 Lt.	1.25	1.68			
7+160	3.4 Rt.			2.29		
7+180	3.6 Lt.	1.28	1.52			
7+180	3.7 Rt.			2.29		
7+200	3.6 Lt.	1.22	1.28			
7+400	4.1 Lt.			2.29		
7+420	3.3 Lt.			2.29		
7+440	3.5 Lt.			2.29		
7+460	3.5 Lt.			2.29		
7+520	3.9 Lt.			2.29		
7+540	3.4 Lt.			2.29		
7+560	3.2 Lt.			2.29		
7+580	3.0 Lt.			2.29		
7+600	2.6 Lt.			2.29		
7+780	2.6 Lt.			2.29		
7+780	3.8 Rt.			2.29		
7+800	2.9 Lt.			2.29		
7+800	3.2 Rt.			2.29		
7+820	3.2 Lt.			2.29		
7+820	3.2 Rt.			2.29		
7+836	3.5 Lt.			2.29		
7+840	3.3 Rt.			2.29		
7+860	3.6 Lt.			2.29		
7+860	3.7 Rt.			2.29		
7+880	4.1 Lt.			2.29		
7+880	2.9 Rt.			2.29		
7+900	3.5 Rt.			2.29		
7+920	3.6 Lt.			2.29		
7+920	5.0 Rt.	1.22	1.31			
7+940	3.4 Lt.			2.29		
7+940	3.9 Rt.			2.29		
7+960	3.4 Lt.		1.52			
7+960	3.5 Rt.	1.34	2.07			
7+980	3.4 Lt.			2.29		
7+980	3.3 Rt.	2.07	2.26			

State of Maine - Department of Transportation
Power Auger Probe Summary Sheet

Town(s): Orrington

Project Number: 9204.00

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments Date:8/9/05-8/12/05, 8/15/05
8+000	3.6 Lt.			2.29		Some original field boring logs
8+000	3.3 Rt.			2.29		offsets have been changed
8+020	3.2 Lt.			2.29		to reflect existing roadway CL
8+020	4.0 Rt.			2.29		to Proposed CL.
8+040	3.2 Lt.			2.29		
8+040	4.0 Rt.			2.29		
8+060	3.4 Lt.			2.29		
8+060	4.1 Rt.			2.29		
8+080	3.0 Lt.			2.29		
8+080	4.0 Rt.			2.29		
8+360	5.4 Lt.			2.29		
8+360	3.6 Rt.			2.29		
8+380	3.3 Rt.			2.29		
8+382	4.3 Lt.	1.74	1.89			
8+400	4.0 Rt.	1.55	1.83			
8+401	3.9 Lt.	1.28	1.55			
8+420	3.6 Lt.	1.13	1.34			
8+420	3.9 Rt.	1.04	1.40			
8+440	3.9 Lt.	1.86	2.26			
8+440	3.3 Rt.			2.29		
8+460	4.2 Lt.	1.98	2.29			
8+480	4.2 Lt.			2.29		
8+720	4.0 Rt.			2.29		Dense Till w/cobbles
8+758	3.9 Rt.			2.29		Dense Till w/cobbles
8+800	4.2 Rt.			2.29		
8+840	4.4 Rt.			2.29		
8+860	3.9 Rt.			2.29		
8+880	4.2 Rt.	1.25	2.01			
8+900	4.2 Rt.	1.71	2.26			
8+920	4.1 Rt.	1.31	2.29			
8+942	3.6 Rt.	1.77	2.29			
8+960	3.9 Rt.	1.07	2.29			
8+980	3.7 Rt.	2.07	2.29			
9+000	3.8 Rt.	1.89	2.16			
9+020	3.9 Rt.			2.29		
9+038	3.3 Rt.			2.29		
9+140	4.2 Rt.			2.29		
9+180	4.0 Rt.			2.29		
9+200	2.6 Rt.	1.77	1.95			
9+218	3.4 Rt.	1.77	2.19			
9+240	3.7 Rt.			2.29		
9+260	3.5 Rt.			2.29		
9+300	3.5 Rt.			2.29		
9+340	2.8 Rt.			2.29		
9+360	2.8 Rt.			2.29		
9+380	2.7 Rt.	1.58	1.83			
9+420	3.1 Rt.			2.29		
9+460	3.4 Rt.			2.29		
9+500	3.0 Rt.			2.29		

State of Maine - Department of Transportation
Power Auger Probe Summary Sheet

Town(s): Orrington

Project Number: 9204.00

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments Date:8/9/05-8/12/05, 8/15/05
9+540	3.2 Rt.			2.29		Some original field boring logs offsets have been changed
9+580	2.7 Rt.			2.29		
9+660	2.8 Rt.			2.29		to reflect existing roadway CL to Proposed CL.
9+740	3.5 Rt.			2.29		
9+900	3.0 Lt.			2.29		
9+900	4.0 Rt.			2.29		
9+940	3.4 Lt.			2.29		
9+941	3.6 Rt.			2.29		
9+958	4.8 Lt.			2.29		
9+980	3.6 Lt.	1.25	1.37			
9+980	2.9 Rt.			2.29		
10+000	3.4 Lt.			2.29		
10+020	3.0 Lt.			2.29		
10+020	3.4 Rt.			2.29		
10+060	3.2 Lt.			2.29		
10+060	3.8 Rt.			2.29		
10+080	3.8 Rt.			2.29		
10+098	9.1 Lt.			2.29		
10+100	3.9 Rt.	2.19	2.29			
10+120	3.5 Rt.			2.29		
10+140	3.8 Lt.			2.29		
10+140	3.4 Rt.			2.29		
10+180	4.7 Lt.			2.29		
10+180	2.3 Rt.			2.29		
10+200	1.7 Rt.	1.65	1.86			
10+220	6.2 Lt.			2.29		
10+220	1.3 Rt.	1.25	1.37			
10+240	6.9 Lt.	1.65	1.74			
10+240	1.5 Rt.	0.88	1.25			
10+260	5.9 Lt.	1.34	1.52			
10+260	1.5 Rt.	2.38	2.87			
10+280	6.4 Lt.	1.16	1.37			
10+280	1.8 Rt.	1.25	1.37			
10+300	5.9 Lt.	0.98	1.10			
10+300	2.1 Rt.	1.04	1.46			
10+320	5.1 Lt.	1.28	1.40			
10+320	2.7 Rt.	2.23	2.38			
10+340	4.3 Lt.	1.31	1.37			
10+340	3.0 Rt.	1.37	1.46			
10+360	4.1 Lt.	1.16	1.25			
10+360	3.1 Rt.	1.34	1.46			
10+380	4.2 Lt.	1.25	1.43			
10+380	3.3 Rt.	1.04	1.25			
10+400	4.3 Lt.			3.05		
10+400	3.0 Rt.	0.88	1.07			
10+420	4.2 Lt.			3.05		
10+420	3.1 Rt.	1.40	1.52			
10+440	4.3 Lt.	1.92	2.04			
10+440	4.5 Rt.			3.05		
10+460	5.3 Lt.	2.38	2.50			
10+460	5.7 Rt.			3.05		

Dec. 11, 2001

**Office of Program Services
Falling Weight Deflectometer (FWD)
Summary Sheet**

Project #: 9204.00
Town(s): Orrington
Route(s): 15
Requested By: Carol Rizzo
Direction of Testing: North

Of FWD tests: 47
Design Life: 20 Years
Initial Serviceability: 4.5
Reliability Level: 95%

Of Power Augers/Spoons: 4/9
Future 18-kip ESALs (Design Life): 3,314,200
Terminal Serviceability: 2.5
Overall Standard Deviation: 0.45

Locations

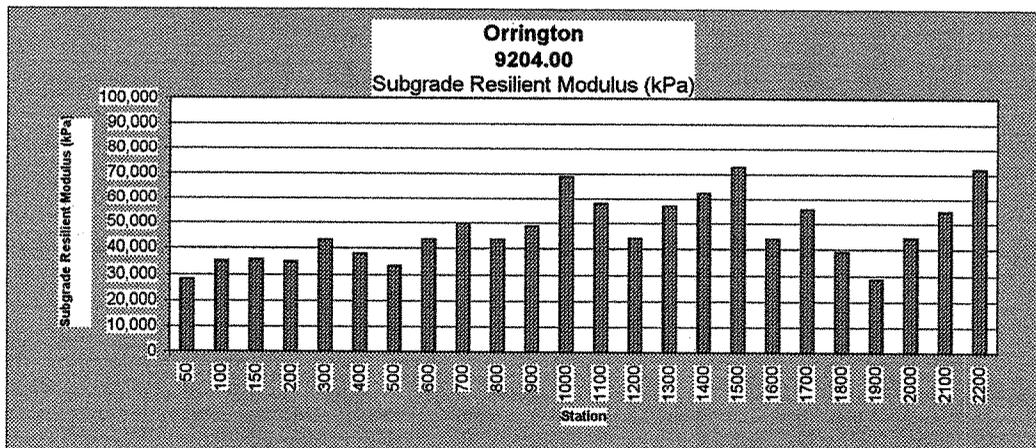
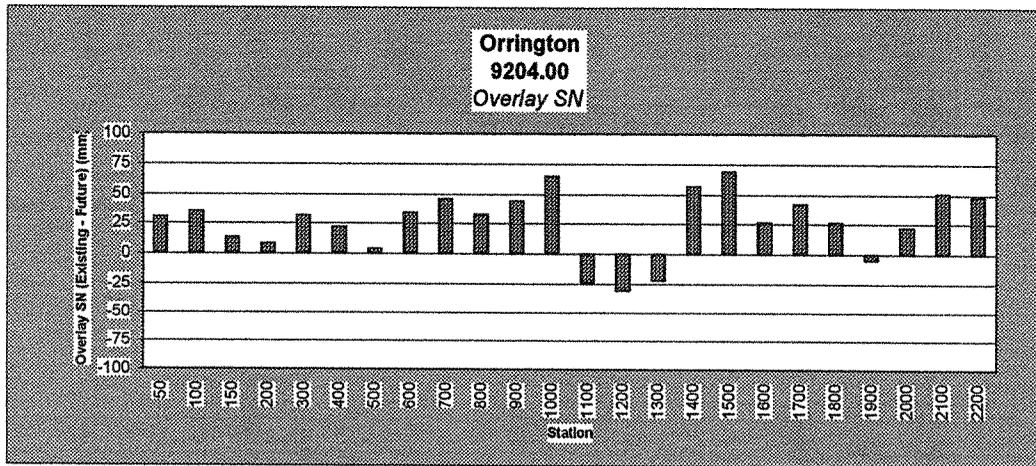
<u>Distance (Meters)</u>	<u>Description</u>
0	Begin - RR Tracks
2,021	Nickerson Rd.
3,300	Center Drive
4,122	Industrial Way
4,500	Project Ended
4,779	Pavement Change
4,814	RR Tracks

Comments:

Orrington
9204 00
Route #15

Station (Meters)	Existing Structural Number (mm)	Future Traffic Structural Number (mm)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (mm)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
50	162	132	30	-	700,570	28,170	120	760
100	158	123	35	-	644,314	35,248	120	760
150	135	122	13	-	401,413	35,680	120	760
200	131	123	8	-	371,235	34,868	120	760
300	146	115	31	-	517,178	43,140	130	760
400	142	120	22	-	474,794	37,634	130	760
500	129	125	4	-	357,671	33,460	130	760
600	149	115	34	-	545,140	43,301	130	760
700	156	110	46	-	631,143	49,712	130	760
800	147	115	32	-	523,690	43,363	130	760
900	155	111	44	-	616,187	48,749	130	760
1000	163	98	65	-	708,877	68,984	130	760
1100	80	104	-24	55	585,275	58,060	130	400
1200	84	115	-31	70	680,813	43,868	130	400
1300	83	105	-22	60	651,259	56,801	130	400
1400	159	102	57	-	662,076	62,208	160	760
1500	165	96	69	-	742,365	72,697	160	760
1600	140	114	26	-	449,547	43,928	160	760
1700	148	106	42	-	529,129	55,592	160	760
1800	145	119	26	-	498,655	39,077	160	760
1900	126	131	-5	11	329,923	28,727	160	760
2000	136	114	22	-	417,788	44,363	160	760
2100	157	106	51	-	638,216	54,839	160	760
2200	145	97	48	-	505,747	71,931	160	760

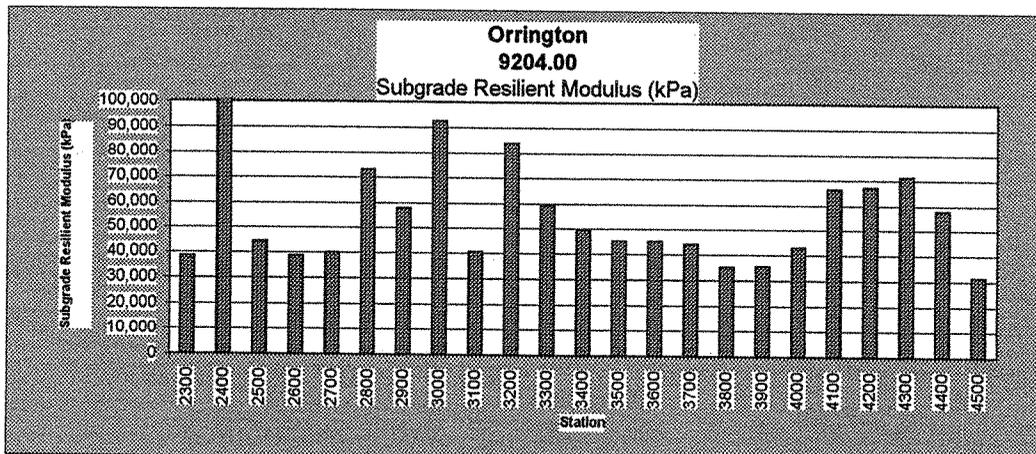
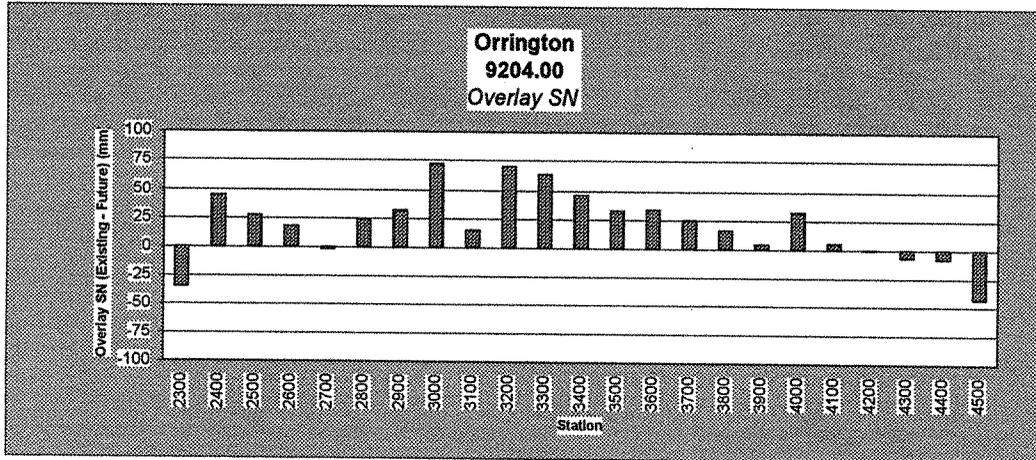
* For actual Gravel Depths, see attached logdraft forms



**Orrington
9204.00
Route #15**

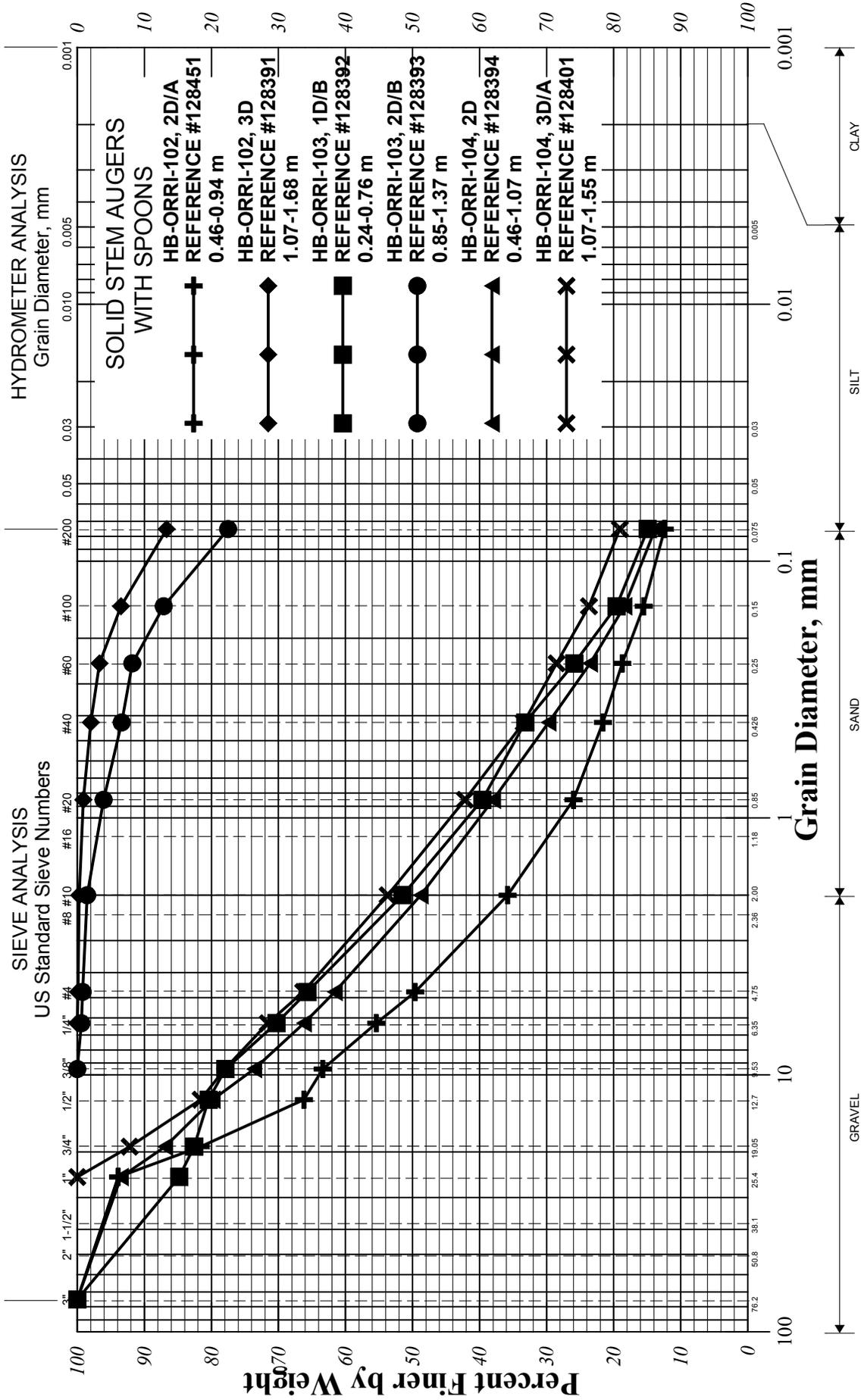
Station (Meters)	Existing Structural Number (mm)	Future Traffic Structural Number (mm)	Overlay Structural Number (Existing - Future)	Recommended Pavement Thickness (mm)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
2300	84	119	-35	80	365,946	38,577	160	490
2400	118	73	45	-	1,020,082	156,411	160	490
2500	141	114	27	-	587,987	44,376	170	700
2600	137	119	18	-	537,445	38,615	170	700
2700	116	118	-2	5	330,199	39,899	170	700
2800	120	96	24	-	366,351	73,007	170	700
2900	136	104	32	-	525,032	58,032	170	700
3000	160	88	72	-	669,148	92,917	150	760
3100	133	118	15	-	390,465	40,437	150	760
3200	162	92	70	-	696,238	83,895	150	760
3300	167	103	64	-	766,202	59,753	150	760
3400	156	110	46	-	620,832	49,360	150	760
3500	146	113	33	-	516,558	45,184	150	760
3600	147	113	34	-	520,285	45,175	170	760
3700	139	114	25	-	438,261	44,207	170	760
3800	139	123	16	-	443,808	35,032	170	760
3900	127	123	4	-	334,429	35,417	170	760
4000	147	115	32	-	527,946	42,936	170	760
4100	104	99	5	-	578,829	66,480	170	520
4200	98	99	-1	2	477,523	67,182	170	520
4300	90	97	-7	16	379,484	71,178	170	520
4400	96	104	-8	18	450,614	57,918	170	520
4500	85	128	-43	88	318,761	31,378	170	520

* For actual Gravel Depths, see attached logdraft forms



Appendix D
Lab Test Data
Lab Testing Summary Sheets
Grain Size Curves

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE

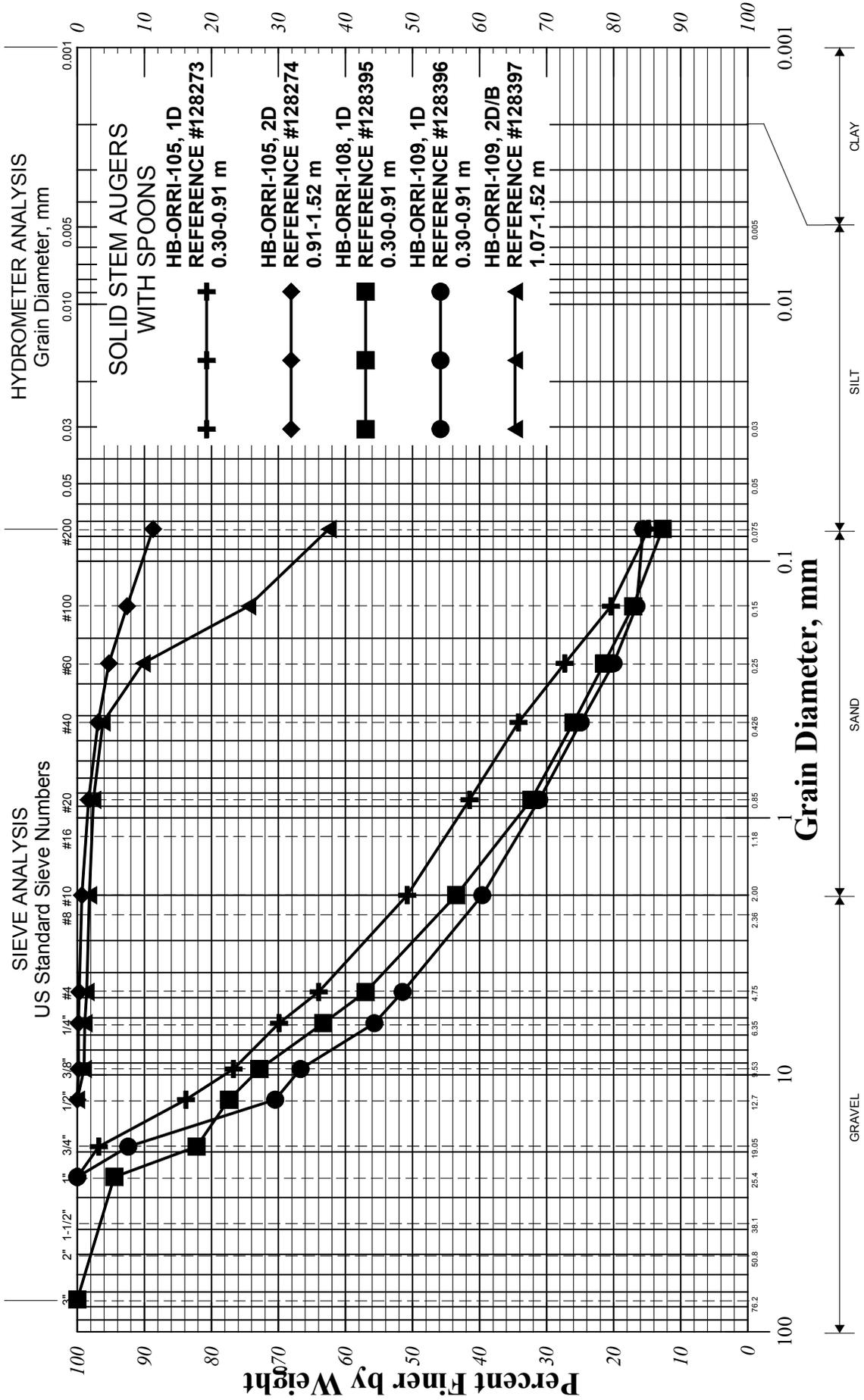


PIN: 9204.00
Town: Orrington

Reported by: T.White
Date: 12/19/01

AASHTO CLASSIFICATION

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



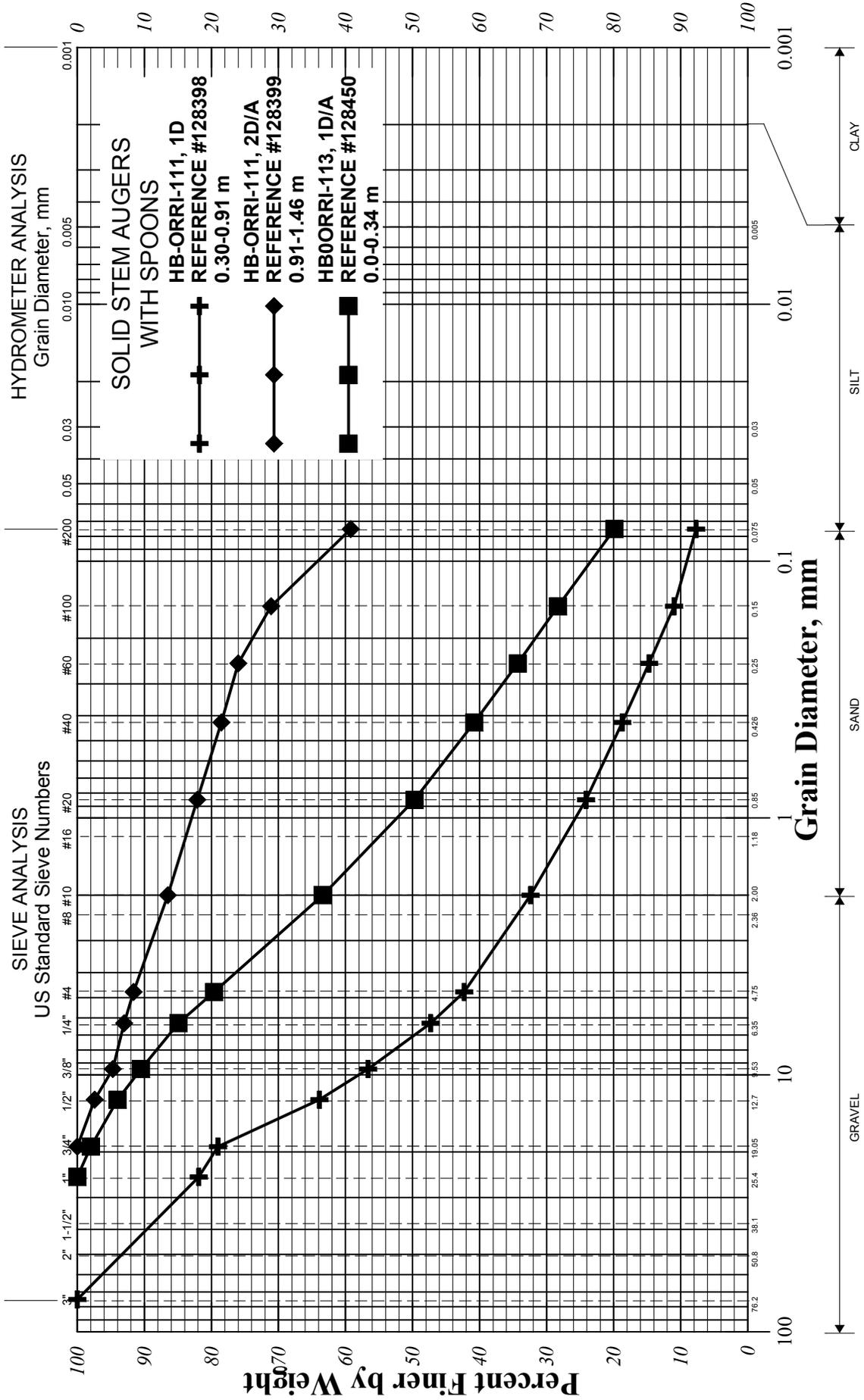
AASHTO CLASSIFICATION

Reported by: T.White
Date: 12/19/01

PIN: 9204.00
Town: Orrington

Percent Retained by Weight

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



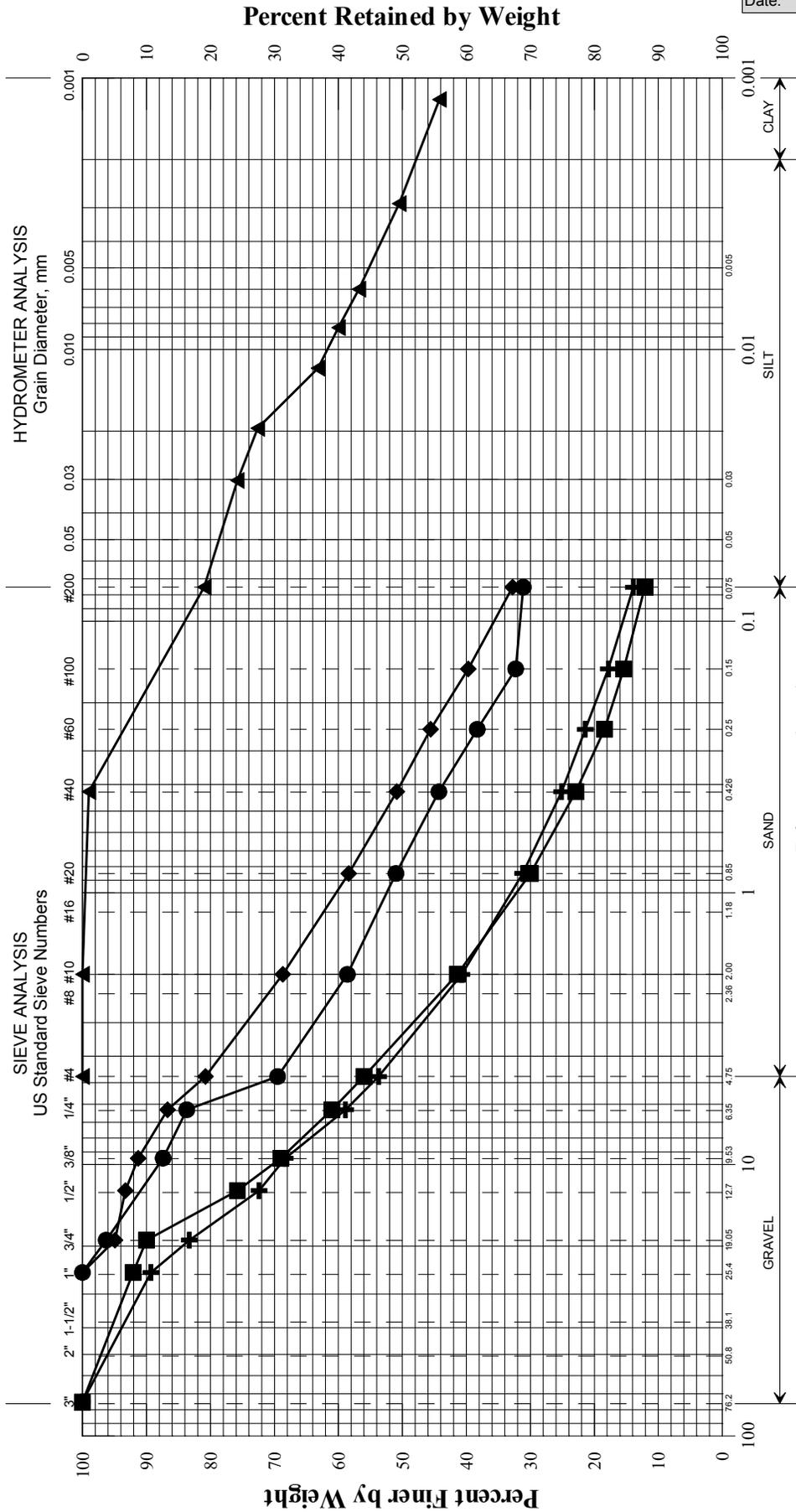
PIN: 9204.00
Town: Orrington

Reported by: T.White
Date: 12/19/01

AASHTO CLASSIFICATION

PIN:	009204.00
Town:	Orrington
Reported by:	WHITE, TERRY A
Date:	10/24/2005

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



Diameter (mm)
- Unified Classification -

Boring/Sample No.	Station	Offset, m	Depth, m	Description	W, %	LL	PL	PI
+ HB-ORR-205/1D	8+160	2.2 RT	0.15-0.76	Sandy GRAVEL, little silt.	3.0			
◆ HB-ORR-205/2D(A)	8+160	2.2 RT	0.76-1.01	SAND, some silt, little gravel.	7.1			
■ HB-ORR-206/1D	8+530	3.8 LT	0.15-0.76	Sandy GRAVEL, little silt.	3.4			
● HB-ORR-206/2D(A)	8+530	3.8 LT	0.76-1.22	SAND, some gravel, some silt.	4.5			
▲ HB-ORR-206/4D	8+530	3.8 LT	2.29-2.9	CLAY, some silt, little sand.	19.9	29	18	11

