



DELUSION  
CRESENT  
ANNAPOLIS COUNTY  
NOVA SCOTIA

PLAN FOR  
PROPOSED  
SUBDIVISION  
—  
APRIL 2017

DRAFTED BY  
**NOAH MC LAUGHLIN**

THIS PLAN IS PRODUCED AS A PORTION  
OF THE REQUIREMENTS OF THE COMMUNITY  
AND ENVIRONMENTAL PLANNING PROGRAM  
COURSE COEP3020 AT THE CENTRE OF  
GEOGRAPHIC SCIENCES, NSCC,  
LAWRENCETOWN, NOVA SCOTIA.

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# PLAN CONTENTS 2017

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A CIVIL 3D PROJECT

## DRAWING 1 ROAD ALIGNMENT

As the first drawing in the series, the first step in this series was importing the necessary 1:10,000 DXF files (NSGC) that make up our base data. Once the base data is set the next step is creating a site named Delusion Park. This is done by first creating a new site in the Prospector tab. Secondly we need to create a surface for our point elevations. Again in the Prospector tab, on the surface node we created a TIN surface and named it Existing Ground. Now in the definition node in our Existing Ground surface the point file is added (ENZ comma delimited file). Resulting point symbols are removed by turning of points in the surface style.

Now that the base data is set we can begin to create our road alignment. In the surface properties we changed the surface styles to visualize the best areas to create an access road. Position of the road was decided by several criteria. 1. The road had to 2 access points from the existing Delusion road. 2. Avoid areas of steep incline. 3. Result in equal area on either side of the road for evenly size parcels. From these criteria, a polyline was created (no arcs). Once the polyline road is created we can create an Centerline Alignment from Objects. The resulting proposed alignment was a was named Delusion Crescent, and was created on the Delusion Park site. Curves were added between tangents and are calculated for the speed of the road (See bylaws). The alignment was created for a 50km/h design speed. Next, red PC (point of Curve), Mid (Mid-Point of Curve) and PT (Point of Tangency) labels were placed on resulting curves of the alignment. Finally Multiple Segment Alignment labels were added and turned into tags to be shown in a table format.

## DRAWING 2 ROAD PROFILE

In drawing 2 we are displaying a created road centre line in relation to the Existing Ground surface. When drafting the centre line the idea is to create the smoothest line as possible with slopes that are less than the maximum if 4%. Aswell, the slopes approachig the Delusion Road intersection should not exceed 2% for atleast 15m from the shoulder of Delusion Road. The centreline is also designed to avoid as much dirt digging (cut) and dumping (fill) required to construct the road. If the road was built, using this profile we can see if or where the ground needs to be dug out for construction of the road if the centrelne line (blue) is below the Existing Ground line (red). Or if the fill needs to be placed to build the road on if the alignment line is above the Existing Ground line. From this profile view we can also see the slope of the proposed road aswell as its depth.

The resulting profile graph was created using the Create Surface Profile tool. With Delusion Crescent selected as the alignment and Existing Ground as the surface a profile is created, displaying our Existing Ground. The profile was then modified to display the necessary data. In the profile style options, the vertical scale is set to 125, a horizontal scale of 125 aswell as a vrtial exaggeration of 10. Now that the profile is built the road centre line is designed following the criteria stated above.

For the purpose of this plan book the full profile has been divided in 3 and only the first portion of the road profile is displayed. In the drawing the plan view is scaled and rotated so the alignment segment lines up with the profile.

## DRAWING 3 ROAD CORRIDOR

From the road corridor we can see how much cut and fill is required in the construction of the proposed Delusion Crescent Road. Areas of cut are displayed in red and areas of fill are displayed in green. The direction of the small green and red arrows signify downward slope.

The corridor was made using the Create Corridor tool and is established by using elevation data of our Existing Ground Surface. This is done in order for the corridor tool to create a realistic simulation of the road. The corridor is the composition of many pieces. It includes the area for the actual road, sidewalks, ditches and daylights on either side of the road. In the accompanying drawing, a detailed cross section of the corridor can be viewed along with the materials used in the construction of the corridor.

## DRAWING 4 PARCELS

Delusion Crescent subdivision parcels were created using the Create Parcels from Object tool. To begin this drawing only the road alignment, parcel boundary and the stream that runs through the middle of alignment is turned on.

In the Create Parcels tool window the Delusion Parcel was selected, Delusion Park is set as the site. Single Family is the Parcel Style, and the area label style is set to Parcel Number. With the stream acting as a dividing line, first 4 large parcels were created on either sides of the road alignment and stream buffer. Parcels were also created in the 2 segments of the stream buffer divided by the alignment aswell as another 2 parcels split down the centre of the alignment. Once all the primary parcels were established, Single Family parcels were subdivided evenly from the 4 large parcels and are numbered from 1 to 25.

All parcel segments are labelled with bearing over distance. Curves are labelled by delta over length and radius. All the ends of line segments are indicated with an iron pipe node. Labels for segments that did not neatly fit in the plan view can be viewed on the accpanying table.

## DRAWING 5 RAIN GARDEN

To collect runoff overflow, a rain garden was created to prevent potential flodding. A rain garden helps soak up and filter stormwater runoff from roofs, driveways, streets and other hard surfaces.

The proposed rain garden for the Delusion Park Subdivision was built as a 20 x 15 m rectangle. It has an inner (berm) and outer portion with an average slope of -2% on the outer and -50% on the inner. To build the garden, first grading criteria was set where relative elevation is was set to -1.5 m and a slope projection of 2:1. The rain garden grading was then applied using the Grading Creation tools. Next more grading was added outside the berm using a fill and cut slope projection of 4:1. On the plot; green areas represent areas of fill and red areas represent areas of cut.

### The resulting rain garden values

Volume Cut: 0.09 Cubic Metres  
Volume Fill: 1737.81 Cubic Metres  
Volume Total: 1737.72 Cubic Metres (Fill)

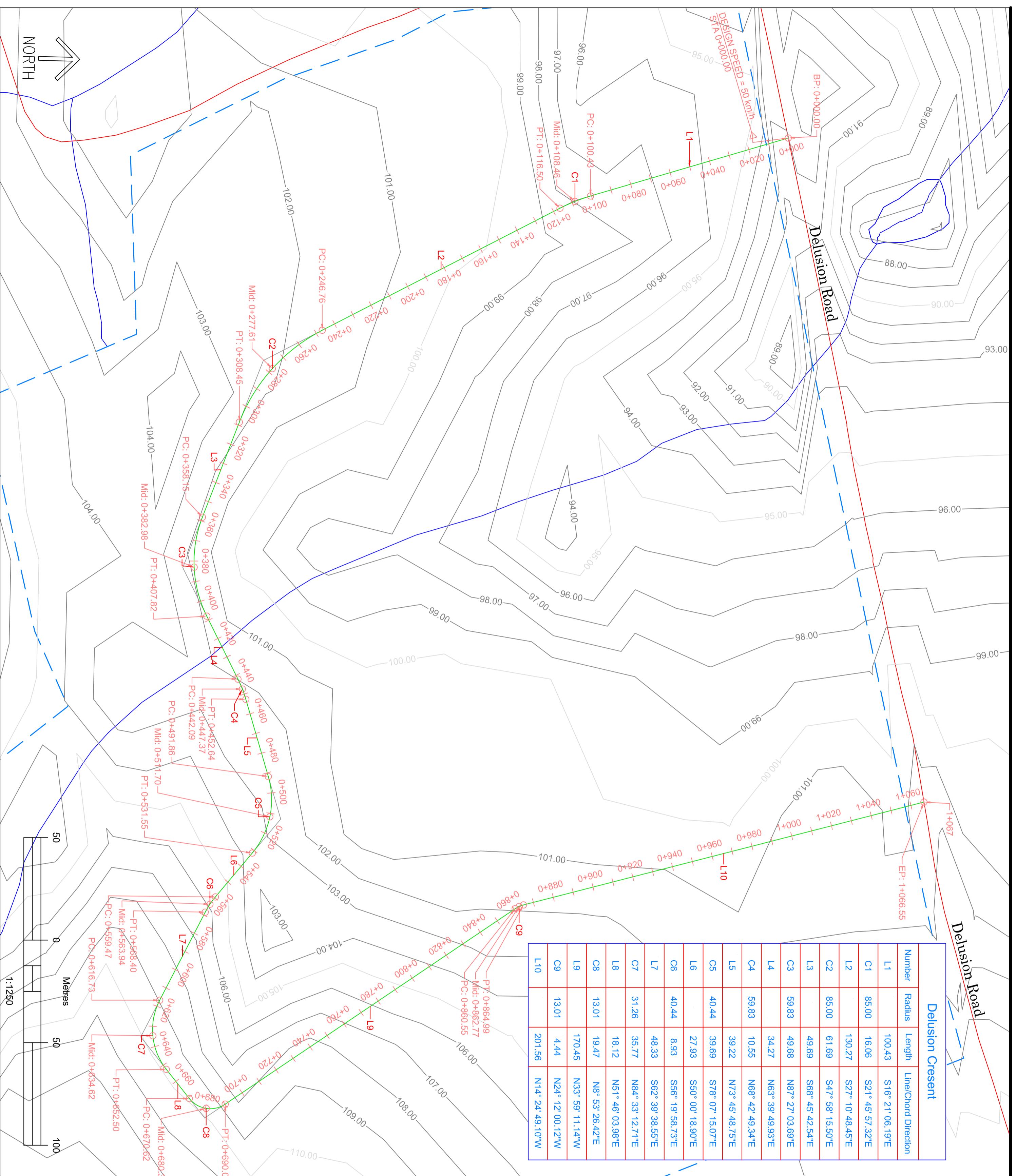
## DRAWING 6 PIPE NETWORK

Phase 1 of the stormwater pipe network was made along the existing road alignment. The pipe network uses 1,200 mm cylindrical manholes accompanied with 300 mm concrete pipe and 750 x 750 mm rectangular catch basins. For a profile view this stormwater pipe network was added to the existing profile seen in drawing 2. In profile view you can easily visualize the pipe network below ground. In order to create Phase 2 of the network an additional alignment was created that runs from the end of Phase 1 downhill to the rain garden. For this phase of the stormwater pipe network we used 1,200 mm cylindrical manholes accompanied with 250 mm concrete pipe and a 2,668 x 305 x 2,794 mm concrete rectangular headwall.

Specifications for this network were: Manholes must be installed at all changes in grade or alignmnnet, at all intersections and at intervals not exceeding 120 metres.

Pipes had to be placed between a minimum slope of 1.5% and maximum slope of 4%.





**Plan of Proposed Road Alignment**  
-  
**Annapolis County N.S.**

Projection: UTM Zone 20N  
Datum: NAD 83 (CSRS)

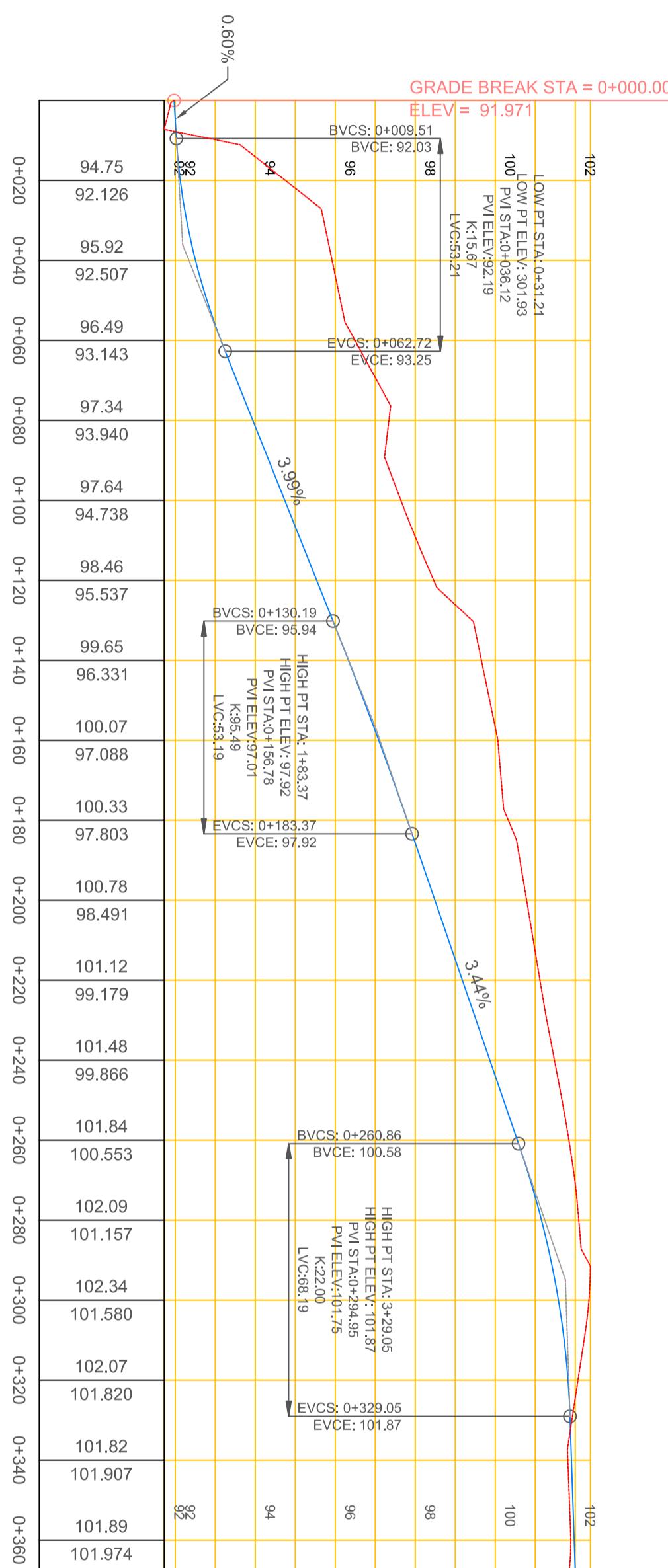
Base data obtained from service Nova Scotia & Municipal Relations Datalocator Sheets:  
1045000065100  
This map was produced as a part of the course requirement for the COEP 3020 course in the Geographic Sciences Program. This is a student exercise and remains unedited and unverified. This map is for visual representation purposes only.

Produced by: Noah McLaughlin  
Date: April 1, 2017

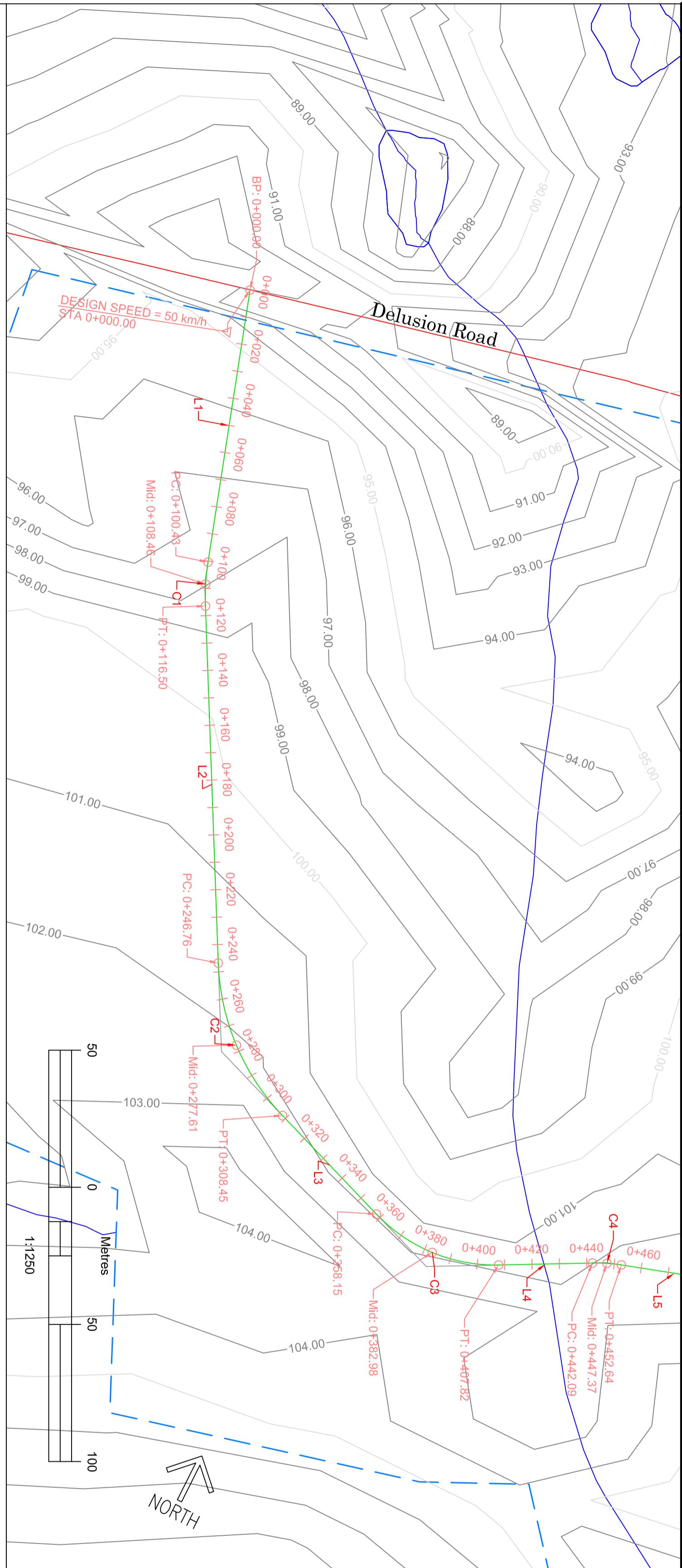
General Notes



Project	DELUSION_PARK
Date	01.04.2017
Scale	1:1250



### Delusion Crescent PROFILE



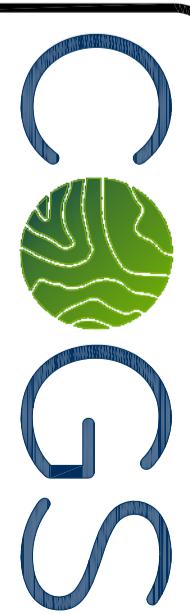
**Plan of Proposed Road Profile**  
**-**  
**Delusion Park**  
**-**  
**Annapolis County**  
**N.S**

Projection: UTM Zone 20N  
Datum: NAD 83 (CSRS)

Base data obtained from service Nova Scotia & Municipal Relations Datalocator Sheets:  
1045000065000  
1045000065100

This map was produced as a part of the course requirement for the COEP 3020 course in the Geographic Sciences Program. This is a student exercise and remains unedited and unverified. This map is for visual representation purposes only.

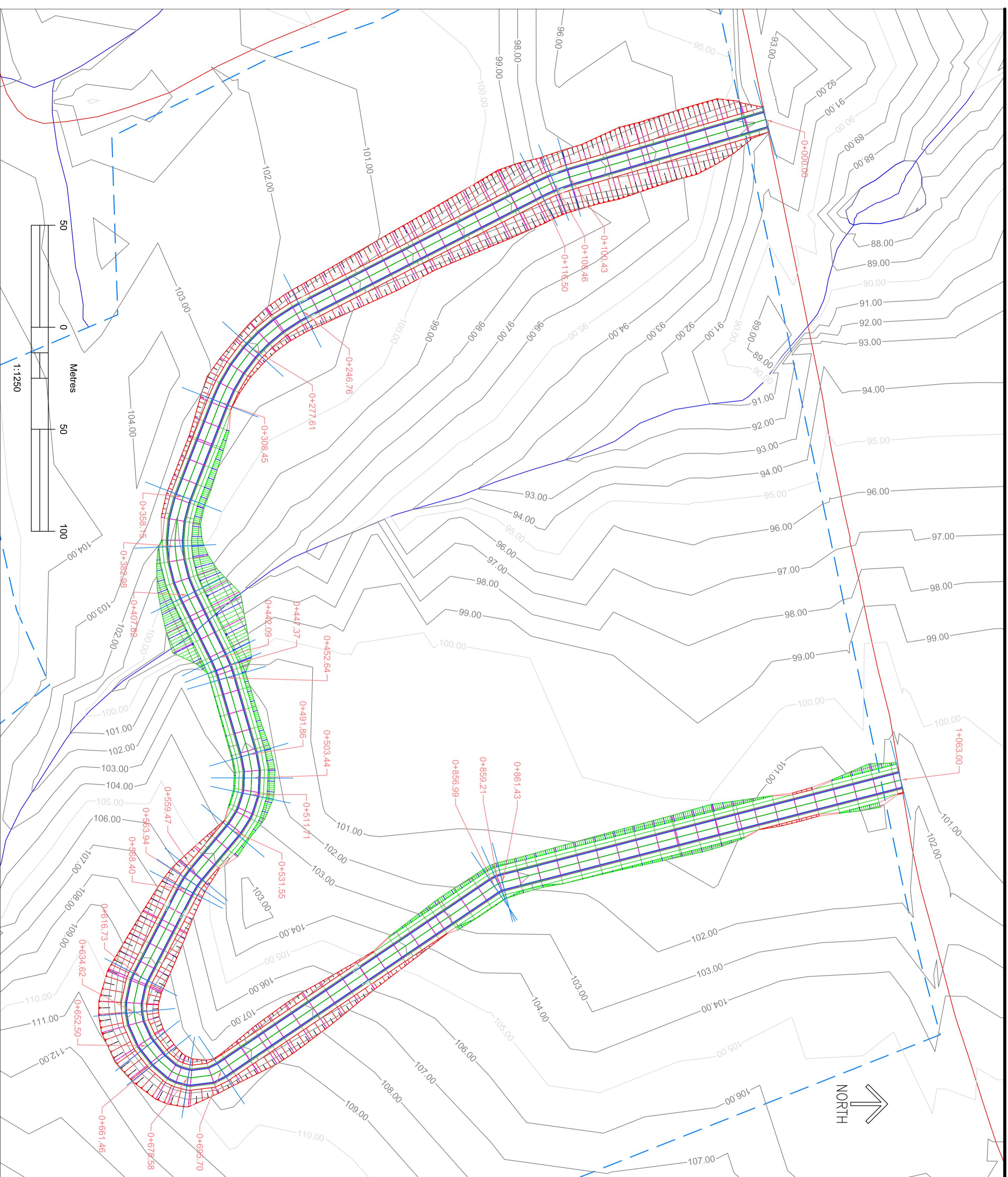
Produced by: Noah McLaughlin  
Date: April 1, 2017



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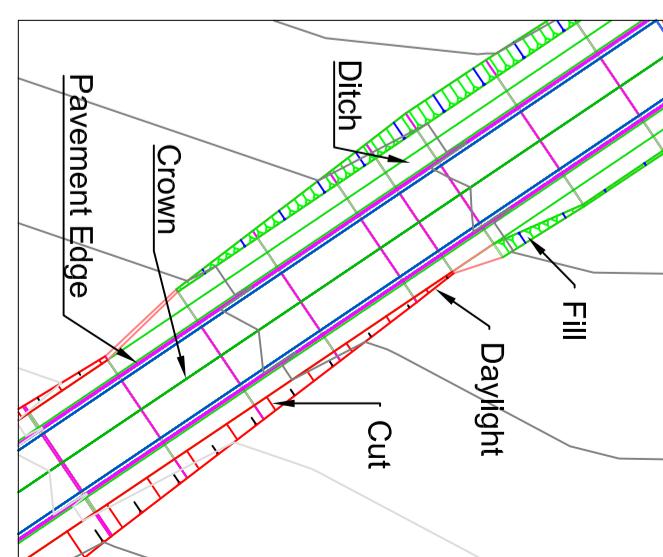
Project	DELUSION_PARK
Date	01 - 04 - 2017
Scale	1:1250



## Plan of Proposed Road Corridor

**Annapolis County N.S**

Projection: UTM Zone 20N  
Datum: NAD 83 (CSRS)



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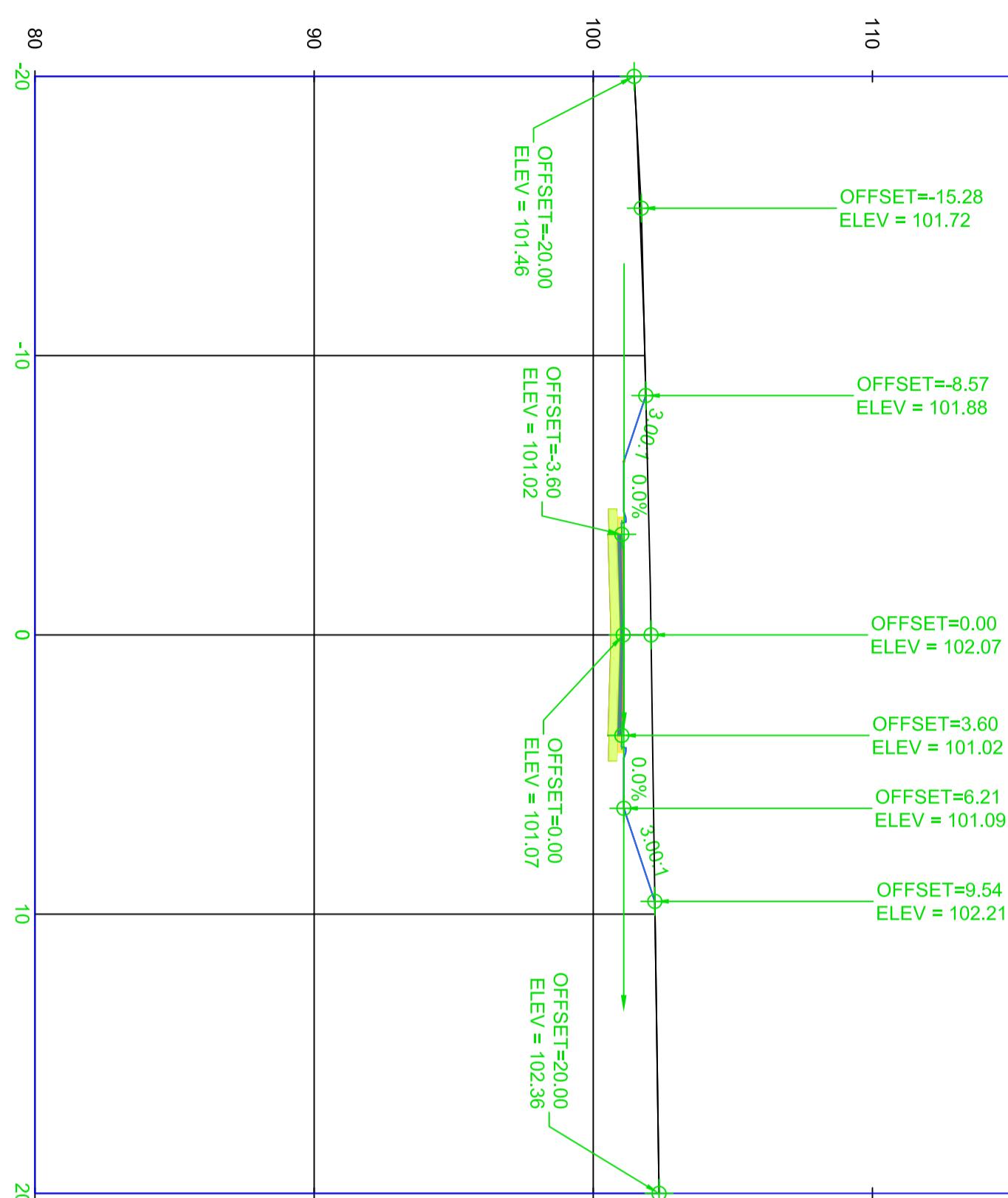
Produced by: Noah McLaughlin  
Date: April 1, 2017

General Notes

0+277.61

### Material(s) at Station 0+277.61

Material Name	Area	Volume	Cumulative Volume
Pavement	0.18	5.55	49.97
Base	0.85	26.20	235.85
SubBase	2.66	82.06	738.55



### Annapolis County N.S

Surface: Delusion Crescent  
 2D surface area: 24055.29sqm  
 3D surface area: 24830.34sqm  
 Minimum elevation: 91.891m

Maximum elevation: 111.107m  
 Number of points: 2441  
 Number of triangles: 4643

Surface: Existing Ground  
 2D surface area: 1104140.20sqm  
 3D surface area: 1107731.69sqm  
 Minimum elevation: 69.184m  
 Maximum elevation: 136.971m  
 Number of points: 936  
 Number of triangles: 1656

#### Volume Surface: Delusion Volume

Volume Cut: 23422.96 Cu. M.

Volume Fill: 7488.37 Cu. M.

Volume Total: 15964.59 Cu. M.

#### Comparison Surface: Delusion Crescent (1)

Base Surface: Existing Ground

#### Base data obtained from service Nova Scotia & Municipal Relations Datalocator Sheets:

1045000065000  
 1045000065100

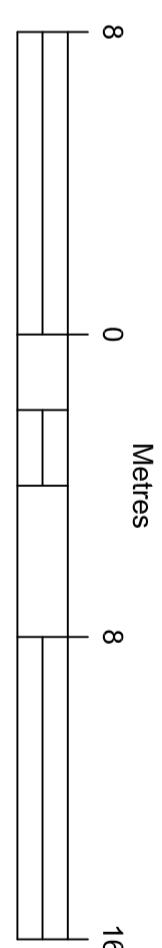
This map was produced as a part of the course requirement for the COEP 3020 course in the Geographic Sciences Program. This is a student exercise and remains unedited and unverified. This map is for visual representation purposes only.

Produced by: Noah McLaughlin  
 Date: April 1, 2017

General Notes

### Proposed Road Section Views

### Delusion Park



Project	DELUSION_PARK
Date	01.04.2017
Scale	1:200



General Notes

Line Curve and  
Parcel Area Tables

Lot 97-1  
Moshers Corner  
Annapolis County, NS

Parcel Line and Curve Table

Line #/Curve #	Length	Bearing/Delta	Radius
L11	25.31	N78° 10' 27.19"E	
C43	10.37	11.92	49.83
L12	20.32	N77° 40' 00.98"E	
C45	31.58	24.12	75.00
L13	25.41	N76° 27' 21.68"E	
C47	15.26	87.41	10.00
L14	34.29	N74° 54' 21.86"E	
C49	22.85	17.46	75.00
L15	25.04	S21° 34' 08.75"E	
L19	29.39	S27° 10' 48.45"E	
L16	1.80	N19° 23' 47.37"N	
C12	17.95	10.83	95.00
C10	16.50	94.52	10.00
L20	20.91	S16° 21' 06.19"E	
L17	20.24	N27° 10' 48.45"W	
C13	14.92	85.47	10.00
C11	14.17	10.83	75.00
L26	16.95	N63° 39' 49.93"E	
L18	29.90	N16° 21' 06.19"W	
L30	1.77	S63° 39' 49.93"W	
C21	6.72	12.66	30.44
C24	9.77	13.57	41.26
C20	6.40	7.36	49.83
C22	12.31	10.10	69.83
C25	5.22	5.93	50.44
L31	27.93	N50° 00' 18.90"W	
C23	15.83	17.98	50.44
C29	19.28	85.75	12.88
C27	29.87	56.23	30.44
L35	8.96	S51° 46' 03.98"W	
C31	24.33	65.57	21.26
L42	18.58	S63° 39' 49.93"W	
L43	13.91	S63° 39' 49.93"W	

Parcel Line and Curve Table

Line #/Curve #	Length	Bearing/Delta	Radius
C43	10.37	11.92	49.83
C45	31.58	24.12	75.00
C47	15.26	87.41	10.00
C49	22.85	17.46	75.00
L19	29.39	S27° 10' 48.45"E	
C12	17.95	10.83	95.00
L20	20.91	S16° 21' 06.19"E	
C13	14.92	85.47	10.00
L26	16.95	N63° 39' 49.93"E	
L27	17.32	N63° 39' 49.93"E	
C20	6.40	7.36	49.83
C24	9.77	13.57	41.26
C22	12.31	10.10	69.83
C25	5.22	5.93	50.44
C26	5.92	6.72	50.44
L32	27.93	S50° 00' 18.90"E	
C27	29.87	56.23	30.44
L33	5.14	N33° 59' 11.14"W	
C30	17.29	30.13	32.88
L34	8.96	N51° 46' 03.98"E	

Parcel Area Table

Parcel #	Area	Perimeter
14	16405.50m <sup>2</sup>	535.35
17	7044.09m <sup>2</sup>	354.64
18	8367.84m <sup>2</sup>	386.85
19	6497.36m <sup>2</sup>	368.67
20	8344.86m <sup>2</sup>	392.92
21	7483.75m <sup>2</sup>	365.43
22	24326.72m <sup>2</sup>	802.45
25	5064.11m <sup>2</sup>	277.09
24	4996.69m <sup>2</sup>	286.83
3	7021.86m <sup>2</sup>	344.11
6	10969.40m <sup>2</sup>	562.65
5	6369.93m <sup>2</sup>	390.15
7	5988.18m <sup>2</sup>	311.99
8	5730.27m <sup>2</sup>	319.54
9	6550.31m <sup>2</sup>	331.67
10	5071.37m <sup>2</sup>	295.60
12	11446.94m <sup>2</sup>	488.27
13	12106.36m <sup>2</sup>	494.06
15	11185.88m <sup>2</sup>	466.74
16	5841.95m <sup>2</sup>	316.19

Parcel Area Table

Parcel #	Area	Perimeter
17	7044.09m <sup>2</sup>	354.64
18	8367.84m <sup>2</sup>	386.85
19	6497.36m <sup>2</sup>	368.67
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21	7483.75m <sup>2</sup>	365.43
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25	5064.11m <sup>2</sup>	277.09
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8	5730.27m <sup>2</sup>	319.54
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12	11446.94m <sup>2</sup>	488.27
13	12106.36m <sup>2</sup>	494.06
15	11185.88m <sup>2</sup>	466.74
16	5841.95m <sup>2</sup>	316.19

Base data obtained from service Nova Scotia & Municipal Relations Datalocator  
Sheets:  
1045000065000  
1045000065100

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Produced by: Noah McLaughlin  
Date: April 1, 2017



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Project DELUSION_PARK	Sheet
Date 01.04.2017	2017-4b
Scale N/A	

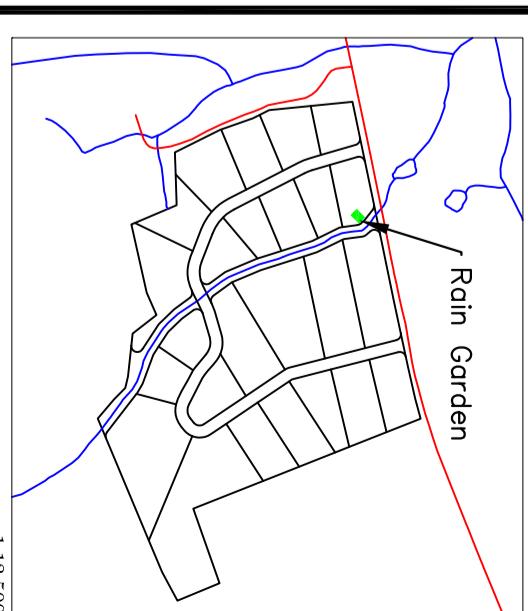
NORTH

## Plan of Proposed Rain Garden Grading

Delusion Park  
Annapolis County,  
N.S.

Projection: UTM Zone 20N  
Datum: NAD 83 (CSRS)

### Keymap



1:12,500

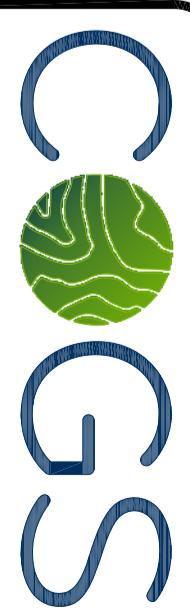
Volume Cut: 0.09 Cubic Metres  
Volume Fill: 1737.81 Cubic Metres  
Volume Total: 1737.72 Cubic Metres (Fill)  
Compare Surface: Grading for Rain Garden  
Base Surface: Finished Ground

Base data obtained from service Nova Scotia  
& Municipal Relations data locator  
Sheets:  
1045000065000  
1045000065100

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Date: April 1, 2017

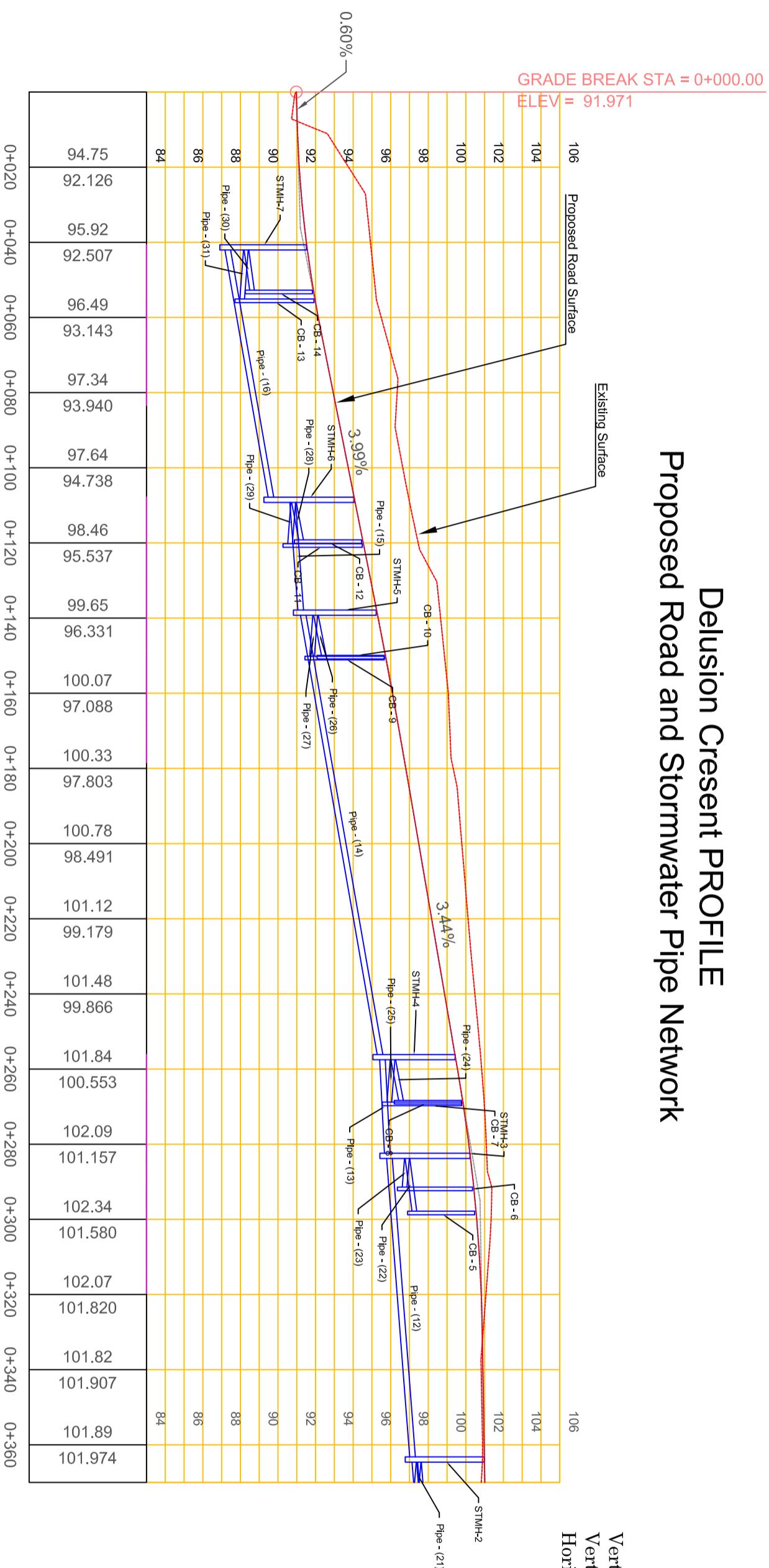
General Notes



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Project	DELUSION_PARK
Date	01-04-2017
Scale	1:100



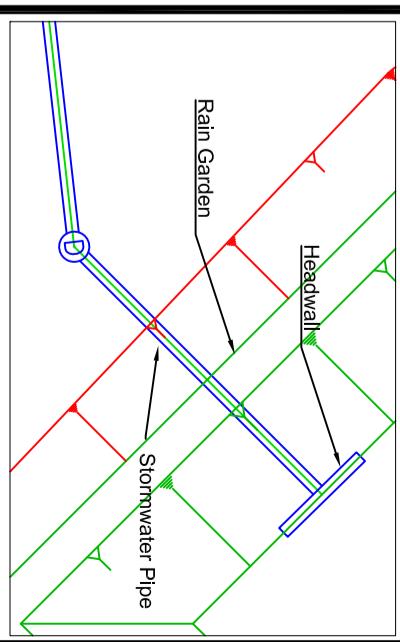
# Proposed Road and Stormwater Pipe Network

## Delusion Crescent PROFILE

Vertical Exaggeration = 5  
Vertical Scale = 1:1250  
Horizontal Scale = 1:1250

Scotia & Municipal Relations datalocator  
Sheets:  
1045000065000  
1045000065100

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The diagram illustrates a stormwater manhole located at the center of a road intersection. The manhole is represented by a blue circle with a white 'D' inside. A grey 'Road Centre Line' extends from the bottom left towards the manhole. Two blue lines representing stormwater pipes converge at the manhole from the bottom right. A green line representing a surface watercourse or drainage channel originates from the top left and ends at the manhole. Arrows indicate the flow direction of the water: from the surface watercourse into the manhole, and from the manhole into the underground pipes.

# Stormwater Pipe Network

## Delusion Park

### Annapolis County N.S.

Projection: UTM Zone 20N  
Datum: NAD 83 (CSRS)

		 <b>Centre of Geographic Sciences</b> <b>nscc</b>	
Project	DELUSION_PARK		
Date	01.04.2017		
Scale	1:1250		
	Sheet	2017-6a	

## Network: Storm Phase 1

STRUCTURE TABLE		
STRUCTURE NAME:	DETAILS:	PIPES IN:
		PIPES OUT
STMH-1	1200 mm RIM = 102.00 SUMP = 98.47 INV IN = 98.617 INV OUT = 98.714 INV OUT = 98.617	Pipe - (18), 250 mm REINFORCED CONCRETE INV IN =#8.62
CB - 1	777 mm RIM = 102.06 SUMP = 98.53 INV OUT = 98.533	Pipe - (18), 250 mm REINFORCED CONCRETE INV OUT =#8.71 Pipe - (18), 250 mm REINFORCED CONCRETE INV OUT =#8.62 INV OUT = 98.617
CB - 2	777 mm RIM = 102.05 SUMP = 98.36 INV IN = 98.507 INV OUT = 98.622	Pipe - (19), 250 mm REINFORCED CONCRETE INV IN =#8.51
STMH-2	1200 mm RIM = 101.98 SUMP = 97.87 INV IN = 98.122 INV OUT = 98.37	Pipe - (11), 300 mm REINFORCED CONCRETE INV IN =#8.12 Pipe - (20), 250 mm REINFORCED CONCRETE INV IN =#8.37
CB - 3	777 mm RIM = 101.97 SUMP = 98.50 INV OUT = 98.646	Pipe - (20), 250 mm REINFORCED CONCRETE INV OUT =#8.65
CB - 4	777 mm RIM = 101.94 SUMP = 98.00 INV IN = 98.237	Pipe - (21), 250 mm REINFORCED CONCRETE INV IN =#8.24
CB - 5	777 mm RIM = 101.47 SUMP = 98.00 INV OUT = 98.446	Pipe - (22), 250 mm REINFORCED CONCRETE INV OUT =#8.15
CB - 6	777 mm RIM = 101.35 SUMP = 97.52 INV IN = 97.746 INV OUT = 97.648	Pipe - (23), 250 mm REINFORCED CONCRETE INV IN =#7.61
STMH-3	1200 mm RIM = 101.22 SUMP = 96.52 INV IN = 96.744 INV OUT = 97.746	Pipe - (13), 300 mm REINFORCED CONCRETE INV IN =#6.77 Pipe - (22), 250 mm REINFORCED CONCRETE INV IN =#7.75
CB - 7	777 mm RIM = 100.78 SUMP = 96.55 INV IN = 96.797	Pipe - (23), 250 mm REINFORCED CONCRETE INV IN =#6.80
CB - 8	777 mm RIM = 100.76 SUMP = 97.28 INV OUT = 97.439	Pipe - (24), 250 mm REINFORCED CONCRETE INV OUT =#7.44
STMH-4	1200 mm RIM = 100.43 SUMP = 96.15 INV IN = 96.403 INV OUT = 96.983	Pipe - (13), 300 mm REINFORCED CONCRETE INV IN =#6.40 Pipe - (24), 250 mm REINFORCED CONCRETE INV IN =#6.98
CB - 9	777 mm RIM = 96.66 SUMP = 92.53 INV IN = 92.681	Pipe - (25), 250 mm REINFORCED CONCRETE INV IN =#2.68
CB - 10	777 mm RIM = 96.56 SUMP = 93.28 INV OUT = 93.328	Pipe - (25), 250 mm REINFORCED CONCRETE INV OUT =#3.33
STMH-5	1200 mm RIM = 96.23 SUMP = 91.92 INV IN = 92.168 INV OUT = 92.268	Pipe - (14), 300 mm REINFORCED CONCRETE INV IN =#2.17 Pipe - (26), 250 mm REINFORCED CONCRETE INV IN =#2.68
CB - 11	777 mm RIM = 95.49 SUMP = 91.30 INV IN = 91.511	Pipe - (27), 250 mm REINFORCED CONCRETE INV IN =#1.51
CB - 12	777 mm RIM = 95.45 SUMP = 91.97 INV OUT = 92.123	Pipe - (28), 250 mm REINFORCED CONCRETE INV OUT =#2.12
STMH-6	1200 mm RIM = 95.05 SUMP = 90.35 INV IN = 91.620 INV OUT = 91.694	Pipe - (15), 300 mm REINFORCED CONCRETE INV IN =#1.62 Pipe - (28), 250 mm REINFORCED CONCRETE INV IN =#1.69
CB - 13	777 mm RIM = 89.81 SUMP = 89.81 INV OUT = 89.99	Pipe - (31), 250 mm REINFORCED CONCRETE INV IN =#8.96
CB - 14	777 mm RIM = 92.33 SUMP = 89.35 INV OUT = 89.503	Pipe - (30), 250 mm REINFORCED CONCRETE INV OUT =#9.50

## Network: Storm Phase 2

STRUCTURE TABLE		
STRUCTURE NAME:	DETAILS:	PIPES IN:
		PIPES OUT
STMH-7	1200 mm RIM = 102.00 SUMP = 88.00 INV IN = 88.151 INV OUT = 88.174	Pipe - (16), 300 mm REINFORCED CONCRETE INV IN =#8.15 Pipe - (30), 250 mm REINFORCED CONCRETE INV IN =#8.17
HEADWALL-1	777 mm RIM = 88.20 SUMP = 87.77 INV OUT = 87.825	Pipe - (35), 300 mm REINFORCED CONCRETE INV OUT =#7.63
STMH-7	1200 mm RIM = 93.50 SUMP = 87.92 INV OUT = 88.075	Pipe - (32), 300 mm REINFORCED CONCRETE INV IN =#8.17 Pipe - (33), 300 mm REINFORCED CONCRETE INV OUT =#8.07
STMH-8	1200 mm RIM = 86.98 SUMP = 86.98 INV OUT = 86.935	Pipe - (32), 300 mm REINFORCED CONCRETE INV OUT =#8.13
STMH-9	1200 mm RIM = 91.34 SUMP = 87.36 INV IN = 87.45 INV OUT = 87.45	Pipe - (33), 300 mm REINFORCED CONCRETE INV IN =#7.68 Pipe - (35), 300 mm REINFORCED CONCRETE INV IN =#7.50

Annapolis County, NS  
Delusion Park

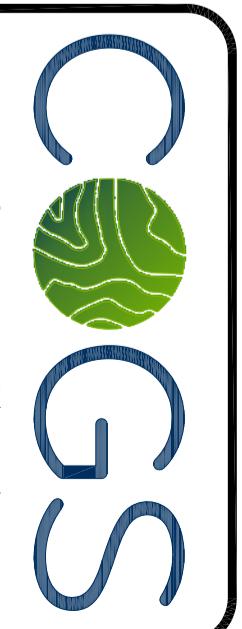
Stormwater Pipe  
Network Tables

General Notes

Base data obtained from service Nova Scotia & Municipal Relations datalocator or Sheets:  
1045000065000  
1045000065100

This map was produced as a part of the course requirement for the COEP 3020 course in the Geographic Science Program. This is a student exercise and remains unedited and unverified. This map is for visual representation purposes only.

Produced by: Noah McLaughlin  
Date: April 1, 2017



Centre of Geographic Sciences



Project DELUSION_PARK	Sheet
Date 01.04.2017	2017-6b
Scale N/A	



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