

# **APPENDIX H**

## **I-196 MDOT ELEVATION SURVEY DATA**

196 LEVELS  
Job# 73086C

FEB. 2003

Vertical Control was requested for 196, between Lake Michigan drive and Butterworth road, Grand Rapids, Kent County, Michigan. The survey was requested by Thomas Hines, M & T division, M.D.O.T.

METHODOLOGY

Plan elevation was used from state project 41029E C to establish vertical control for this project. Top of concrete elevation of 697.35 ft. at station 460+35 WB was utilized. This was the plan elevation at the "bullnose" of the curb for ramp "B", the WB entrance ramp for 196 from Lake Michigan drive. All elevations were taken along the "north edge of metal" for WB 196. All elevations were taken along the "south edge of metal" for EB 196. BM 100 was set on the top step of the southeast bridge abutment wall for EB 196 bridge over Butterworth. This bench is a chiseled "square". BM 100 ELEVATION: 659.85 FT. (PLAN ELEV.)

Also, NAVD 88 Vertical datum was obtained from BM 121. BM 121 is a chiseled "square" set in the northeast bridge abutment wall of "Lake Michigan drive" bridge over 196.

A "floppy" disk of this report and the level data is included. A "CD" of the 41029E project is also included.

PLAN ELEVATIONS:

WESTBOUND 196		EASTBOUND 196	
STA 438+00	660.35 ft.	STA.437+00	661.73 ft.
STA 439+00	663.31	STA 438+00	663.92
STA 440+00	666.00	STA 439+00	666.25
STA 441+00	668.54	STA 440+00	668.67
STA 442+00	671.06	STA 441+00	671.18
STA 443+00	673.63	STA 442+00	673.65
STA 444+00	676.22	STA 443+00	676.01
STA 445+00	679.07	STA 444+00	678.15
STA 446+00	682.06	STA 445+00	680.20
STA 447+00	684.94	STA 446+00	682.49
STA 448+00	687.72	STA 447+00	684.94
STA 449+00	690.15	STA 448+00	687.33
STA 450+00	692.29	STA 449+00	689.52
STA 451+00	694.03	STA 450+00	691.59
STA 452+00	695.52	STA 451+00	693.51
STA 453+00	696.78	STA 452+00	695.18
STA 454+00	697.73	STA 453+00	696.76
STA 455+00	698.45	STA 454+00	698.19
STA 456+00	698.82	STA 455+00	699.38
STA 457+00	698.93	STA 456+00	700.42
STA 458+00	698.74	STA 457+00	701.36
STA 459+00	698.27		
STA 460+00	697.50		
STA 460+35	697.35 (FIXED)		

BRIAN-DOLMAN JERSEY  
SUPERVISING LAND SURVEYOR

JIM YOUNG  
SURVEY TECH 11

## 196 LEVELS

FEB. 2003

Job# 73086C

Vertical Control was requested for 196, between Lake Michigan drive and Butterworth road, Grand Rapids, Kent County, Michigan. The survey was requested by Thomas Hines, M & T division, M.D.O.T.

## METHODOLOGY

Plan elevation was used from state project 41029E C to establish vertical control for this project. Top of concrete elevation of 697.35 ft. at station 460+35 WB was utilized. This was the plan elevation at the "bullnose" of the curb for ramp "B", the WB entrance ramp for 196 from Lake Michigan drive. All elevations were taken along the "north edge of metal" for WB 196. All elevations were taken along the "south edge of metal" for EB 196.

**BM 100 was set on the top step of the southeast bridge abutment wall for EB 196 bridge over Butterworth. This bench is a chiseled "square". BM 100 ELEVATION: 659.85 FT. (PLAN ELEV.)**

Also, NAVD 88 Vertical datum was obtained from BM 121. BM 121 is a chiseled "square" set in the northeast bridge abutment wall of "Lake Michigan drive" bridge over 196 = 214.679 m 704.328 ft

A "floppy" disk of this report and the level data is included. A "CD" of the 41029E project is also included.

## PLAN and NAVD88 ELEVATIONS:

WESTBOUND 196			EASTBOUND 196		
	Plan Ele.	NAVD88 Ele.		Plan Ele.	NAVD88 Ele.
STA 438+00	660.35 ft.	<b>659.48</b>	STA.437+00	661.73 ft.	<b>660.86</b>
STA 439+00	663.31	<b>662.44</b>	STA 438+00	663.92	<b>663.05</b>
STA 440+00	666.00	<b>665.12</b>	STA 439+00	666.25	<b>665.38</b>
STA 441+00	668.54	<b>667.67</b>	STA 440+00	668.67	<b>667.79</b>
STA 442+00	671.06	<b>670.18</b>	STA 441+00	671.18	<b>670.30</b>
STA 443+00	673.63	<b>672.75</b>	STA 442+00	673.65	<b>672.78</b>
STA 444+00	676.22	<b>675.34</b>	STA 443+00	676.01	<b>675.14</b>
STA 445+00	679.07	<b>678.20</b>	STA 444+00	678.15	<b>677.27</b>
STA 446+00	682.06	<b>681.18</b>	STA 445+00	680.20	<b>679.32</b>
STA 447+00	684.94	<b>684.06</b>	STA 446+00	682.49	<b>681.61</b>
STA 448+00	687.72	<b>686.84</b>	STA 447+00	684.94	<b>684.06</b>
STA 449+00	690.15	<b>689.28</b>	STA 448+00	687.33	<b>686.46</b>
STA 450+00	692.29	<b>691.41</b>	STA 449+00	689.52	<b>688.64</b>
STA 451+00	694.03	<b>693.15</b>	STA 450+00	691.59	<b>690.71</b>
STA 452+00	695.52	<b>694.64</b>	STA 451+00	693.51	<b>692.63</b>
STA 453+00	696.78	<b>695.91</b>	STA 452+00	695.18	<b>692.63</b> 694.31
STA 454+00	697.73	<b>696.86</b>	STA 453+00	696.76	<b>695.88</b>
STA 455+00	698.45	<b>697.57</b>	STA 454+00	698.19	<b>697.31</b>
STA 456+00	698.82	<b>697.95</b>	STA 455+00	699.38	<b>698.51</b>
STA 457+00	698.93	<b>698.05</b>	STA 456+00	700.42	<b>699.55</b>
STA 458+00	698.74	<b>697.86</b>	STA 457+00	701.36	<b>700.48</b>
STA 459+00	698.27	<b>697.40</b>			
STA 460+00	697.50	<b>696.62</b>			
STA 460+35	697.35 (FIXED)	<b>696.47</b>			

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