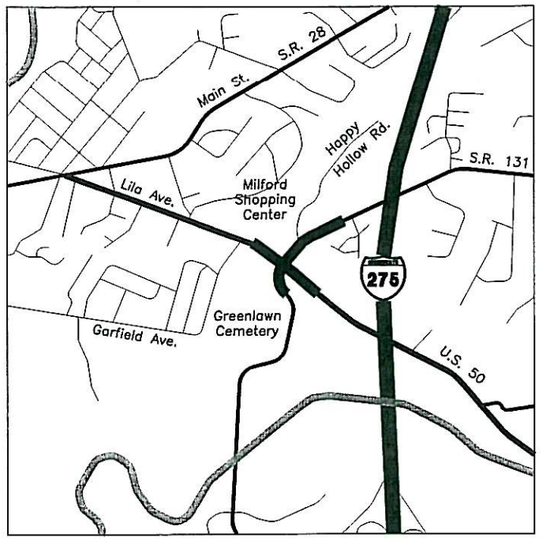


LOCATION MAP

LATITUDE: 39°10'22" LONGITUDE: 84°16'26"

SCALE IN FEET
NOT TO SCALE

PORTION TO BE IMPROVED ----------
INTERSTATE & DIVIDED HIGHWAY----------
UNDIVIDED STATE & FEDERAL ROUTES -----
OTHER ROADS ----------

FOR DESIGN DESIGNATION AND DESIGN EXCEPTIONS
SEE SHEET 2

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CLE-50-1.48
MILFORD PARKWAY

CITY OF MILFORD
CLERMONT COUNTY

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PROJECT DESCRIPTION

UPGRADING 0.27 MILES OF S.R. 131, U.S. 50, AND MILFORD PARKWAY BY WIDENING AND RESURFACING, INCLUDING BRIDGE WIDENING, NEW SEWER SYSTEM, CURB AND GUTTER, SIDEWALKS, TRAFFIC CONTROL SIGNS, PAVEMENT MARKINGS, AND TRAFFIC SIGNAL.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	3.8 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	1.1 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	4.9 ACRES

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

FEDERAL PROJECT NO. E110-278

PID NO. 89291

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

CLE-50-1.48 MILFORD PARKWAY

1 / 132

ENGINEERS SEAL:

FOR STRUCTURES 20' & OVER

STATE OF OHIO · MICHAEL R. STURDEVANT · E-49864 · REGISTERED PROFESSIONAL ENGINEER

SIGNED: Michael Sturdevant
DATE: 1-8-13

ENGINEERS SEAL:

FOR ENTIRE PLAN EXCEPT STRUCTURES 20' & OVER

STATE OF OHIO · KATHRYN M. DILLENBURGER · E-71284 · REGISTERED PROFESSIONAL ENGINEER

SIGNED: Kathryn M. Dillenburger
DATE: 01-09-2013

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:
BAYER BECKER
6900 TYLERSVILLE ROAD
SUITE A
MASON, OHIO 45040

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	04/20/12	GR-3.6	07/20/12	MT-97.12	07/20/12	TC-71.10	01/21/11	
BP-4.1	07/16/04	GR-4.2	07/20/12	MT-99.20	07/20/12	TC-73.10	04/20/12	
BP-5.1	07/28/00	GR-5.3	04/16/10	MT-101.60	07/20/12	TC-81.21	07/20/12	
BP-7.1	10/15/10			MT-101.70	04/15/11	TC-82.10	01/21/11	
		HW-1.1	07/30/07	MT-101.90	10/21/11	TC-83.10	01/19/07	
CB-2.1	07/15/05			MT-105.10	07/20/12	TC-83.20	04/20/12	
		RM-1.1	07/15/11			TC-85.10	10/16/09	
DM-1.1	01/21/11	RM-4.2	10/15/10	TC-21.20	04/15/11	TC-85.20	07/15/11	
DM-1.2	10/21/05			TC-41.20	01/19/01			
DM-1.4	07/15/11	MT-95.30	07/20/12	TC-41.40	07/16/04	HL-30.11	10/16/09	
DM-4.1	10/21/11	MT-95.31	07/20/12	TC-41.41	01/21/11	HL-30.22	04/17/09	
DM-4.3	04/17/09	MT-95.32	07/20/12	TC-42.20	01/21/11	HL-40.10	01/19/07	
DM-4.4	04/17/09	MT-95.41	07/20/12	TC-52.20	01/19/07	HL-60.31	01/19/07	
		MT-96.11	07/20/12	TC-61.10	04/20/12			
GR-1.1	07/20/12	MT-96.20	07/20/12	TC-65.10	04/20/12			
GR-2.1	07/20/12	MT-97.10	07/20/12	TC-65.11	04/20/12			

SUPPLEMENTAL SPECIFICATIONS

800	01/18/13
816	01/20/12
821	04/20/12
823	07/15/11
832	05/05/09
835	04/18/08

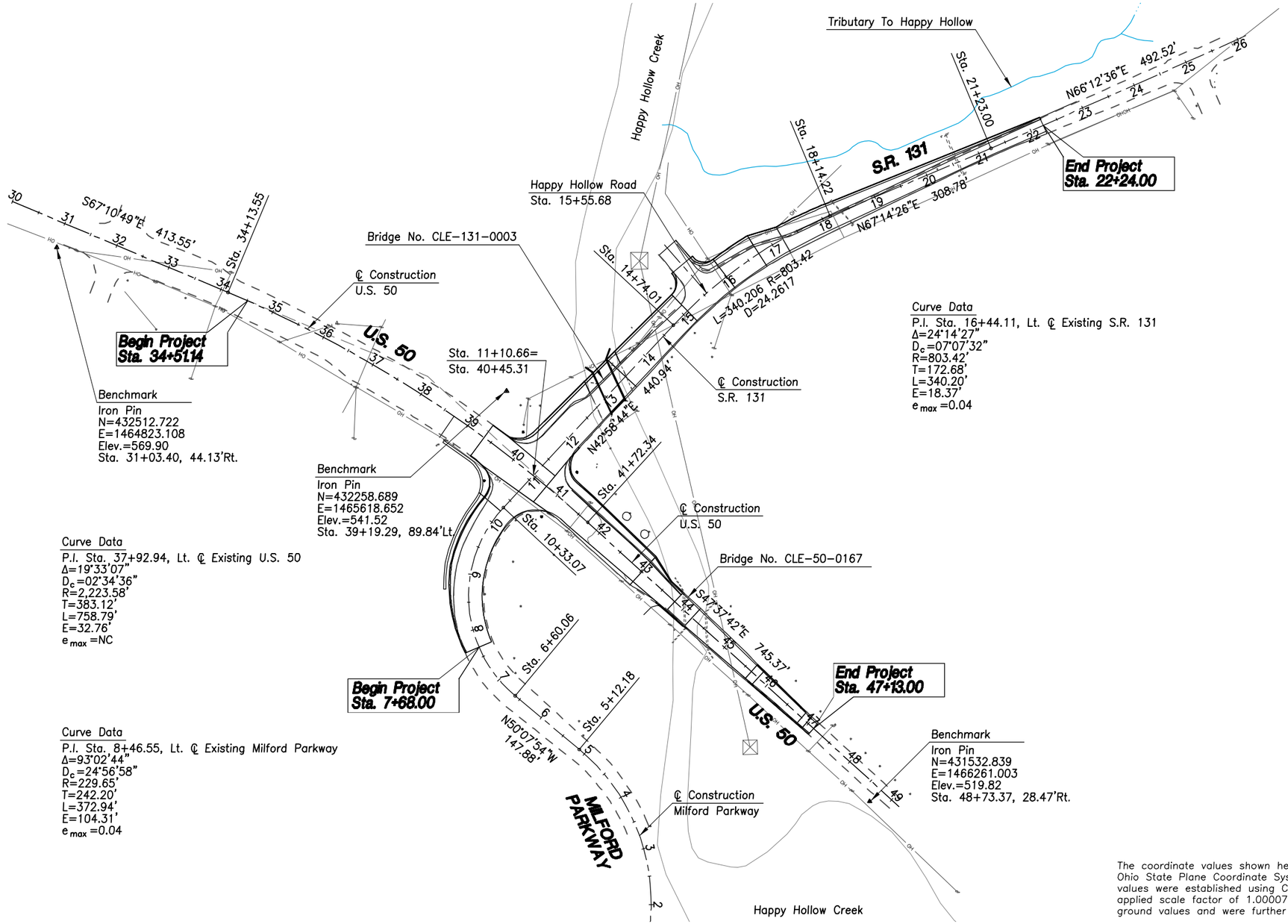
SPECIAL PROVISIONS

GEOTECHNICAL REPORT	04/12/12
FLOODPLAIN PERMIT	02/13/12
WATERWAY PERMIT	08/03/12

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THESE IMPROVEMENTS WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 10, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED: Pamm Mayer
DATE: 1-31-13 ENGINEER, CLERMONT COUNTY

Plot time: Nov 26, 2012 - 6:58am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Title Sheet - Layout Tab: 01 Title Sheet



Curve Data
P.I. Sta. 16+44.11, Lt. ℄ Existing S.R. 131
Δ=24°14'27"
D_c=07°07'32"
R=803.42'
T=172.68'
L=340.20'
E=18.37'
e_{max}=0.04

Curve Data
P.I. Sta. 37+92.94, Lt. ℄ Existing U.S. 50
Δ=19°33'07"
D_c=02°34'36"
R=2,223.58'
T=383.12'
L=758.79'
E=32.76'
e_{max}=NC

Curve Data
P.I. Sta. 8+46.55, Lt. ℄ Existing Milford Parkway
Δ=93°02'44"
D_c=24°56'58"
R=229.65'
T=242.20'
L=372.94'
E=104.31'
e_{max}=0.04

The coordinate values shown herein are converted from the Ohio State Plane Coordinate System, South Zone. The values were established using CORS Station LEBA with an applied scale factor of 1.00007741. These values are ground values and were further converted to English units.

DESIGN DESIGNATION

U.S. 50 – WEST OF S.R. 131/MILFORD PARKWAY	
CURRENT ADT (2013)	22,000
DESIGN YEAR ADT (2033)	26,260
DESIGN HOURLY VOLUME (2033)	2,450
DIRECTIONAL DISTRIBUTION	55%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	25 MPH
LEGAL SPEED	25 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL
NHS PROJECT	NO

U.S. 50 – EAST OF S.R. 131/MILFORD PARKWAY	
CURRENT ADT (2013)	11,110
DESIGN YEAR ADT (2033)	14,240
DESIGN HOURLY VOLUME (2033)	1,340
DIRECTIONAL DISTRIBUTION	71%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	45 MPH
LEGAL SPEED	45 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL
NHS PROJECT	NO

MILFORD PARKWAY – SOUTH OF U.S. 50	
CURRENT ADT (2013)	12,990
DESIGN YEAR ADT (2033)	14,720
DESIGN HOURLY VOLUME (2033)	1,360
DIRECTIONAL DISTRIBUTION	52%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	25 MPH
LEGAL SPEED	25 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL
NHS PROJECT	NO

S.R. 131 – NORTH OF U.S. 50	
CURRENT ADT (2013)	16,300
DESIGN YEAR ADT (2033)	19,060
DESIGN HOURLY VOLUME (2033)	2,010
DIRECTIONAL DISTRIBUTION	71%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	40 MPH
LEGAL SPEED	40 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL
NHS PROJECT	NO

DESIGN EXCEPTIONS

U.S. 50 – WEST OF S.R. 131/MILFORD PARKWAY	U.S. 50 – EAST OF S.R. 131/MILFORD PARKWAY	MILFORD PARKWAY – SOUTH OF U.S. 50	S.R. 131 – NORTH OF U.S. 50
NONE REQUIRED	NONE REQUIRED	NONE REQUIRED	NONE REQUIRED

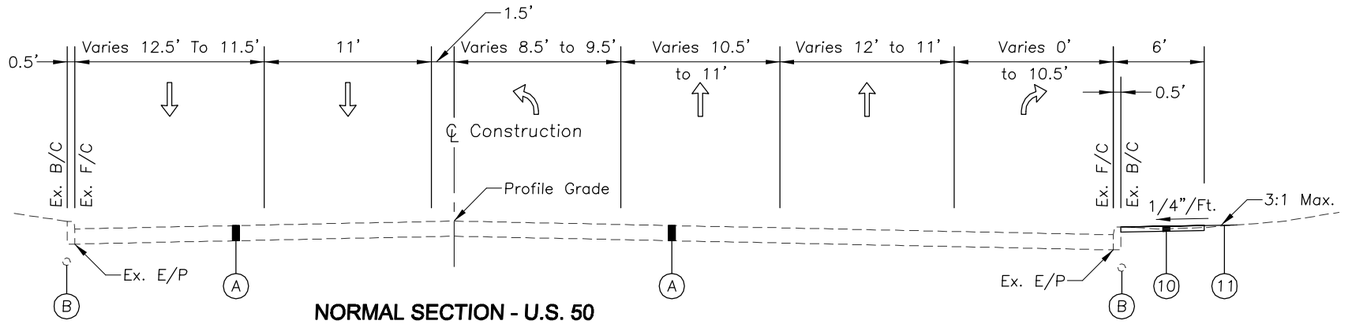
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SCHEMATIC PLAN & DESIGN DESIGNATIONS

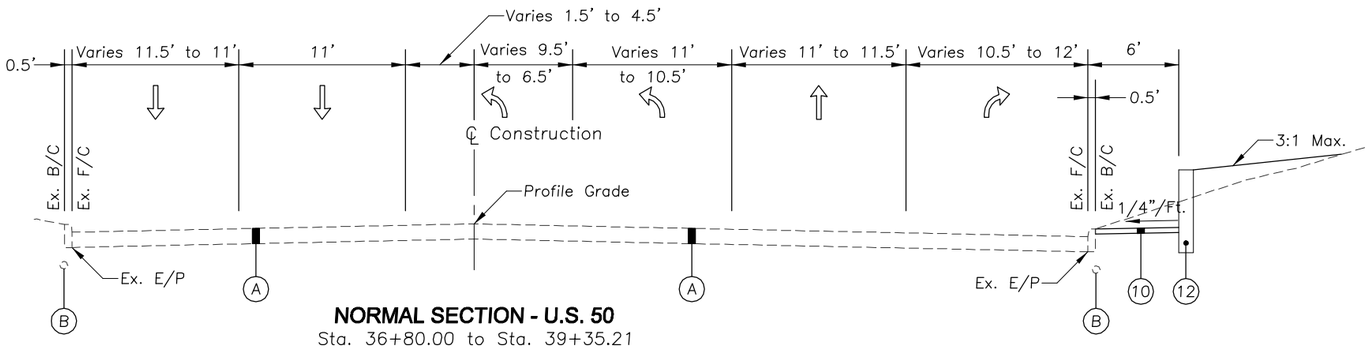
CLE-50-1.48
MILFORD PARKWAY

2
132

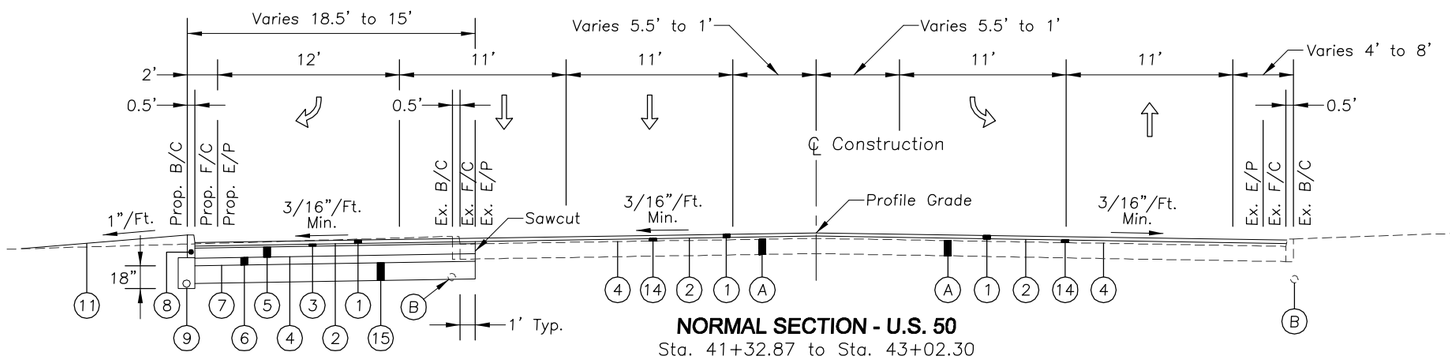
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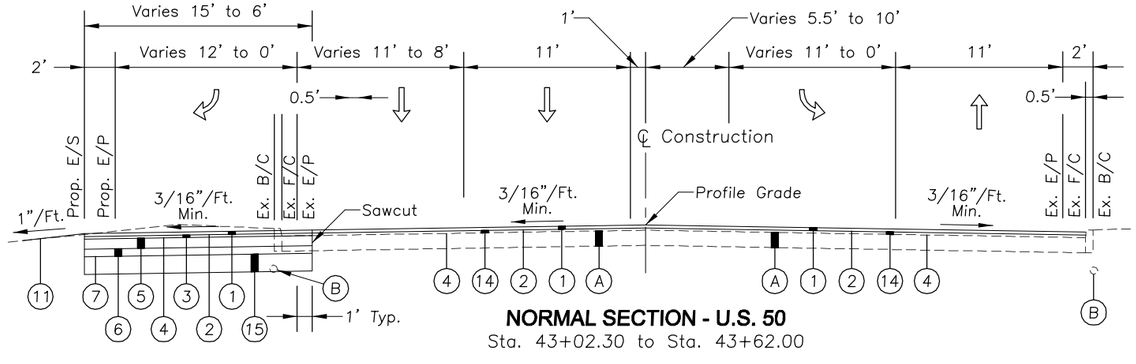
NORMAL SECTION - U.S. 50
Sta. 34+51.14 to Sta. 36+80.00



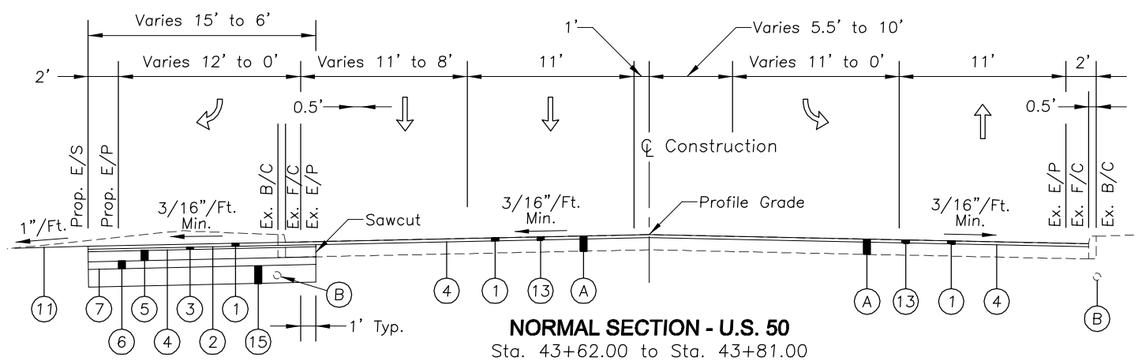
NORMAL SECTION - U.S. 50
Sta. 36+80.00 to Sta. 39+35.21



NORMAL SECTION - U.S. 50
Sta. 41+32.87 to Sta. 43+02.30



NORMAL SECTION - U.S. 50
Sta. 43+02.30 to Sta. 43+62.00



NORMAL SECTION - U.S. 50
Sta. 43+62.00 to Sta. 43+81.00

LEGEND

(1) Item 448 – 1 1/4" Asphalt Concrete Surface Course, Type 1, PG64–22

(2) Item 407 – Tack Coat for Intermediate Course (0.050 Gal./Sq.Yd.)

(3) Item 448 – 1 3/4" Asphalt Concrete Intermediate Course, Type 2, PG64–22

(4) Item 407 – Tack Coat (0.075 Gal./Sq.Yd.)

(5) Item 301 – 8" Asphalt Concrete Base, PG64–22

(6) Item 304 – 6" Aggregate Base

(7) Item 204 – Proof Rolling

(8) Item 609 – Curb, Type 6

(9) Item 605 – 6" Base Pipe Underdrains

(10) Item 608 – 4" Concrete Walk

(11) Item 659 – Seeding and Mulching

(12) Item 609 – Curb, Type 7, Sta. 36+82.87 to Sta. 38+80.00

(12) Item 610 – Retaining Wall, "Redi Rock" or Equal, Sta. 38+80.00 to Sta. 39+35.21

(13) Item 254 – Pavement Planing

(14) Item 448 – Asphalt Concrete Leveling Course, Type 2, PG 64–22

(15) Item 206 – 14" Lime Kiln Dust Stabilized Subgrade

(A) Existing Asphalt Concrete

(B) Existing Underdrain

Notes:

Item 448, Asphalt Concrete Intermediate Course, Type 2, PG64–22, is to be used as a leveling course to establish a 3/16"/ft. minimum cross slope.

Item 254, Pavement Planing, Asphalt Conrete, As Per Plan, to be performed as directed by the Engineer to provide 3/16" cross slope.

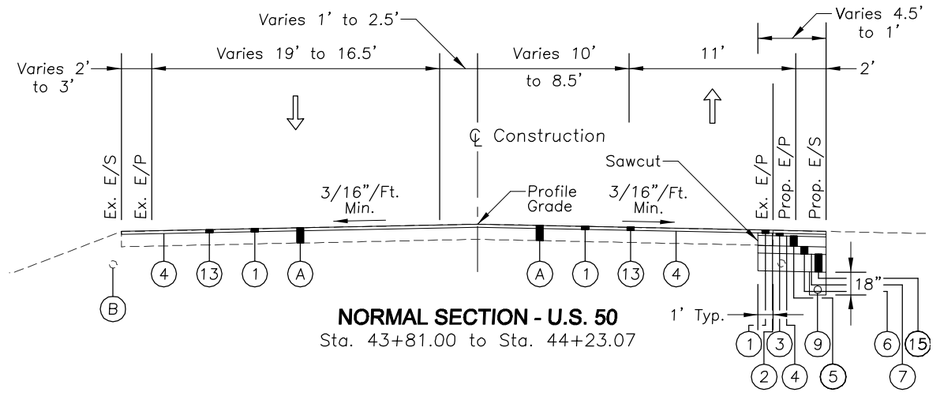
The existing pavement edge shall be sawcut to locate a sound pavement edge per 203.04(E) of the ODOT CMS. For estimating purposes, pavement calculations included in the plan indicate an average width of 1 ft. of existing pavement being replaced.

Sta. 39+35.21 to Sta. 41+32.87, see intersection detail, sheet 67.

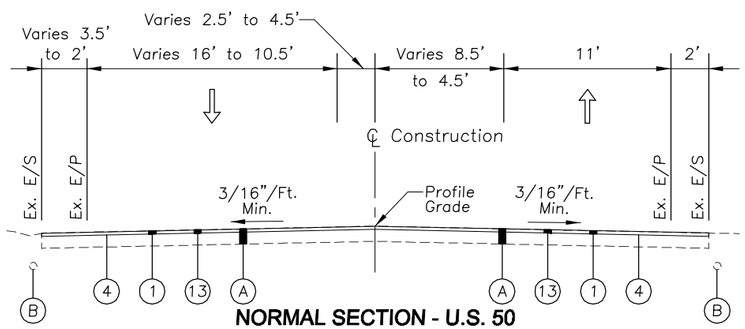
TYPICAL SECTIONS - U.S. 50

CLE-50-1.48
MILFORD PARKWAY

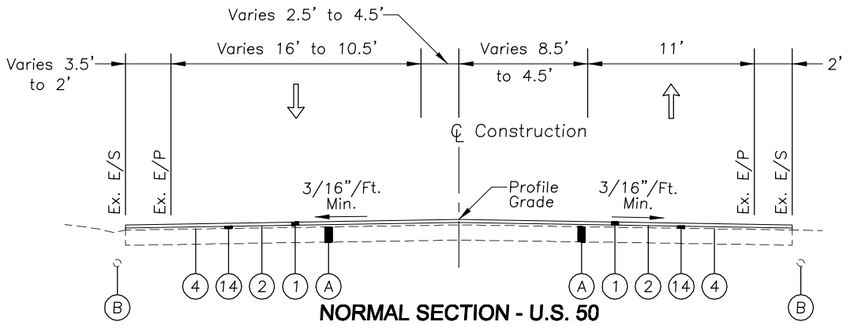
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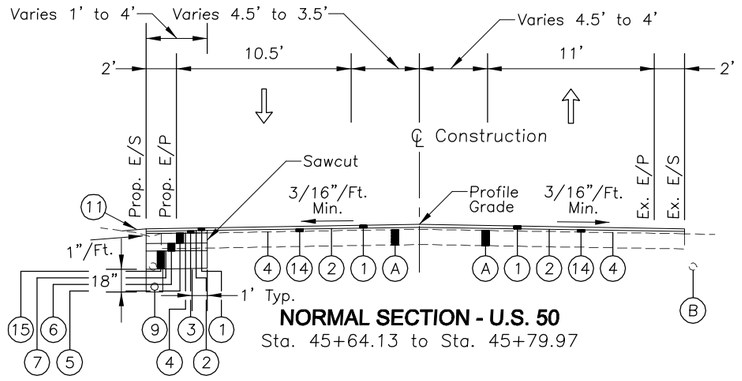
NORMAL SECTION - U.S. 50
Sta. 43+81.00 to Sta. 44+23.07



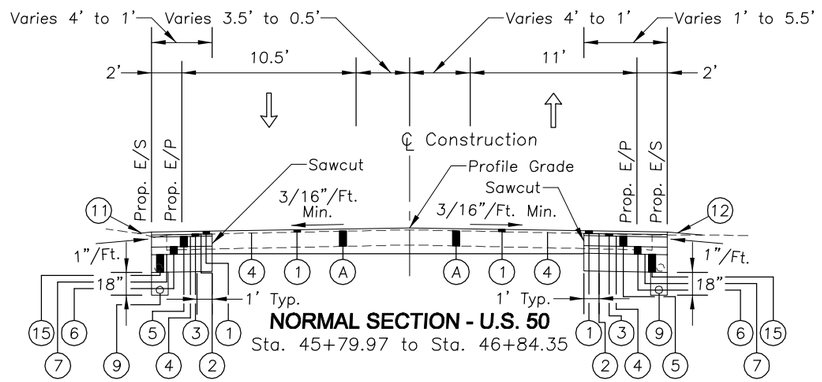
NORMAL SECTION - U.S. 50
Sta. 44+23.07 to Sta. 44+99.00



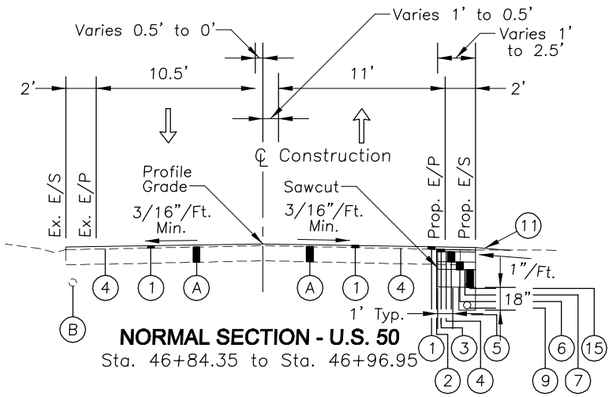
NORMAL SECTION - U.S. 50
Sta. 44+99.00 to Sta. 45+64.13



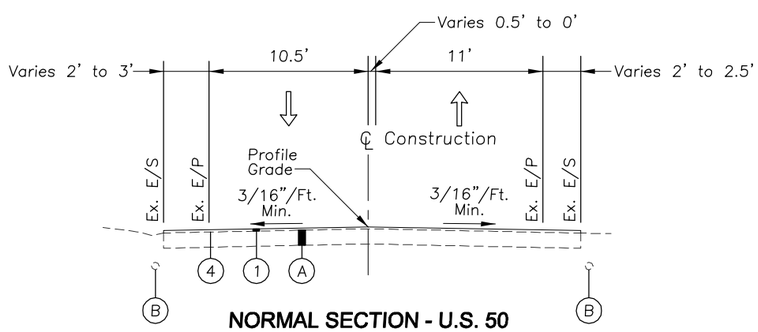
NORMAL SECTION - U.S. 50
Sta. 45+64.13 to Sta. 45+79.97



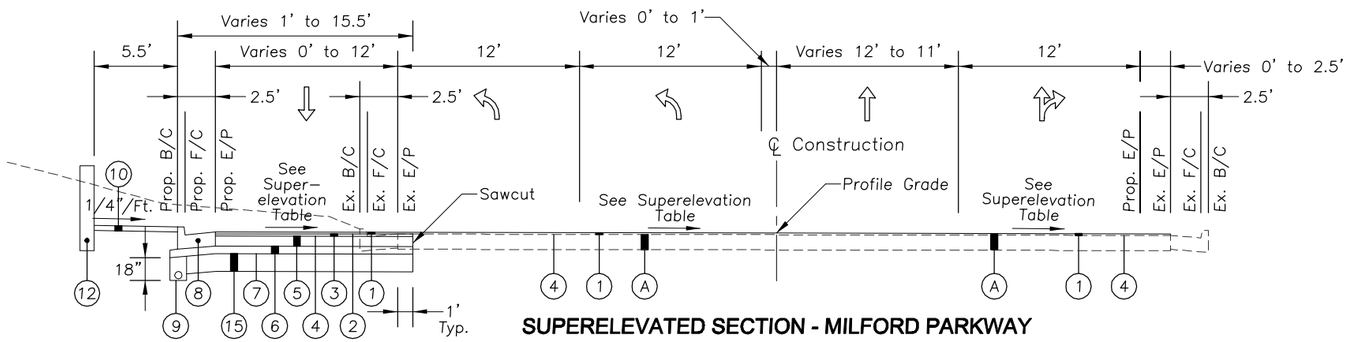
NORMAL SECTION - U.S. 50
Sta. 45+79.97 to Sta. 46+84.35



NORMAL SECTION - U.S. 50
Sta. 46+84.35 to Sta. 46+96.95



NORMAL SECTION - U.S. 50
Sta. 46+96.95 to Sta. 47+13.00



SUPERELEVATED SECTION - MILFORD PARKWAY
Sta. 7+68.00 to Sta. 10+13.85

LEGEND

(1) Item 448 – 1 1/4" Asphalt Concrete Surface Course, Type 1, PG64–22

(2) Item 407 – Tack Coat for Intermediate Course (0.050 Gal./Sq.Yd.)

(3) Item 448 – 1 3/4" Asphalt Concrete Intermediate Course, Type 2, PG64–22

(4) Item 407 – Tack Coat (0.075 Gal./Sq.Yd.)

(5) Item 301 – 8" Asphalt Concrete Base, PG64–22

(6) Item 304 – 6" Aggregate Base

(7) Item 204 – Proof Rolling

(8) Item 609 – Combination Curb and Gutter, Type 2

(9) Item 605 – 6" Base Pipe Underdrains

(10) Item 608 – 4" Concrete Walk

(11) Item 659 – Seeding and Mulching

(12) Item 610 – Retaining Wall, "Redi Rock" or Equal

(13) Item 254 – Pavement Planing

(14) Item 448 – Asphalt Concrete Leveling Course, Type 2, PG 64–22

(15) Item 206 – 14" Lime Kiln Dust Stabilized Subgrade

(A) Existing Asphalt Concrete

(B) Existing Underdrain

Notes:

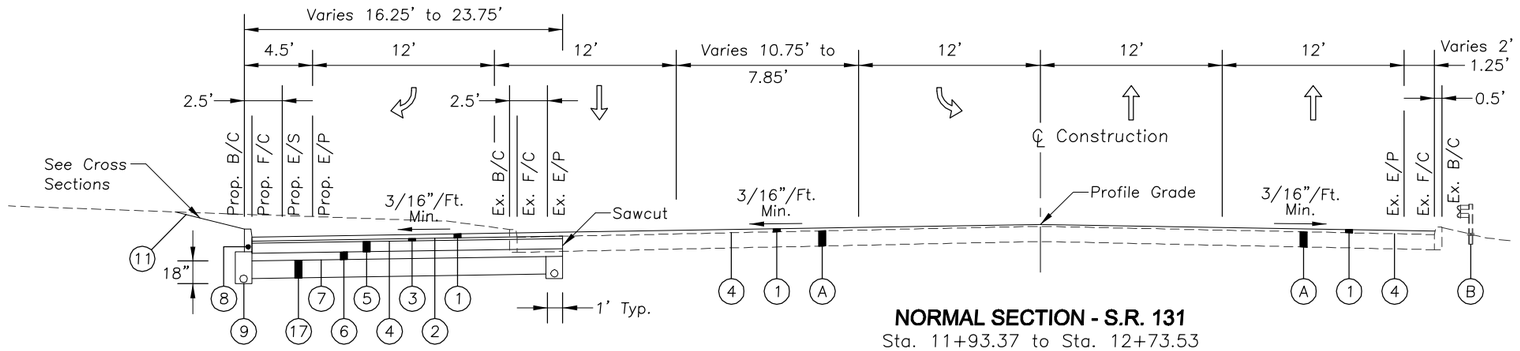
Item 448, Asphalt Concrete Intermediate Course, Type 2, PG64–22, is to be used as a leveling course to establish a 3/16"/ft. minimum cross slope.

Item 254, Pavement Planing, Asphalt Concrete, As Per Plan, to be performed as directed by the Engineer to provide 3/16" cross slope.

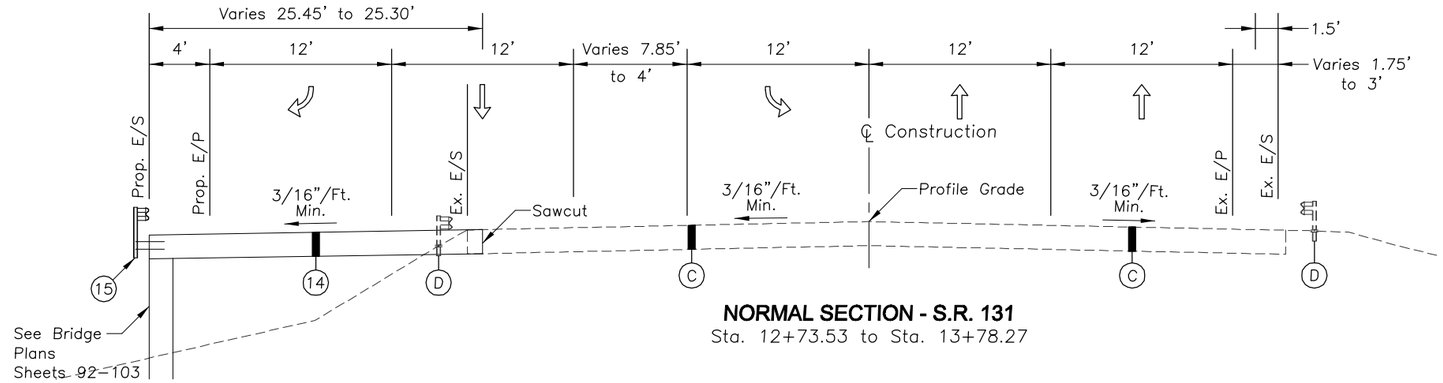
The existing pavement edge shall be sawcut to locate a sound pavement edge per 203.04(E) of the ODOT CMS. For estimating purposes, pavement calculations included in the plan indicate an average width of 1 ft. of existing pavement being replaced.

Sta. 10+13.85 to Sta. 11+93.37, see intersection detail, sheet 67.

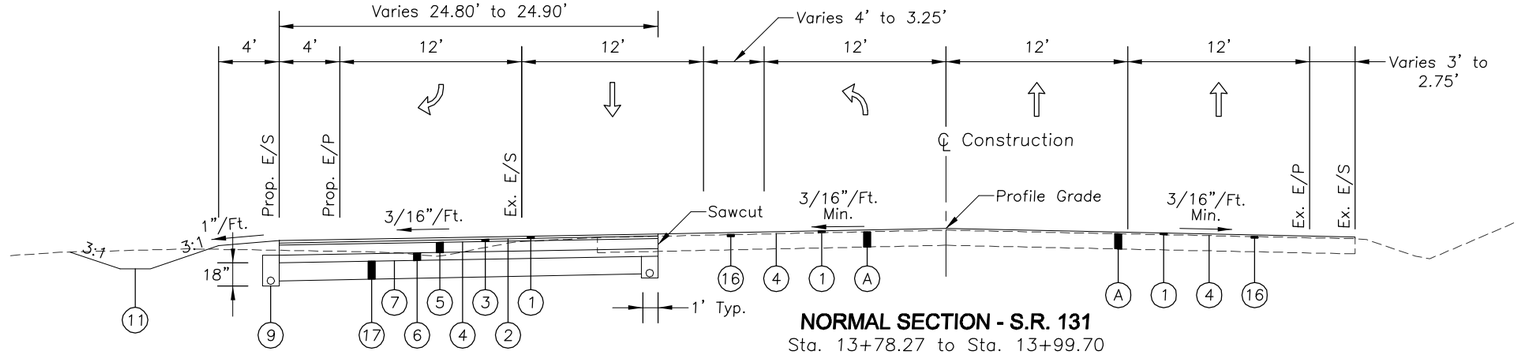
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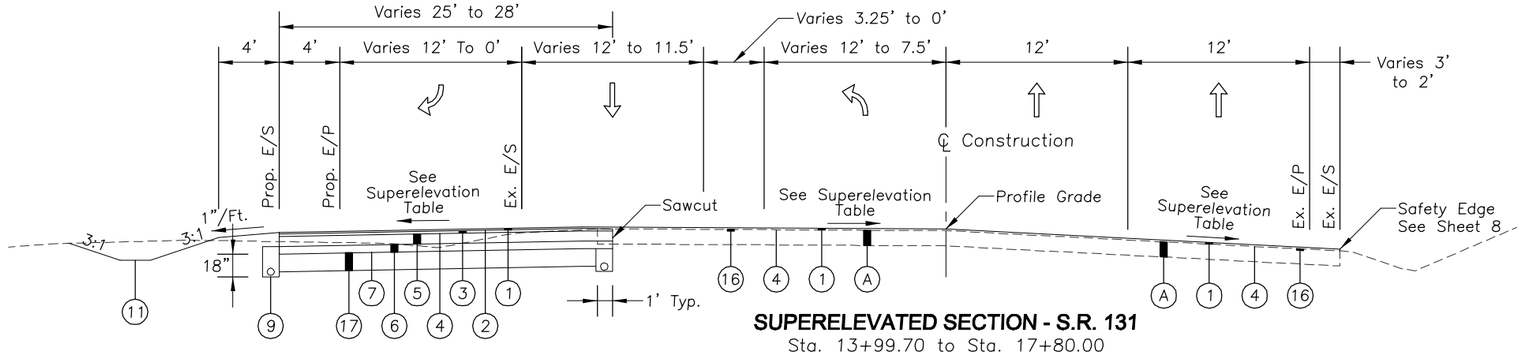
NORMAL SECTION - S.R. 131
Sta. 11+93.37 to Sta. 12+73.53



NORMAL SECTION - S.R. 131
Sta. 12+73.53 to Sta. 13+78.27



NORMAL SECTION - S.R. 131
Sta. 13+78.27 to Sta. 13+99.70



SUPERELEVATED SECTION - S.R. 131
Sta. 13+99.70 to Sta. 17+80.00

LEGEND

(1) Item 448 – 1 1/4" Asphalt Concrete Surface Course, Type 1, PG64–22

(2) Item 407 – Tack Coat for Intermediate Course (0.050 Gal./Sq.Yd.)

(3) Item 448 – 1 3/4" Asphalt Concrete Intermediate Course, Type 2, PG64–22

(4) Item 407 – Tack Coat (0.075 Gal./Sq.Yd.)

(5) Item 301 – 8" Asphalt Concrete Base, PG64–22

(6) Item 304 – 6" Aggregate Base

(7) Item 204 – Proof Rolling

(8) Item 609 – Curb, Type 6

(9) Item 605 – 6" Base Pipe Underdrains

(10) Item 608 – 4" Concrete Walk

(11) Item 659 – Seeding and Mulching

(12) Item 610 – Retaining Wall, Pile and Lagging

(13) Item 606 – Guardrail, Type 5A

(14) Item 511 – Concrete Slab Bridge Deck

(15) Item 517 – Twin Steel Tube Bridge Railing

(16) Item 254 – Pavement Planing

(17) Item 206 – 14" Lime Kiln Dust Stabilized Subgrade

(A) Existing Asphalt Concrete

(B) Existing Guardrail

(C) Existing Concrete Slab Bridge Deck

(D) Existing Twin Steel Tube Bridge Railing

Notes:

Item 448, Asphalt Concrete Intermediate Course, Type 2, PG64–22, is to be used as a leveling course to establish the minimum cross slope.

Item 254, Pavement Planing, Asphalt Concrete, As Per Plan, to be performed as directed by the Engineer to provide the minimum cross slope.

The existing pavement edge shall be sawcut to locate a sound pavement edge per 203.04(E) of the ODOT CMS. For estimating purposes, pavement calculations included in the plan indicate an average width of 1 ft. of existing pavement being replaced.

Sta. 10+13.85 to Sta. 11+93.37, see intersection detail, sheet 67.

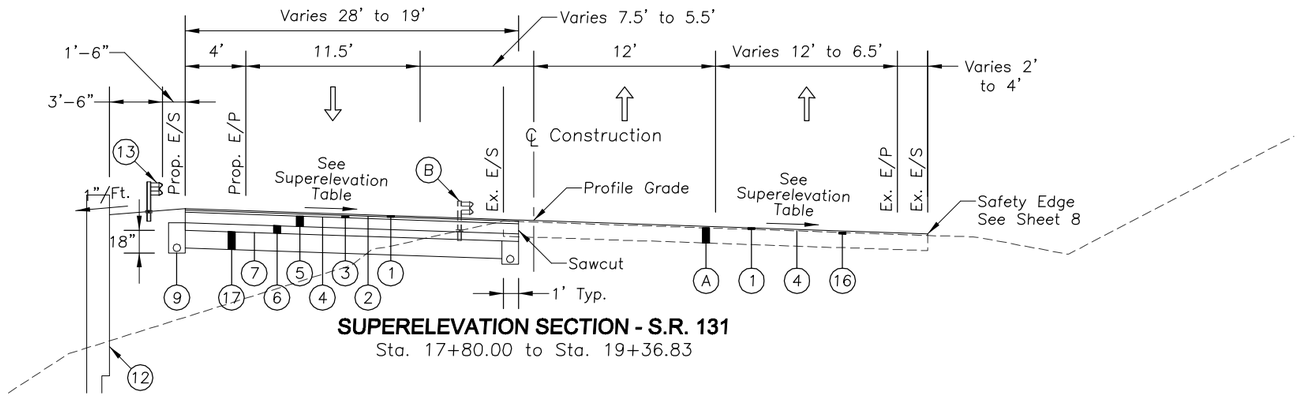
Sta. 15+09.66 to Sta. 15+98.53, see intersection detail, sheet 68.

See Bridge Plans for additional information, sheets 92–103.

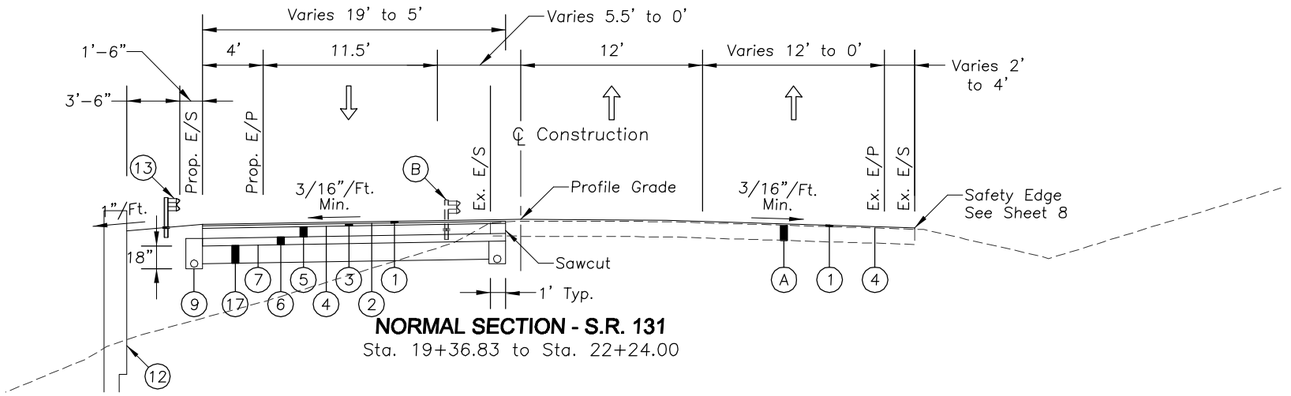
TYPICAL SECTIONS - S.R. 131

CLE-50-1.48
MILFORD PARKWAY

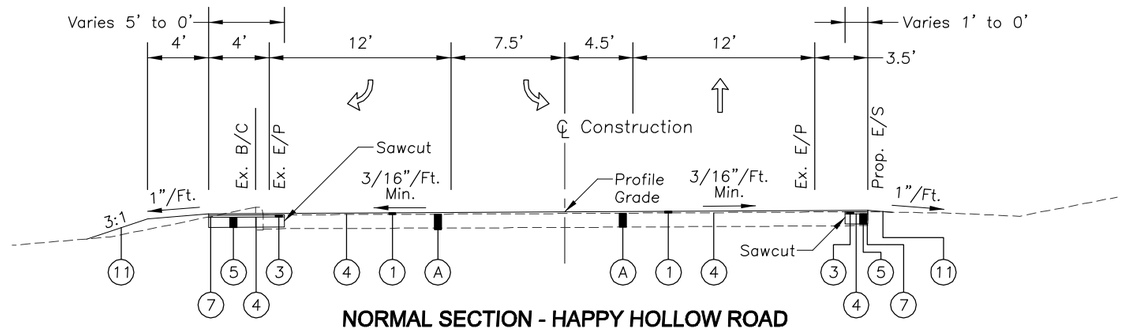
Plot time: Sep 04, 2012 – 11:32am
Drawing name: i:\2009\09C145-001\TR\DWG\09C145-001 Typical Sections – Layout Tab: 05 Typical Sections (SR131)



SUPERELEVATION SECTION - S.R. 131
Sta. 17+80.00 to Sta. 19+36.83



NORMAL SECTION - S.R. 131
Sta. 19+36.83 to Sta. 22+24.00



NORMAL SECTION - HAPPY HOLLOW ROAD
Sta. 0+63.14 to Sta. 1+06.07

LEGEND

(1) Item 448 – 1 1/4" Asphalt Concrete Surface Course, Type 1, PG64–22

(2) Item 407 – Tack Coat for Intermediate Course (0.050 Gal./Sq.Yd.)

(3) Item 448 – 1 3/4" Asphalt Concrete Intermediate Course, Type 2, PG64–22

(4) Item 407 – Tack Coat (0.075 Gal./Sq.Yd.)

(5) Item 301 – 8" Asphalt Concrete Base, PG64–22

(6) Item 304 – 6" Aggregate Base

(7) Item 204 – Proof Rolling

(8) Item 609 – Curb, Type 6

(9) Item 605 – 6" Base Pipe Underdrains

(10) Item 608 – 4" Concrete Walk

(11) Item 659 – Seeding and Mulching

(12) Item 610 – Retaining Wall, Pile and Lagging

(13) Item 606 – Guardrail, Type 5A

(14) Item 511 – Concrete Slab Bridge Deck

(15) Item 517 – Twin Steel Tube Bridge Railing

(16) Item 254 – Pavement Planing

(17) Item 206 – 14" Lime Kiln Dust Stabilized Subgrade

(A) Existing Asphalt Concrete

(B) Existing Guardrail

(C) Existing Concrete Slab Bridge Deck

(D) Existing Twin Steel Tube Bridge Railing

Notes:

Item 448, Asphalt Concrete Intermediate Course, Type 2, PG64–22, is to be used as a leveling course to establish the minimum cross slope.

Item 254, Pavement Planing, Asphalt Concrete, As Per Plan, to be performed as directed by the Engineer to provide the minimum cross slope.

The existing pavement edge shall be sawcut to locate a sound pavement edge per 203.04(E) of the ODOT CMS. For estimating purposes, pavement calculations included in the plan indicate an average width of 1 ft. of existing pavement being replaced.

TYPICAL SECTIONS - S.R. 131 & HAPPY HOLLOW ROAD

CLE-50-1.48
MILFORD PARKWAY

Plot time: Sep 04, 2012 – 11:33am
Drawing name: j:\2009\09C145-001\TR\DWG\09C145-001 Typical Sections – Layout Tab: 06 Typical Sections (SR131 & Happy Hollow)

ROUNDING

The rounding at slope breakpoints shown on the typical sections apply to all cross sections even though otherwise shown.

UTILITIES

Listed below, are all utilities located within the project construction limits together with their respective owners:

Electric:

Duke Energy
139 East Fourth Street
467 Annex
Cincinnati, OH 45202
Attn: Ginny Meyer
513–287–1748

Gas:

Duke Energy
139 East Fourth Street
Room 460A
Cincinnati, OH 45202
Attn: Ed Ackerson
513–287–2934

Telephone:

Cincinnati Bell
221 East Fourth Street
Building 121–900
Cincinnati, OH 45201
Attn: Dave Williamson
513–565–7071
Attn: Breck Cowan
513–565–7187

Cable:

Time Warner
11252 Cornell Park Drive
Cincinnati, OH 45242
Attn: Gary Napier
513–469–5483

Sewer:

City of Milford
745 Center Street
Suite 200
Milford, OH 45150
Attn: Bud White
513–248–5098

Water:

City of Milford
745 Center Street
Suite 200
Milford, OH 45150
Attn: Matthew Newman
513–831–6819

The location of the underground utilities shown on the plans are as obtained from the owners as required by Section 153.64 O.R.C.

SURVEYING PARAMETERS

Use the following vertical positioning and horizontal positioning parameters for all surveying:

Vertical Positioning

Orthometric Height Datum: NAVD88
GeoID: GEOID09

Horizontal Positioning

Reference Frame: NAD83(CORS96)
Ellipsoid: GRS80
Map Projection: Lambert Conformal Conic
Coordinate System: Ohio State Plane – South Zone
Combined Scale Factor: 0.999999972

Units are in U.S. survey feet. Use the following conversion factor: 1 meter = 3.280833333 U.S. survey feet.

WORK LIMITS

The work limits shown on these plans are for physical construction only. Provide the installation and operation of all work zone traffic control and work zone traffic control devices required by these plans whether inside or outside these work limits.

CLEARING AND GRUBBING

Along Milford Parkway, remove all trees and stumps specifically marked for removal within the construction limits under the lump sum bid for Item 201, Clearing and Grubbing.

Along S.R. 131, there are no trees or stumps specifically marked for removal within the limits of the project. However, all trees and stumps within the retaining wall construction limits, from Sta. 17+21.00 to Sta. 22+94.50, should be removed. A lump sum quantity is included in the General Summary for Item 201, Clearing and Grubbing. All provisions as set forth in the specifications under this item are included in the lump sum price bid for Item 201, Clearing and Grubbing.

MONUMENT ASSEMBLIES

Construct monument assemblies in accordance with the details shown on the standard construction drawings and at the locations shown on sheet 105.

PART–WIDTH CONSTRUCTION

Because of the necessity to build this project under traffic and to construct the full pavement width in stages, exercise care to prevent the construction of a butt joint in the base courses. Lap longitudinal joints as shown on standard construction drawing BP–3.1.

PROFILE AND ALIGNMENT

The proposed pavement resurfacing shall follow the alignment shown on the plan view sheets. The proposed profile shall follow the proposed elevations shown on the cross section sheets. The proposed asphalt concrete overlay shall vary to produce the proposed elevations shown on the cross sections.

SEEDING AND MULCHING

The following quantities are provided to promote growth and care of permanent seeded areas:

659	Seeding and Mulching	1208 S.Y.
659	Repair Seeding and Mulching	61 S.Y.
659	Commercial Fertilizer	0.163 Ton
659	Water	6.52 M.Gal.

Apply seeding and mulching to all areas of exposed soil between the right of way lines, and within the construction limits for areas outside the right of way lines covered by work agreement or temporary easement. Quantity calculations for seeding and mulching are based on these limits.

EROSION CONTROL

Items 601 are provided in the plans for Erosion Control. Rock of a stable nature shall not be removed in order to place any of these items. The Engineer shall check and non–perform quantities or adjust locations and quantities of these items where indicated by field conditions during construction. In addition, these items shall meet the requirement of 108.04.

CROSSINGS AND CONNECTIONS TO EXISTING PIPE AND UTILITIES

Where plans provide for a proposed conduit to be connected to, or cross over or under an existing sewer or underground utility, the Contractor shall locate the existing pipes or utilities both as to line and grade before starting to lay the proposed conduit.

If it is determined that the elevation of the existing conduit, or existing appurtenance to be connected, differs from the plan elevation or results in a change in the plan conduit slope, the Engineer shall be notified before starting construction of any portion of the proposed conduit which will be affected by the variance in the existing elevations.

If it is determined that the proposed conduit will intersect an existing sewer or underground utility if constructed as shown on the plan, the Engineer shall be notified before starting construction of any portion of the proposed conduit which would be affected by the interference with an existing facility.

Payment for all the operations described above shall be included in the contract price for the pertinent 603 Conduit Item.

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project and again before final acceptance by the State, representatives of the State and Contractor, along with local representatives shall make an inspection of all existing sewers which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspection shall be kept in writing by the State.

All new conduits, inlets, catch basins, and manholes constructed as part of the project shall be free of al foreign matter and in a clean condition before the project will be accepted by the State.

If it is determined that the proposed conduit will intersect an existing sewer or underground utility if constructed as shown on the plan, the Engineer shall be notified before starting construction of any portion of the proposed conduit which would be affected by the interference with an existing facility.

All existing sewers inspected initially by the above mentioned parties shall be maintained and left in a condition reasonable comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer.

Payment for all operations described above shall be included in the contract price for the pertinent 603 Conduit Items.

GENERAL SPECIFICATIONS

The State of Ohio Department of Transportation (ODOT) Construction & Material Specifications, dated January 1, 2010 (excluding contract paragraphs of Section 100, unless otherwise noted in the plans), the State of Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, 2005 Edition, the United States Department of Transportation Federal Highway Administration (FHWA) Manual of Uniform Traffic Control Devices, or the latest revisions thereof, including changes and supplemental specifications listed for this project, shall govern this project, except where specifically modified or as shown on the drawings.

ITEM 623 – CONSTRUCTION LAYOUT STAKES

It shall be the Contractor's responsibility to establish and verify the layout and the grades of all sections of the project. The Contractor shall furnish and place all additional stakes for this project to secure a correct layout of the work. The Contractor shall be responsible for having the finish work conform to the lines, grades, elevations, and dimensions called for in the plans. Once the centerline has been staked, the Contractor shall contact the Clermont County Engineer's Office to inspect the layout prior to construction. Payment for this item will be the lump sum bid for Item 623, Construction Layout Stakes.

GENERAL

No additions, deletions, or revisions to these construction plans shall be made without prior written approval from the Clermont County Engineer's Office. Any variance in these plans and what is found in the field or during construction should be addressed to the Inspector/Engineer.

CONTINGENCY QUANTITIES

The Contractor shall not order materials or perform work for items designated by plan note or to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

EXISTING GROUNDLINE

Existing groundlines and elevations shown on the profile and cross section sheets are along centerline construction.

ITEM 407 – TACK COAT, AS PER PLAN

The rate of application of the Item 407 Tack Coat shall be subject to adjustment as directed by the Engineer. Plan quantities indicate an average application rate for estimating purposes only.

JOINT SEAL

Where proposed pavement is to butt the existing pavement, the existing pavement is to be sawcut or milled and the joint is to be sealed with a four inch wide strip of asphalt cement 702.01 applied to the surface of the joint. Payment shall include all necessary labor, equipment, and materials for the work noted above and shall be included with the contract unit price bid for Item 407, Tack Coat, As Per Plan. The cost for sawcuts along existing asphalt surfaces shall be included in the unit price bid for Item 203, Excavation, As Per Plan.

MUD/DEBRIS CONTROL

The Contractor shall be required to remove and clean mud from streets immediately adjacent to the work area. Payment for this work shall be included in the cost of the project.

MAINTENANCE OF SEWER FLOWS

The Contractor shall conduct his operations so as to maintain at all times sewer flows through existing facilities to remain in place and through existing facilities to be replaced until new facilities are completed and placed in use.

Payment for additional costs involved in maintaining these flows by pumping or any other means approved by the Engineer shall be included in the unit prices bid for the respective Items of 603, Conduit.

Payment for all operations described above shall be included in the unit prices bid for the respective Items of 603, Conduit Items of the contract.

ITEM 254 – PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN

Pavement planing, bituminous, is to be performed as directed by the Engineer.

ITEM 604 – REFERENCE MONUMENT, AS PER PLAN

Railroad spikes as shown on page 105 shall be set at the locations shown in the plans under the supervision of a Professional Surveyor registered in the State of Ohio.

Payment for the above work shall be included in Item 604, Reference Monument, As Per Plan.

ITEM SPECIAL – MAILBOX SUPPORT

This work shall consist of furnishing and erecting mailbox supports and any associated mounting hardware in accordance with plan details, and attaching an owner–supplied mailbox at locations specified in the plan, or otherwise established by the Engineer.

Wood posts shall be nominal 4 inches by 4 inches square or 4.5 inches diameter round, and conform to 710.14.

Steel posts shall be nominal pipe size 2 inches I.D., and conform to AASHTO M181.

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All hardware including but not limited to plates, screws, bolts, and etc. shall be commercial–grade galvanized steel.

Posts shall be set per the first paragraph of 606.03, and shall in no instance be encased in concrete.

Support hardware shall accommodate either a single or a double mailbox installation, and no more than two boxes may be mounted on a single post.

The mailbox shall be securely and neatly attached by the Contractor to the new support. The Contractor shall furnish all necessary attachment hardware (nuts, bolts, plates, spacers, and washers) as necessary to accommodate the complete installation.

In the absence of a new box supplied by the Owner, the Contractor shall salvage the existing box and place it on the new support. Due care shall be exercised in such an operation, and the Contractor shall be responsible for repairing or replacing any box damaged by improper handling on his part, as judged and directed by the Engineer.

The Contractor shall be responsible for coordinating with the local post master regarding the timing of the movement of any mailbox to a new location.

Payment under this item shall be limited to final permanent installations, temporary installations shall be in accordance with 107.10. However, the same material and size limitations as for permanent installations shall apply.

Mailbox supports, complete in place, will be paid for at the contract unit price per each, for Item Special – Mailbox Removed and Reset.

ITEM 206 – CURING COAT, AS PER PLAN

Cure the lime kiln dust stabilized subgrade with rapid setting emulsified asphalt, conforming to 702.04. No substitute for the emulsified asphalt cure shall be permitted. All other items of Item 206, Lime Kiln Dust Stabilized Subgrade 14 inches deep shall apply.

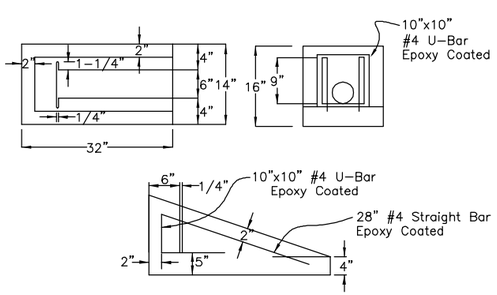
ITEM 605 – 6" BASE PIPE UNDERDRAINS, AS PER PLAN

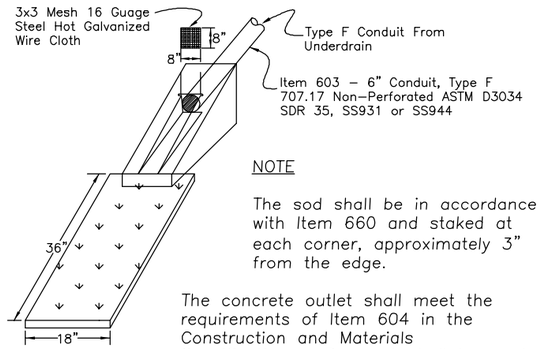
The underdrains shall be installed so that there is positive drainage parallel to the roadway to a catch basin or ditch/swale. New runs of underdrains shall have a plug. At the catch basin, ten feet of 6" conduit, type F 707.17 Nonperforated ASTM D3034 SDR (35) SS931 or SS944 shall be installed through the catch basin wall. Full depth pavement replacement required for this work shall be included in Item 605.

The following estimated quantity has been included in the General Summary for use as directed by the Engineer for the work noted above:

605 6" Base Pipe Underdrains, As Per Plan — 2641 L.F.

PRECAST REINFORCED CONCRETE OUTLET FOR UNDERDRAINS





NOTE

The sod shall be in accordance with Item 660 and staked at each corner, approximately 3" from the edge.

The concrete outlet shall meet the requirements of Item 604 in the Construction and Materials Specifications. Payment shall be made on each basis. Payment shall include the cost of the sod and wire cloth.

SAFETY EDGE

In addition to the requirements of 401.12, attach a device to the screed of the paver that confines the material at the end gate and extrudes the asphalt material in such a way that results in a compacted wedge shape pavement edge of approximately 30 degrees (not steeper than 40 degrees). Ensure the device maintains contact with the existing surface, and allow for automatic transition to cross roads, driveways and obstructions. Do not use conventional single plate strike off.

Construction of safety edge can be omitted at locations where existing width of graded shoulder or berm is less than 12". Projects with varying conditions should use safety edge where possible. Plan preparation has made every reasonable attempt to identify possible safety edge locations.

Use the TransTech Shoulder Wedge Maker, the Carlson Safety Edge End Gate, the Advant–Edger, the Troxler SafetTSlope or a similar approved–equal device that produces the same wedge consolidation results. Contact information for these wedge shape compaction devices is the following:

TransTech Systems, Inc.
1594 State Street
Schenectady, NY 12304
1–800–724–6306
www.transtechsys.com

Carlson Safety Edge End Gate
18425 50th Avenue East
Tacoma, WA 98446
253–875–8000

Advant–Edge Paving Equipment LLC
P.O. Box 9163
Niskayuna, NY 12309–0163
518–280–6090
www.advantaedgepaving.com

Troxler Electronic Loboratories, Inc.
3008 E. Cornwallis Road
Research Triangle Park, NC 27709
1–877–TROXLER
www.troxlerlabs.com

If electing to use a similar device, provide proof that the device has been used on previous projects with acceptable results or construct a test section prior to the beginning of work and demonstrate wedge compaction to the satisfaction of the Engineer. Short sections of handwork will be allowed when necessary for transitions and turnouts or otherwise authorized by the Engineer.

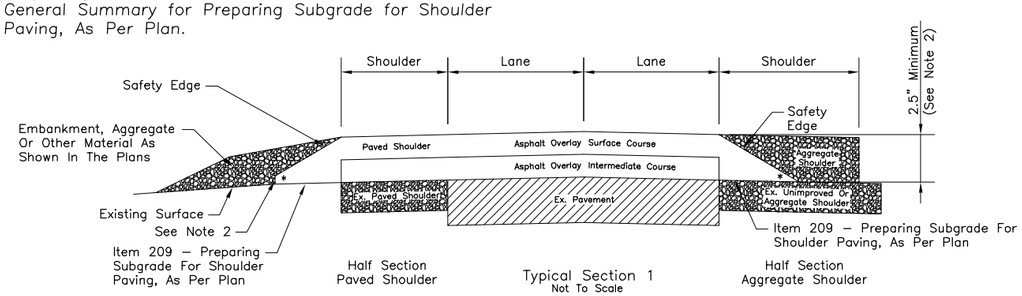
In addition to the requirements of 401.16, make the first roller pass 8 to 12 inches away from tapered edge. Do not roll the taper.

ITEM 209 – PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN

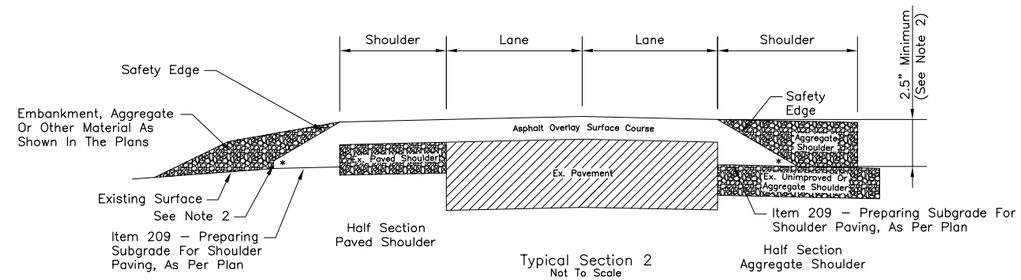
Prepare the shoulder for paving a consistent safety edge in both thickness and width.

Prior to paving the safety edge, grade an area 10 inches wide, beginning at the edge of the paved roadway, to provide a level surface free of vegetation for construction of the safety edge. If necessary, excavate the graded area to the depth necessary to construct the safety edge. Compact the graded shoulder according to 617.05, or as directed by the engineer.

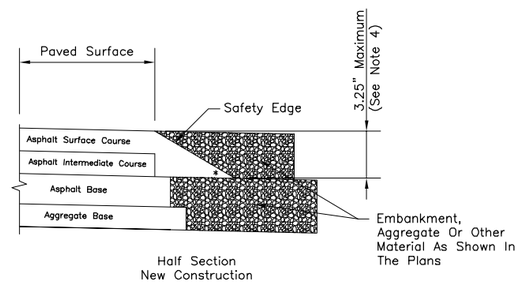
A quantity of 0.16 Miles has been carried to the General Summary for Preparing Subgrade for Shoulder Paving, As Per Plan.



Typical Section 1
Not To Scale



Typical Section 2
Not To Scale



Typical Section 3
Not To Scale

NOTES

1. Safety edges are required at the outside edges of the paved roadway (edge of travel lane or edge of paved shoulder).
2. Construct the safety edge the full asphalt concrete overlay thickness or 2.5" (63 mm), whichever is greater, not to exceed the maximum safety edge thickness of 6" (150 mm). Construct a near–vertical face below the safety edge for a thickness greater than 6" (150 mm).
3. Blade and shape existing shoulder material to form a uniform surface under the safety edge prior to placement of the asphalt concrete overlay.
4. For new pavement, construct the safety edge the full thickness of the surface and intermediate courses, not to exceed 3.25" (82 mm).

* 40° Maximum

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GENERAL NOTES

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MILFORD PARKWAY

ENVIRONMENTAL COMMITMENT NOTES

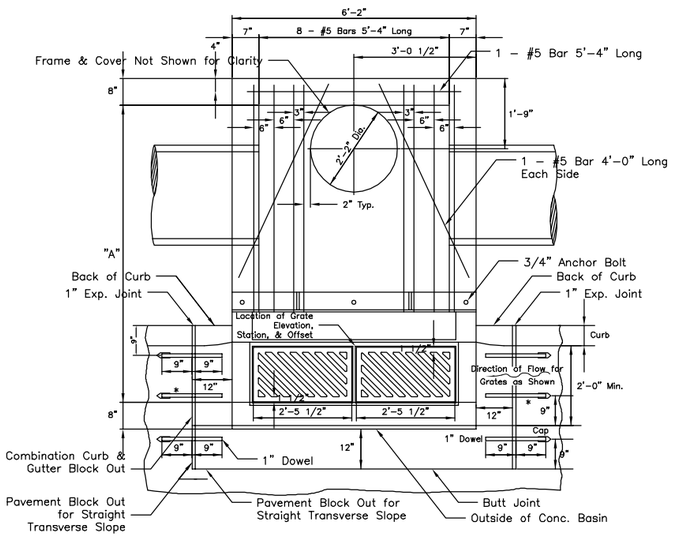
MAINTENANCE OF TRAFFIC NOTIFICATION

The Contractor will advise the Project Engineer a minimum of fourteen (14) days prior to the following: the start of construction activities, lane closures, and/or road closures. The Project Engineer will forward this information to the Clermont County Transportation Improvement District (CCTID), the Clermont County Engineer's Office (CCEO), the City of Milford, and Miami Township. The CCTID, CCEO, the City of Milford, and Miami Township will, in turn, notify the public, the local emergency services, affected schools and businesses, and any other impacted local public agency of any of the above mentioned items, via media sources.

GREATER MIAMI SOLE–SOURCE AQUIFER

The Greater Miami Aquifer System is a designated sole source aquifer. In order to minimize the potential for a release in this sensitive area, all project related refueling and maintenance activities shall be performed in an environmentally responsible manner. Spills of fuels, oils, chemicals, or other materials which could pose a threat to groundwater shall be cleaned up immediately by the Contractor. If the spill is a reportable amount, the Contractor should contact the City of Milford Fire Department at (513) 831–7777 for cleanup of the spill.

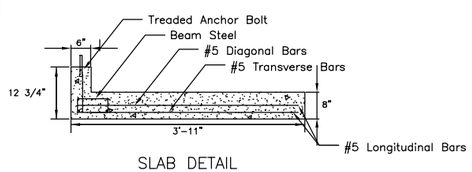
CATCH BASIN NO. 3, AS PER PLAN



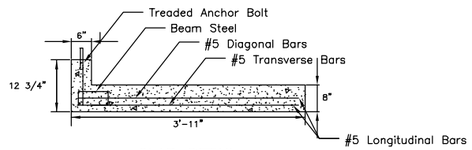
PLAN OF CATCH BASIN & PAVEMENT JOINTS

* Dowel Location for Curb & Gutter

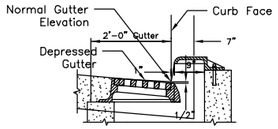
Pipe Size	dim. "A"
12" – 21"	80"
24" – 27"	89"
30" – 36"	99"



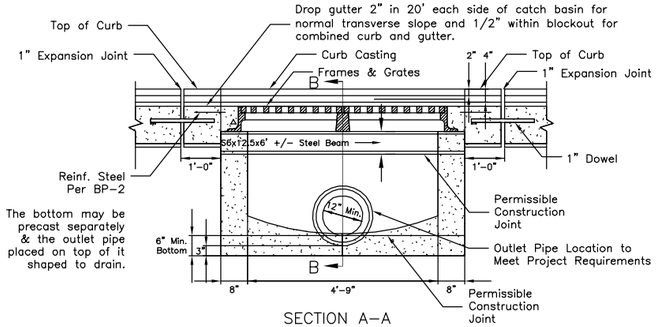
SLAB DETAIL



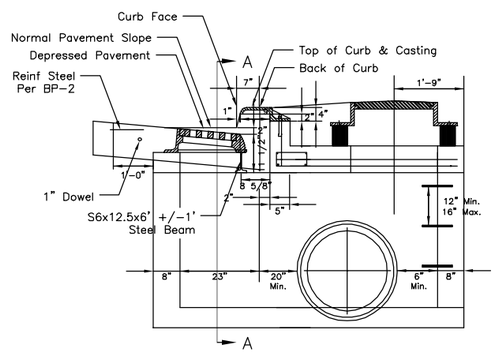
SLAB DETAIL



SECTION B–B
WITH CURB & GUTTER



SECTION A–A



SECTION B–B

NOTES

Grates – Standard grate as shown in the plan view shall be provided unless the plans specifically require grate "V." Place grate so the diagonal bars direct drainage flow toward the curb. All bar edges to be rounded 1/8" radius.

Castings – The design shall be essentially the same and equally as strong as those shown hereon. Minimum weights are: curb casting 305 lbs., two grates 254 lbs, from 590 lbs., and two "V" grates 210 lbs. Bearing areas of frame and grate shall be so fitted and finished, Without projections, as to provide a firm and even seat for all portions of the grate in the frame without rocking.

Dowels – Four 1"x18" are required for concrete pavement of gutter blockout. See ODOT BP–4 for dowel details.

Brick or Concrete Block – Side walls, when used in place of concrete, shall be 8" nominal thickness.

Blockout – Shall be paved with class C concrete in PCC pavement or gutter and paid for as part of the pavement or gutter with no deduction in pavement, curb, or gutter quantities because of castings. A class C concrete apron the size of the 2' gutter blockout shall be cast in place in asphalt pavement (no dowels required) with the cost included in the catch basin bid price. No deduction to be made in curb quantities.

Precast – Construction is permitted, except for apron, and concrete shall meet requirements of 706.13 with 6 +/– 2% air void content in the hardened concrete. Precast walls shall have a minimum thickness of 6" and reinforcing shall be sufficient to permit shipping and placement without damage.

Steps – Shall be provided where the depth exceeds 48" and shall meet the requirements of drawing MH–1.

CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN

Remove grate, adjust to grade, and replace grate with an ADA compliant grate, such as Neenah No. R–4859–Q, Type Q, East Jordan No. 5110M4, or approved equal.

PAVEMENT RESTORATION FOR PIPE INSTALLATIONS AND/OR REMOVALS

The following quantity has been provided for pavement restoration following installation and/or removal of pipes.

301 Asphalt Concrete Base, PG64–22 56 S.Y.

The above quantity is based on a 301 thickness of 14 inches and a pavement restoration width that includes the trench width plus two feet on each side of the trench. See Standard Construction Drawing DM–1.4 for trench width formula and calculation.

Provide any materials used outside the limits stated above at no additional cost.

PAVEMENT RESTORATION FOR DRAINAGE STRUCTURE INSTALLATIONS

The following quantity is provided for pavement restoration following installation of Item 604 Drainage Structures.

301 Asphalt Concrete Base, PG64–22 8 S.Y.

The above quantity is based on a 301 thickness of 14 inches and a width of two feet around the perimeter of the drainage structure.

Provide any materials used outside the limits stated above at no additional cost.

CONSTRUCTION INSPECTIONS, SAMPLING, AND TESTING

All construction inspections, sampling, and testing will be conducted through the Clermont County Engineer's Task Order.

CALCULATED KMD CHECKED EMR

GENERAL NOTES

CLE-50-1.48
MILFORD PARKWAY

ITEM 614 – MAINTAINING TRAFFIC

It is the intention of these plans to perform the required work with the least inconvenience to the traveling public and the maximum safety of the public and the Contractor. It is the Contractor's responsibility to safely maintain traffic at all times.

The requirements for maintaining traffic shall conform to the applicable sections or specification in the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, Latest Edition, the Manual of Uniform Traffic Control for Construction and Maintenance Operations, Latest Edition, and the Ohio Department of Transportation Traffic Control Manual. Any variance from these requirements shall be approved in advance by the County Engineer in writing.

(A) Before work begins, the Contractor shall submit to the County Engineer, the names and telephone numbers of persons who can be contacted 24 hours a day by the County Engineer and all interested police agencies. These persons shall be responsible for placing or replacing necessary traffic control devices to maintain the traveled pavement safely.

(B) U.S. 50, Milford Parkway, and northeastbound S.R. 131 must be open to traffic during construction at all times. At least one lane of traffic shall be maintained at all times while work is being performed. Traffic shall be controlled using flaggers and traffic control devices as required. During non–working hours, traffic shall be restored to the full width of existing pavement.

Southwestbound S.R. 131 may be closed to through traffic, which may be detoured during the construction subject to the following:

(1) Closings are subject to the approval of the County Engineer and shall not exceed 45 days total. Advance notice of two weeks must be provided.

(2) Lights, signs, barrels, and all barricades are the responsibility of the Contractor.

(3) Local traffic shall be maintained at all times. The Contractor shall coordinate the work so as not to interrupt ingress and egress from affected properties.

(C) Traffic shall be maintained at all intersections and drives at all times and shall be controlled with flaggers and traffic control devices as required.

(D) The County Engineer shall have the authority to control the progress of the work on the project in its relation to obtaining safe conditions, including the authority to modify conditions or halt work until all applicable or remedial safety measures are taken. The Contractor is to provide all traffic control measures as the County Engineer deems necessary.

(E) Temporary aggregate needed to maintain the traffic flow and entrances to any property is included in the General Summary, Item 304, Aggregate Base, As Per Plan. Estimated quantity is 10 C.Y.

(F) Contractor shall maintain access to drives at all times. Payment for work and materials necessary to maintain access is to be included in Item 614, Maintaining Traffic.

The following estimated quantity has been included in the General Summary for use as directed by the Engineer for the work noted above:

614	Maintaining Traffic	1 L.S.

The lump sum payment shall include maintaining the driveways.

The Contractor shall coordinate the construction schedule and any disruptions to emergency access to any of the residents and businesses within the County for the County Engineer to provide at least three days notice of any disruption to the residents and emergency services. Provide a minimum of two weeks notice for road closings.

The Contractor shall provide, erect, and maintain signs and sign supports, as detailed in the Ohio Manual of Uniform Traffic Control Devices, and Type III barricades of the type and location as shown on the Detour Map on Sheet 12.

All work and traffic control devices shall be in accordance with CMS 614 and other applicable portions of the specifications, as well as the Ohio Manual of Uniform Traffic Control Devices. Payment for all labor, equipment, and materials shall be included in the lump sum contract price for Item 614, Maintaining Traffic, unless separately itemized in the plan.

TRENCH FOR WIDENING

Trench excavation for base widening shall be only on one side of the pavement at a time. The open trench shall be adequately maintained and protected with drums or barricades at all times. Placement of proposed subbase and base material shall follow as closely as possible behind excavation operations. The length of widening trench which is open at any one time shall be held to a minimum and shall at all times be subject to approval of the Engineer.

OVERNIGHT TRENCH CLOSING

The base widening shall be completed to a depth of no more than 6 inches below the existing pavement by the end of each work day. No trench shall be left open overnight except for a short length (25' or less) of a work section at the end of the trench. In case work must be suspended because of inclement weather or other reasons, the trench for the uncompleted base widening shall be backfilled at the direction of the Engineer.

DUST CONTROL

The Contractor shall furnish and apply water for dust control as directed by the Engineer. The following estimated quantities have been included for dust control purposes:

616	Water	6.80 M. Gal.

WORK ZONE MARKINGS AND SIGNS

The following estimated quantities have been carried to the General Summary for use at locations identified by the Engineer for work zone pavement markings and signs per the requirements of CMS 614.04 and 614.11.

614	Detour Signing	1 L.S.
614	Work Zone Lane Line, Class I, 740.06, Type I	0.07 Mile
614	Work Zone Centerline, Class I, 740.06, Type I	0.46 Mile
614	Work Zone Channelizing Line, Class I, 740.06, Type I	1357 L.F.
614	Work Zone Edge Line, Class I, 740.06, Type I	1.02 Mile
614	Work Zone Stop Line, Class I, 740.06, Type I	93 L.F.
614	Work Zone Transverse/Diagonal Line, Class I, 740.06, Type I	459 L.F.
614	Work Zone Arrow, Class I, Type I	12 Each
614	Work Zone Lane Line, Class III	0.07 Mile
614	Work Zone Centerline, Class III	0.57 Mile
614	Work Zone Channelizing Line, Class III	2908 L.F.
614	Work Zone Edge Line, Class III	0.64 Mile
614	Work Zone Stop Line, Class III, 642 Paint	214 L.F.
614	Work Zone Transverse/Diagonal Line, Class III	783 L.F.
614	Work Zone Arrow, Class III, 642 Paint	22 Each

ITEM 614 – BARRIER REFLECTORS AND/OR OBJECT MARKERS

Barrier reflectors and/or object markers shall be installed on all potable concrete barrier used for traffic control. Barrier reflectors, object markers, and their installation shall conform to CMS 626, except that the spacing shall be 50'. An estimated quantity of 23 each of Item 614, Barrier Reflector, Type B2 and 23 each of Item 614, Object Marker, one–way have been provided and carried to the General Summary.

ITEM 614 – WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

This item shall consist of furnishing and installing a non–gating impact attenuator. Furnish an impact attenuator from the Office of Roadway Engineering approved list for Work Zone Impact Attenuators. The approved list is available at the "Roadway Standards: Proprietary Roadside Safety Devices" web page on the Office of Roadway Engineering website.

Installation shall be at the locations specified in the plans in accordance with the manufacturer's specifications.

The Contractor shall repair or replace a damaged unit within 24 hours of a damaging impact.

When bidirectional designs are specified, the Contractor shall supply appropriate transitions.

When gating impact attenuators are desired, the Contractor shall submit documentation to the Engineer for acceptance.

The cost for the additional barrier required for a gating impact attenuator shall be included in the cost of the gating impact attenuator.

Payment for the above work shall be made at the unit price bid and shall include all labor, tools, equipment and materials necessary to construct and maintain a complete and functional impact attenuator system, including all related backups, transitions, leveling pads, hardware and grading, not separately specified, as required by the manufacturer.

GENERAL

The Contractor will advise the Project Engineer a minimum of fourteen (14) days prior to the following: the start of construction activities, lane closures, and/or road closures. The Project Engineer will forward this information to the Clermont County Transportation Improvement District (CCTID), the Clermont County Engineer's Office (CCEO), the City of Milford, and Miami Township. The CCTID, CCEO, the City of Milford, and Miami Township will, in turn, notify the public, the local emergency services, affected schools and businesses, and any other impacted local public agency of any of the above mentioned items, via media sources.

Access to the Milford Community Fire Department, Station 1, at 687 U.S. 50 shall be maintained at all times and other local traffic shall be maintained as per CMS 614.02(A).

U.S. 50, S.R. 131, and Milford Parkway – Two–lane, two–way traffic shall be maintained during peak hours (weekdays, 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM) and at all other times except as follows:

One lane, two way traffic (using standard drawing MT–97.10 and MT–97.12) will be permitted for minimum periods consistent with requirements of the specifications for completed asphalt courses and when necessary for the Contractor's equipment to occupy the pavement for a short time.

Southbound S.R. 131 may be closed to traffic under conditions stated in the sequence of construction and plan.

Payment for all work required for traffic control including providing, erecting, maintaining, and removing all lights, signs, barricades, drums, regulatory signs, and all other traffic control devices shall be included in the lump sum bid for Item 614, Maintaining Traffic, unless separately itemized in this plan.

SEQUENCE OF CONSTRUCTION

It is the intent of the following sequence of construction to provide a work area for the Contractor while also maintaining traffic in a manner which is safe for the traveling public; therefore, all phases shall have strict adherence.

All temporary or permanent pavement markings shall be in place before any pavement is opened to traffic.

Prior to Phase One, construct the proposed traffic signal and remove the existing traffic signal at the intersection of U.S. 50/S.R. 131/Milford Parkway.

PHASE ONE

The Contractor shall perform the work on S.R. 131 north of U.S. 50, which shall include the retaining wall, full depth pavement, drainage, grading, and bridge widening and rehabilitation. The southwestbound lane of S.R. 131, northeast of Happy Hollow Road, may be closed for a maximum of 45 days for construction of the proposed retaining wall. The detour plan is shown on sheet 12. One–way, northeastbound, traffic shall be maintained.

PHASE TWO

The Contractor shall perform the work on U.S. 50 west of S.R. 131/Milford Parkway, which shall include the retaining wall, sidewalk, drainage, and grading. Traffic shall be maintained.

The Contractor shall also perform the work on Milford Parkway south of U.S. 50, which shall include the retaining wall, sidewalk, full depth pavement, drainage, and grading. Traffic shall be maintained during this phase by use of a lane shift on a multi–lane highway using drums per standard drawing MT–102.20.

PHASE THREE

The Contractor shall perform the work on U.S. 50 east of S.R. 131/Milford Parkway, which shall include full depth pavement, drainage, and grading. Traffic shall be maintained by use of the closing of a right turn lane.

PHASE FOUR

The Contractor shall place the asphalt surface course (at night, 10 p.m. – 6 a.m.), signing, and permanent pavement markings on S.R. 131, Milford Parkway, and U.S. 50.

NOTICE OF CLOSURE SIGNS

These signs shall be erected by the Contractor at least fourteen (14) days in advance of the scheduled road closure. The signs shall be erected on the right hand side of the road facing traffic and shall be located in the field so as not to interfere with any permanent signs. The signs should be erected along roadways at the point of closure.

Payment for this work shall be included in the lump sum bid for Item 614, Maintaining Traffic, and shall include furnishing, erecting, maintaining, and removing the signs including supports.

Plot time: Sep 04, 2012 – 1:27pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT – Layout Tab: 10 MOT General Notes

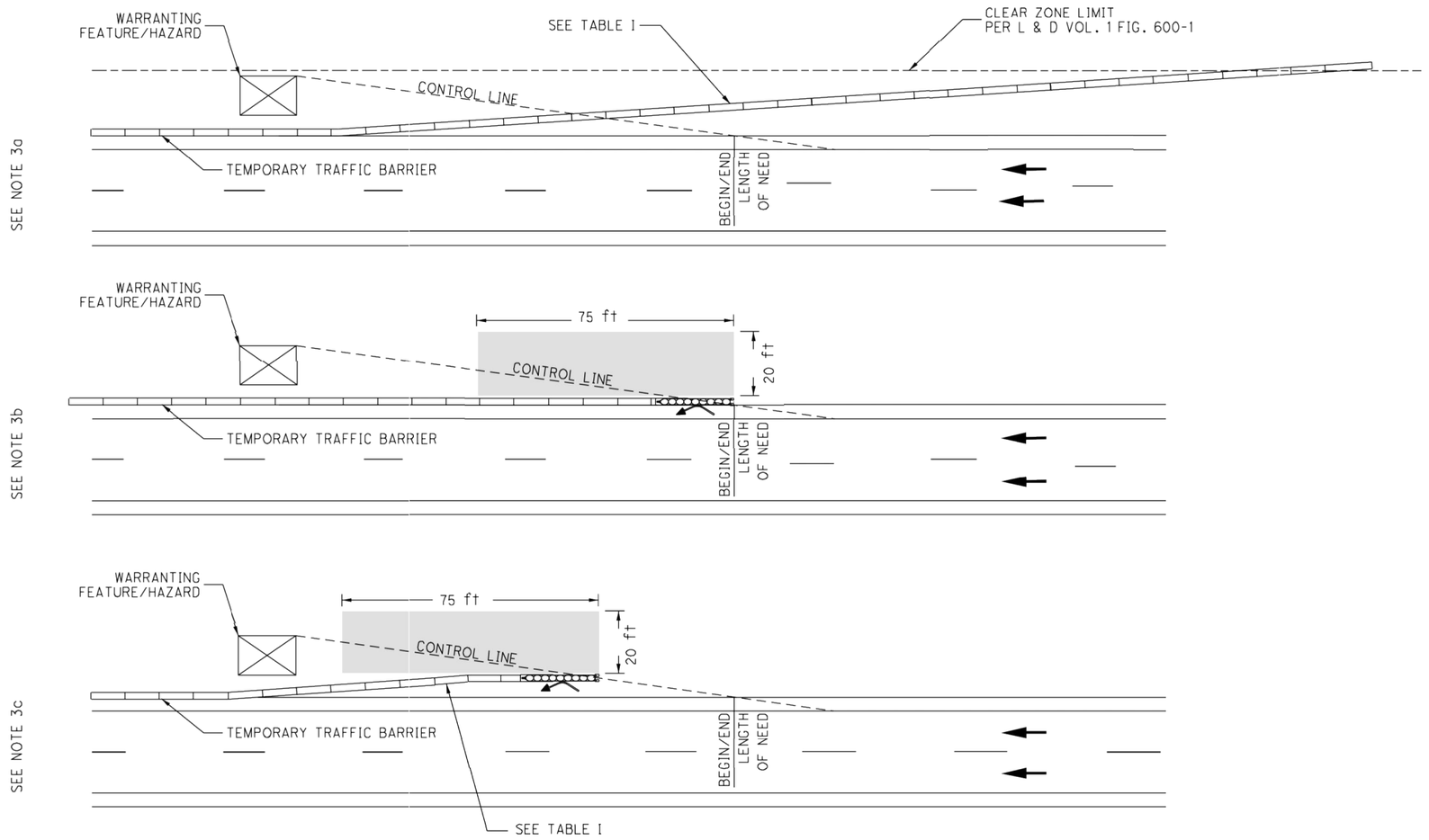


TABLE I

SPEED LIMIT (MPH)	PCB FLARE RATE MINIMUM
25	8:1
30	8:1
35	10:1
40	11:1
45	13:1
50	14:1
55	16:1
60	17:1
65	19:1

NOTES

1. Attenuators shall be installed per manufacturers' specifications.
2. Recovery area shall have slopes 3:1 or flatter and be free of workers, hazards, equipment, drop-offs, and material storage.
3. The Contractor shall select one of the three acceptable options for terminating temporary traffic barrier:
   a) Terminate flared section of temporary traffic barrier outside clear zone with tapered end only where cross slopes are 10:1 or flatter.
   b) Terminate temporary traffic barrier with an impact attenuator. A non-gating attenuator may be included in the length of need measurement.
   c) Flare a section of temporary traffic barrier to the length of need control line and terminate with an impact attenuator. A non-gating impact attenuator may be included in the flared section of temporary traffic barrier.
4. The Contractor shall submit documentation, 2 weeks prior to implementation, to the Engineer for acceptance when:
   a) Deviating from the three acceptable options for terminating temporary traffic barrier.

      Documentation shall explain any deviations and verify that the recovery area fulfills the manufacturers' specifications and note 2.

   b) Using a gating impact attenuator in lieu of a non-gating impact attenuator.

      The gating impact attenuator length shall not be included as part of the length of need or recovery area requirements. Additional temporary traffic barrier will need to be added. The additional cost for the additional barrier required for a gating impact attenuator shall be included in the cost of the gating impact attenuator.

      Documentation shall verify that the extended recovery area fulfills the manufacturers' specifications and note 2.
5. Gating impact attenuators shall not be used in gore locations or within the clear zone between bi-directional traffic.

LEGEND

RECOVERY AREA

TEMPORARY TRAFFIC BARRIER

NON-GATING IMPACT ATTENUATOR

DIRECTION OF TRAVEL

OFFICE OF TRAFFIC ENGINEERING

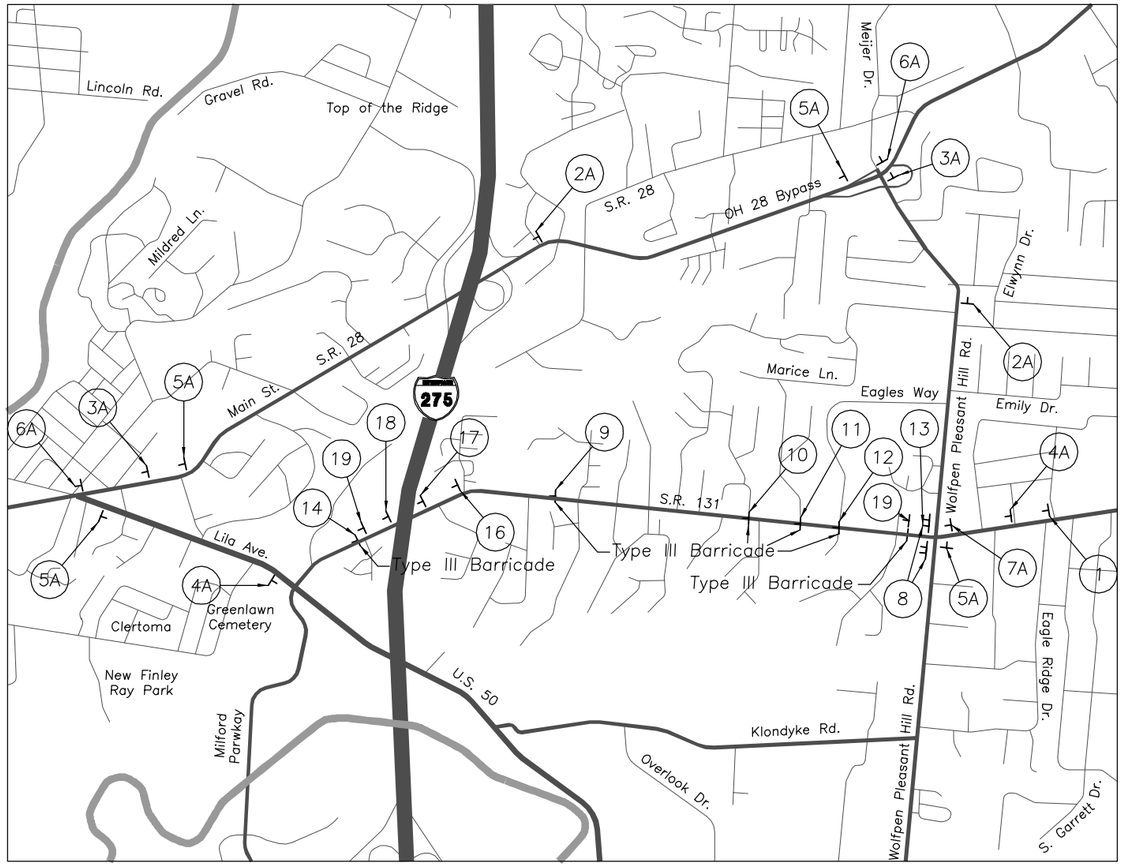
DESIGNED MER | REVIEWED

REVISION DATE 10/21/11 | CHECKED LAM

PIS NUMBER 2010175

PLAN INSERT SHEET

IMPACT ATTENUATOR PLACEMENT



SCALE IN FEET

0 1000 2000

DETOUR MAP

1. M1–5 30"x24"
   W20–2 36"x36" DETOUR AHEAD
2. M4–8 24"x12" DETOUR
   M1–5 30"x24"
3. M4–8 24"x12" DETOUR
   M1–5 30"x24"
   M5–1L
4. M4–8 24"x12" DETOUR
   M1–5 30"x24"
   M5–1R
5. M4–8 24"x12" DETOUR
   M1–5 30"x24"
   M6–3
6. M4–8 24"x12" DETOUR
   M1–5 30"x24"
   M6–1
7. M4–8 24"x12" DETOUR
   M1–5 30"x24"
   M6–1
8. R11–3A 60"x30" ROAD CLOSED 1.5 MILES AHEAD LOCAL TRAFFIC ONLY
   M4–10R 48"x30" DETOUR
9. R11–3A 60"x30" ROAD CLOSED 0.5 MILES AHEAD LOCAL TRAFFIC ONLY
10. R11–3A 60"x30" ROAD CLOSED 0.5 MILES AHEAD LOCAL TRAFFIC ONLY
11. R11–3A 60"x30" ROAD CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY
12. R11–3A 60"x30" ROAD CLOSED 1.2 MILES AHEAD LOCAL TRAFFIC ONLY
13. R11–3A 60"x30" OPEN TO DOUBLEGATE DR.
14. R11–2 48"x30" ROAD CLOSED
15. R11–2 48"x30" ROAD CLOSED
    M4–10L 48"x30" DETOUR
16. Type A Warning Light
    W20–1 36"x36" ROAD WORK AHEAD
17. Type A Warning Light
    W20–3 36"x36" ROAD CLOSED AHEAD
    W16–2 24"x18" 1000 FEET
18. W20–3 36"x36" ROAD CLOSED AHEAD
    W16–2 24"x18" 500 FEET
19. W20–H14 60"x36" ROAD WILL BE CLOSED 00/00/00 FOR 00 DAYS OHIO DEPT OF TRANSPORTATION
A. M3–4 24"x12" WEST

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC DETOUR PLAN - PHASE ONE

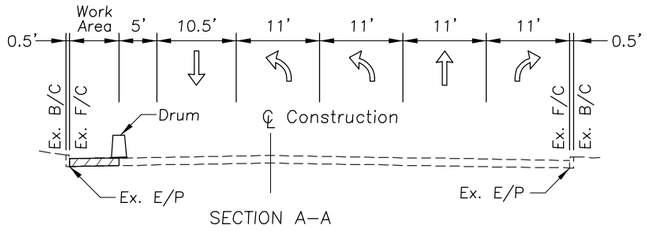
CLE-50-1.48
MILFORD PARKWAY

12
132

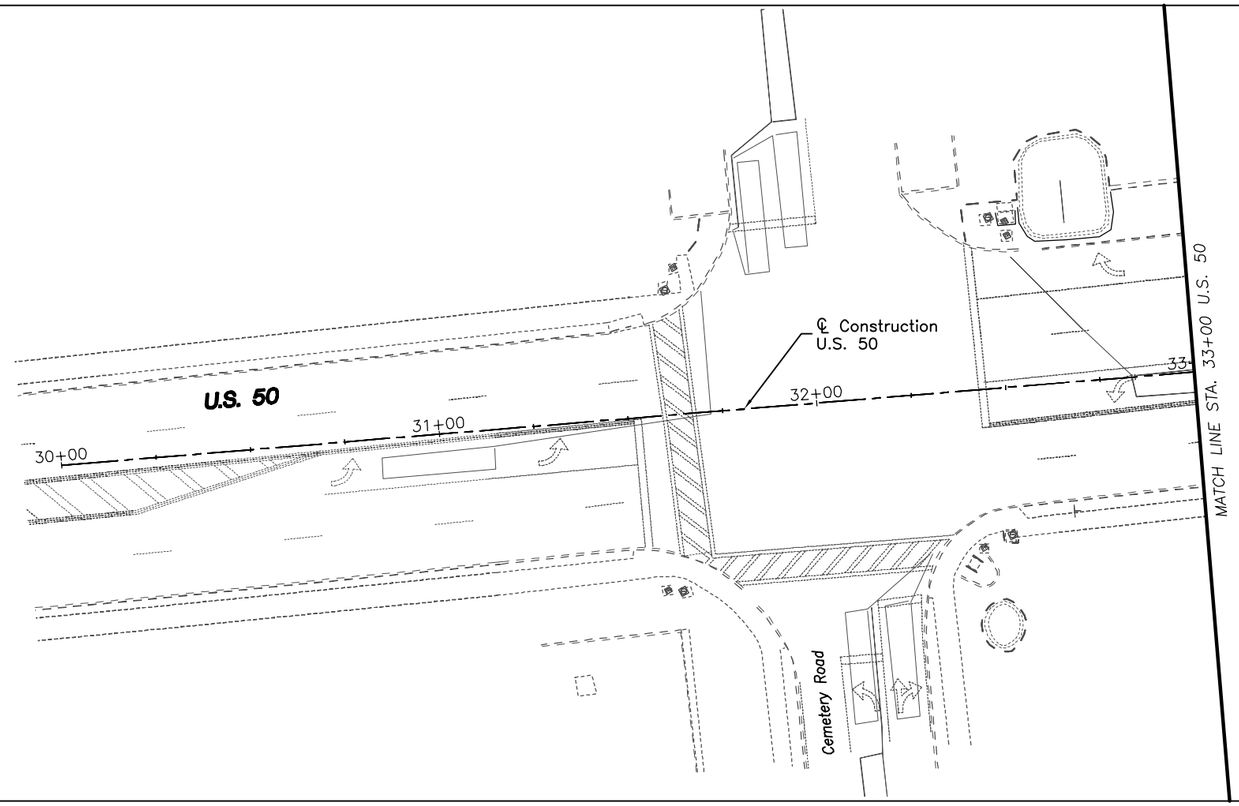
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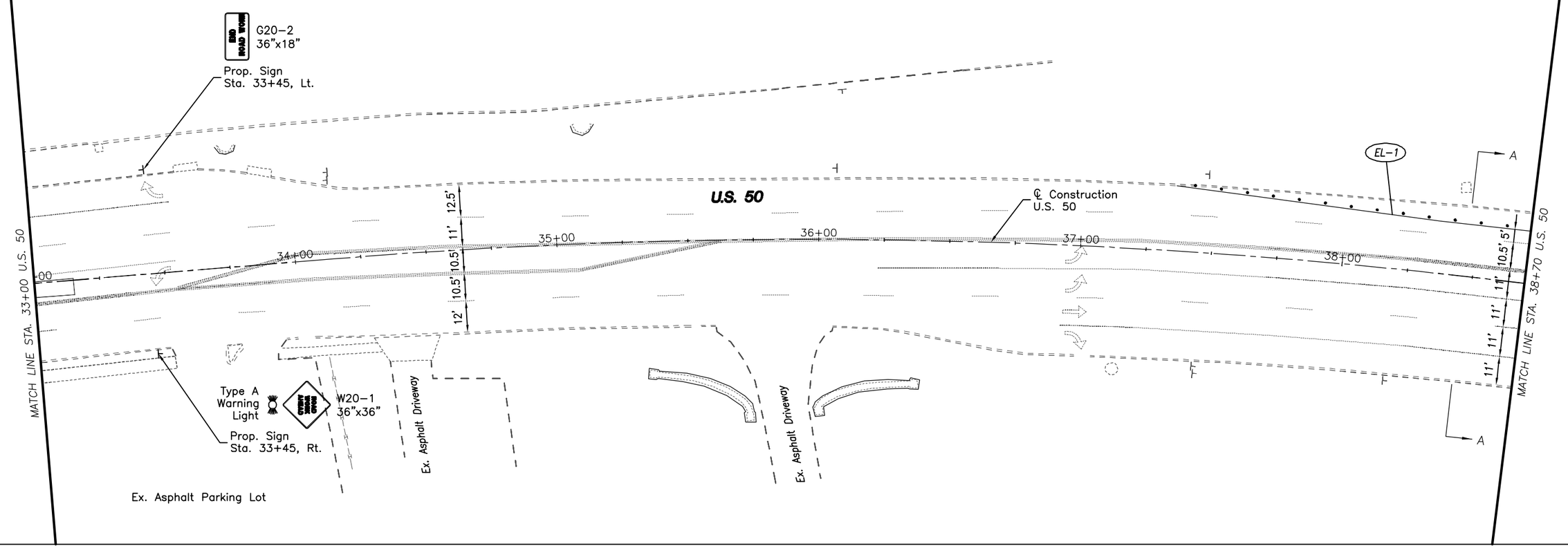
LEGEND

▨	AREA TO BE CONSTRUCTED
• • •	DRUMS
·····XXX·····	REMOVE EXISTING PAVEMENT MARKINGS
EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE



SECTION A–A





N

HORIZONTAL SCALE IN FEET
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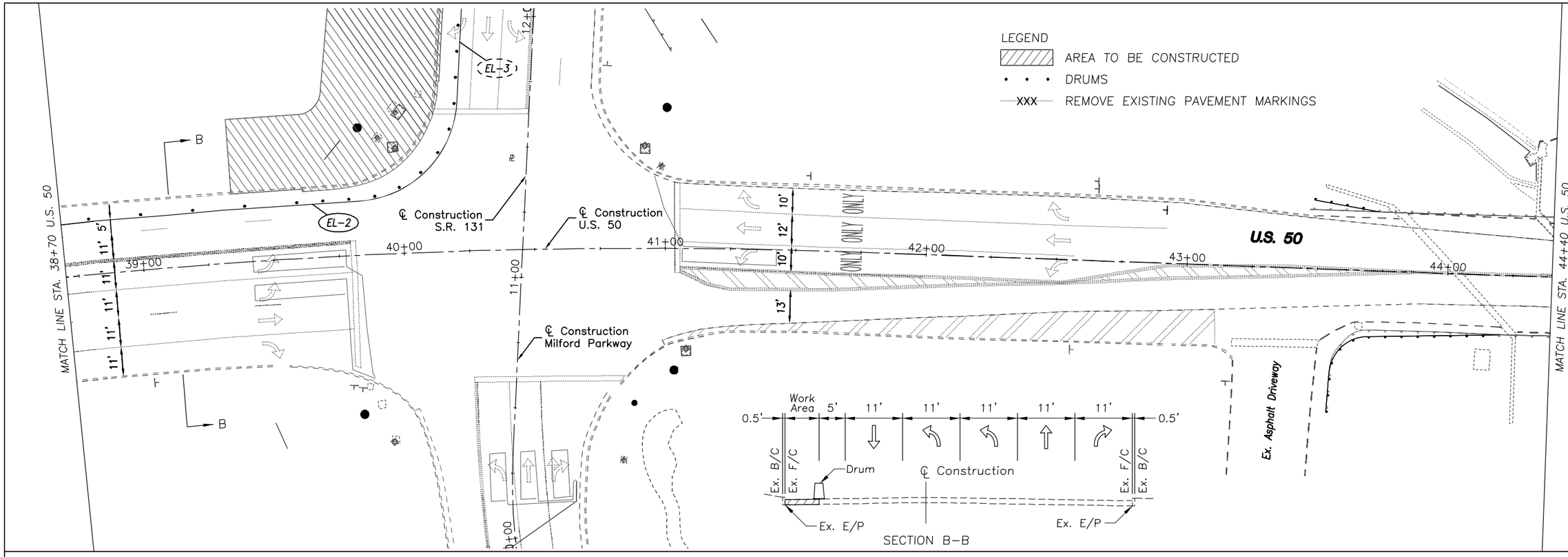
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CHECKED EMR

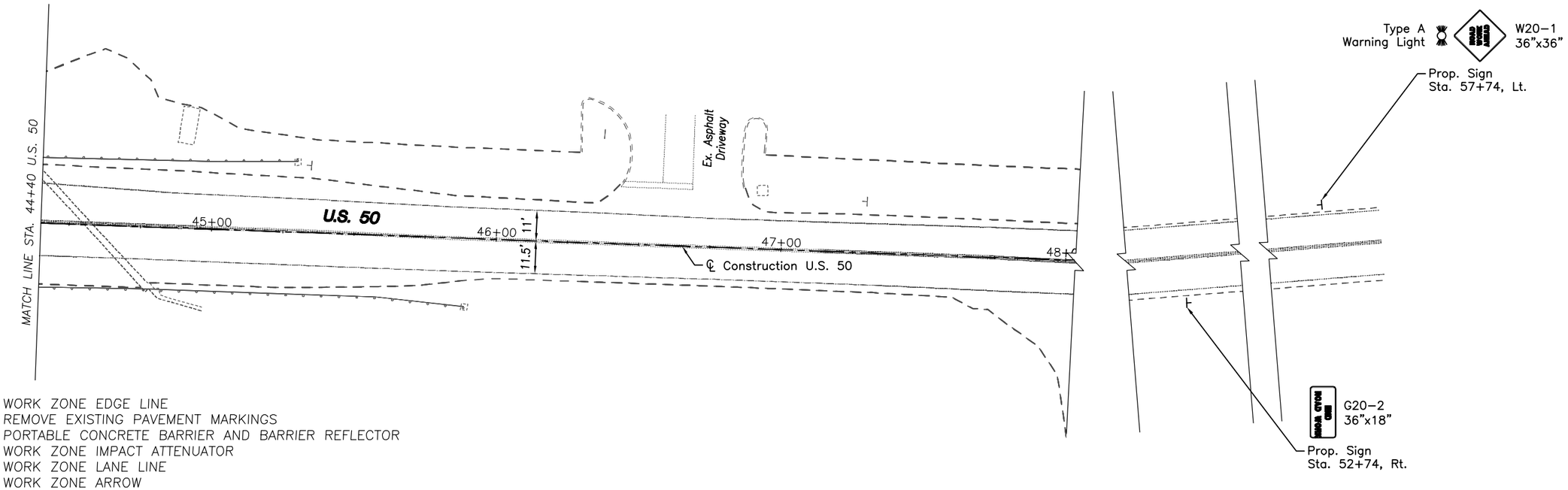
MAINTENANCE OF TRAFFIC PLAN - PHASE ONE
STA. 33+00 TO STA. 38+70

CLE-50-1.48
MILFORD PARKWAY

13
132

Plot time: Jun 14, 2012 – 9:09am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT – Layout Tab: 13 MOT PH1





LEGEND

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - U.S. 50 - PHASE ONE
STA. 38+70 TO STA. 47+13

CLE-50-1.48
MILFORD PARKWAY

14
132

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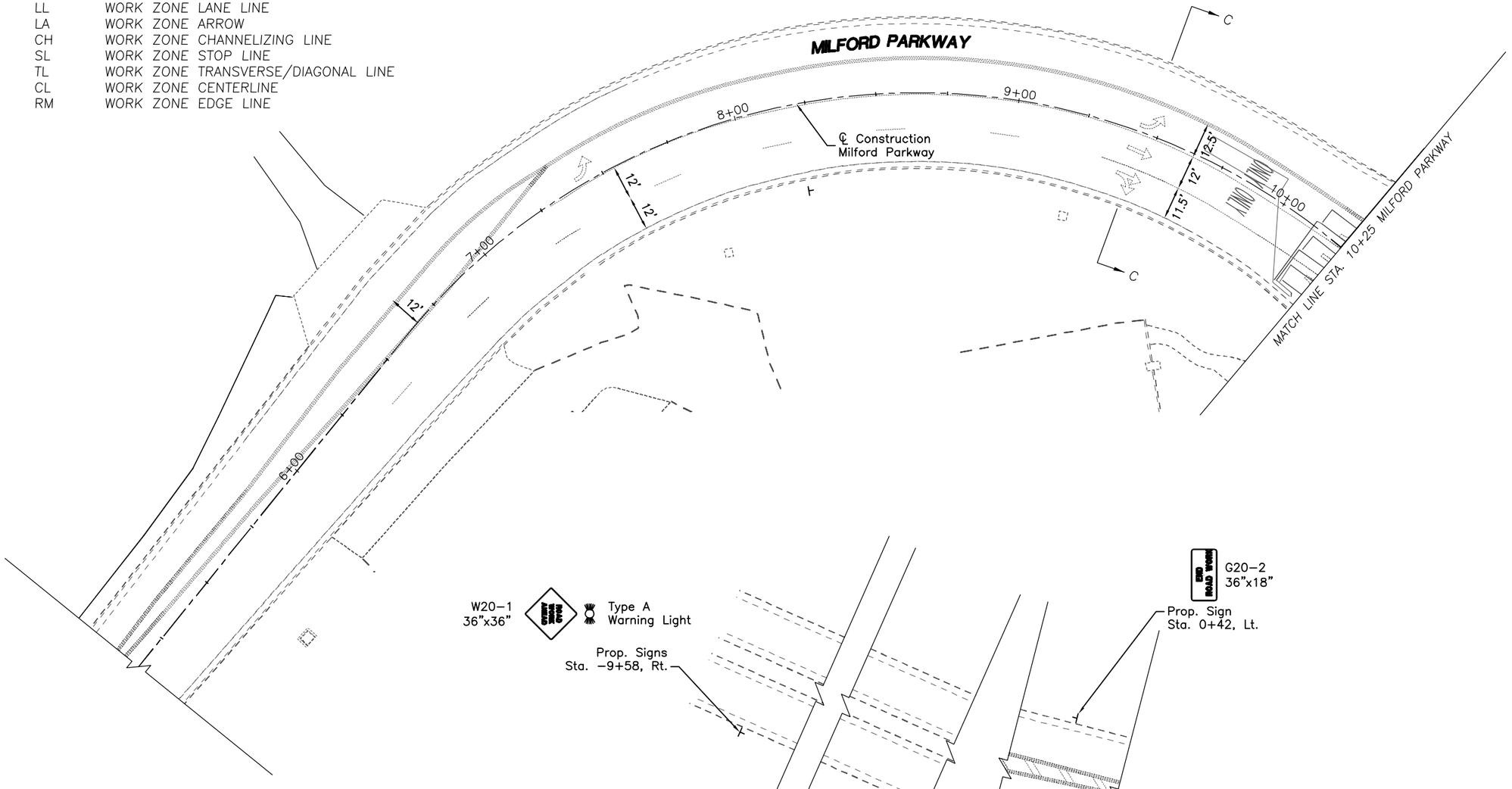
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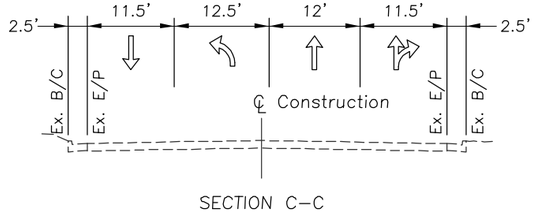
AREA TO BE CONSTRUCTED

DRUMS

XXX REMOVE EXISTING PAVEMENT MARKINGS

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE





SECTION C–C

N

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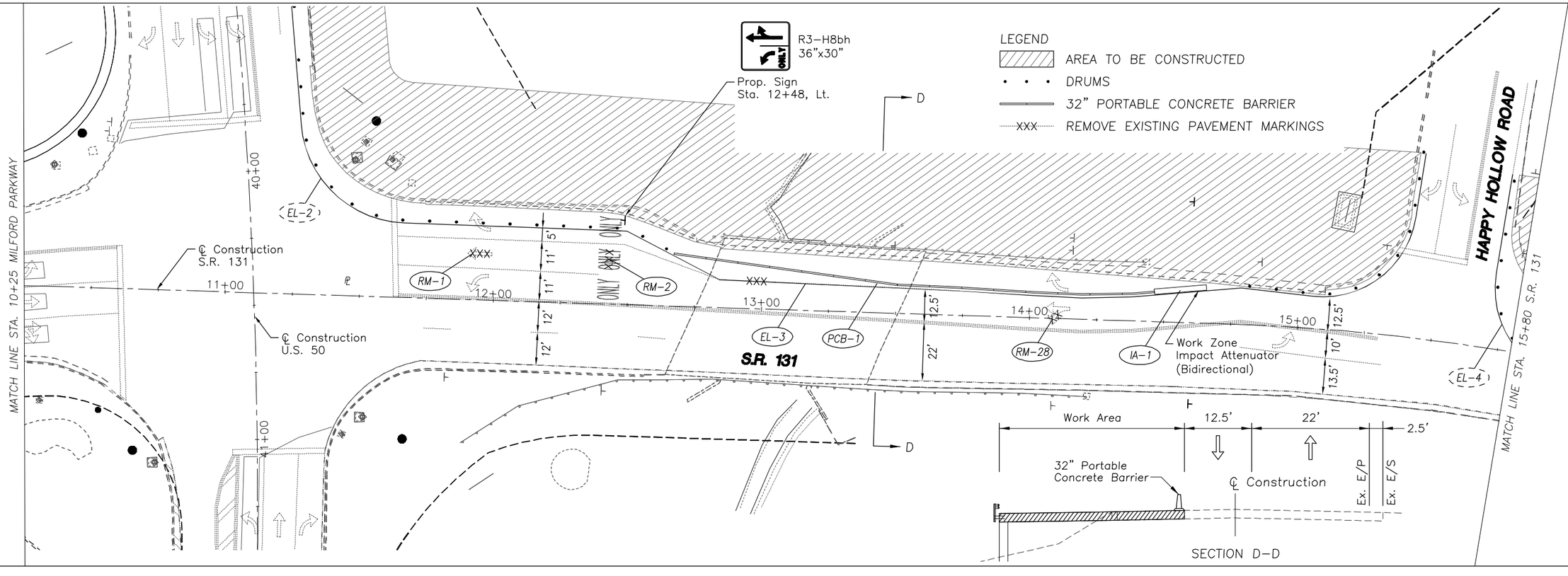
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CHECKED EMR

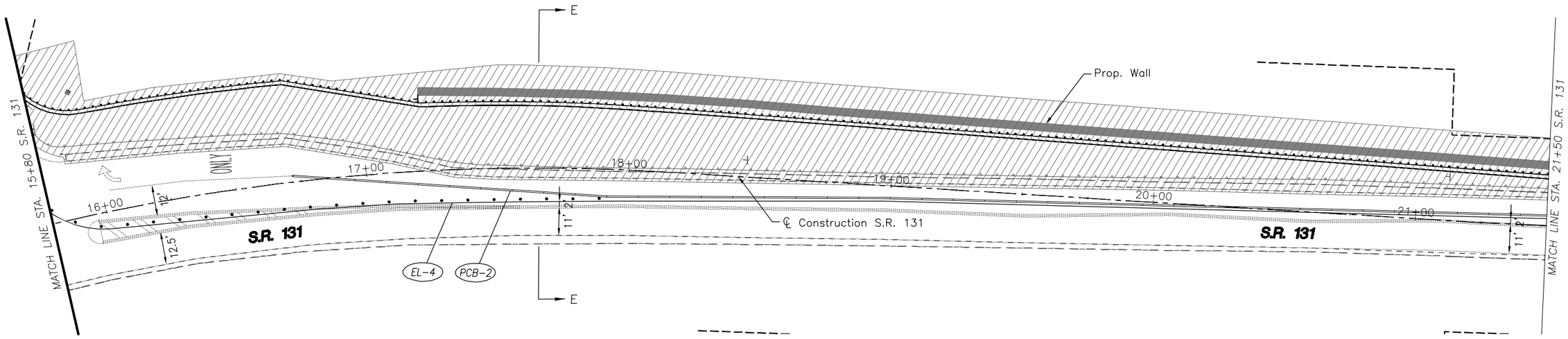
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STA. 6+50 TO STA. 10+25

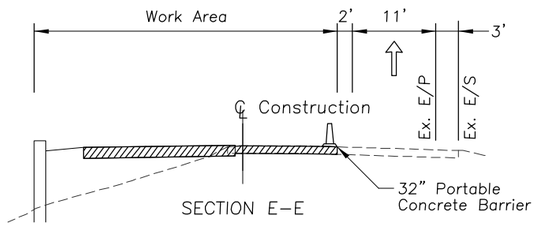
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MILFORD PARKWAY

15
132

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LEGEND

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - S.R. 131 - PHASE ONE
STA. 10+25 TO STA. 21+50

CLE-50-1.48
MILFORD PARKWAY

16
132

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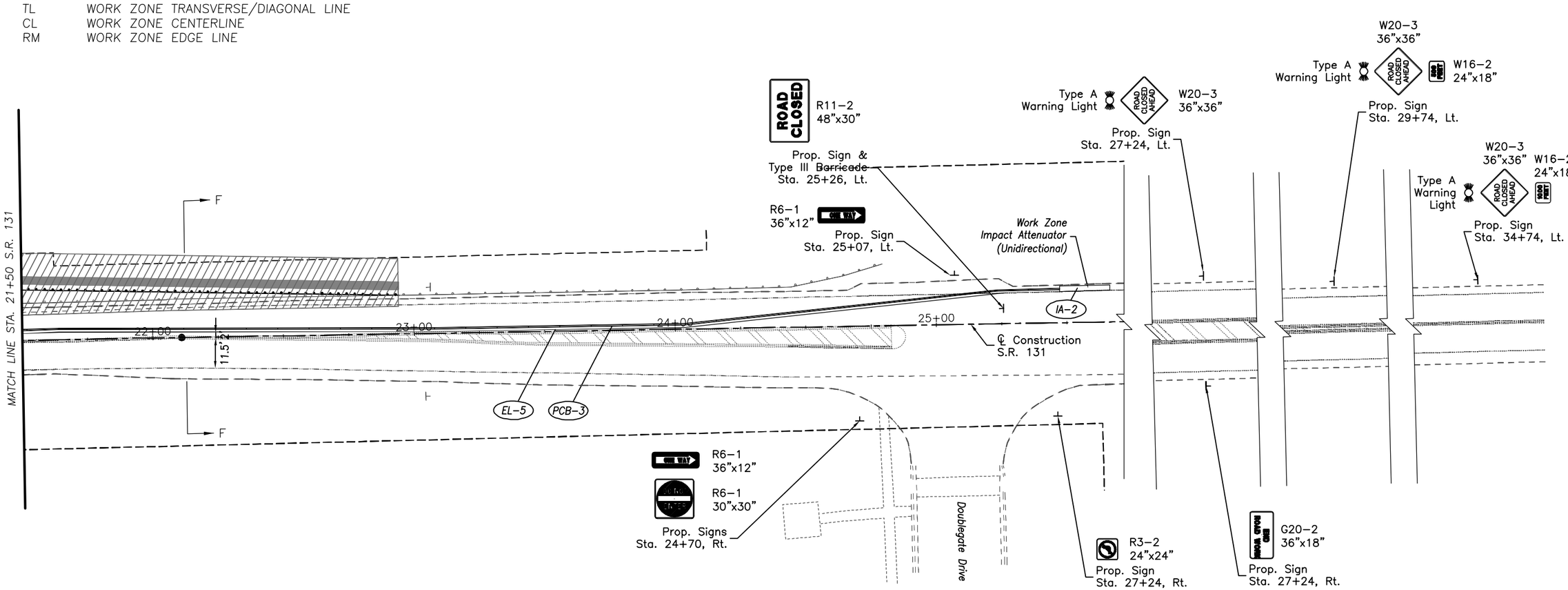
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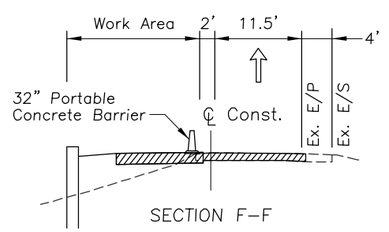
AREA TO BE CONSTRUCTED

32" PORTABLE CONCRETE BARRIER

XXX REMOVE EXISTING PAVEMENT MARKINGS

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE





HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - S.R. 131 - PHASE ONE
STA. 21+50 TO STA. 24+00

CLE-50-1.48
MILFORD PARKWAY

17
132

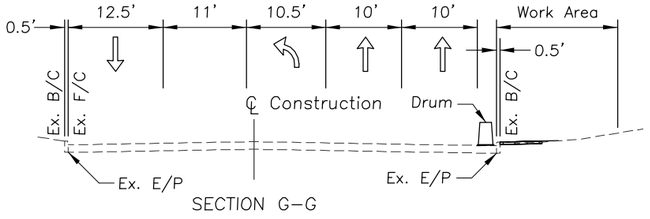
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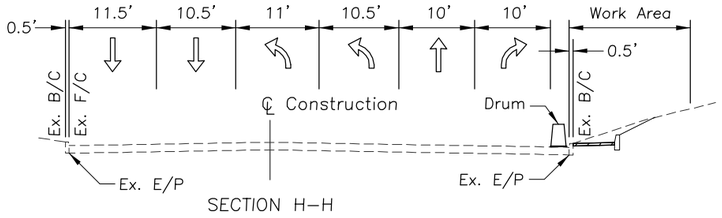
AREA TO BE CONSTRUCTED

DRUMS

XXX REMOVE EXISTING PAVEMENT MARKINGS



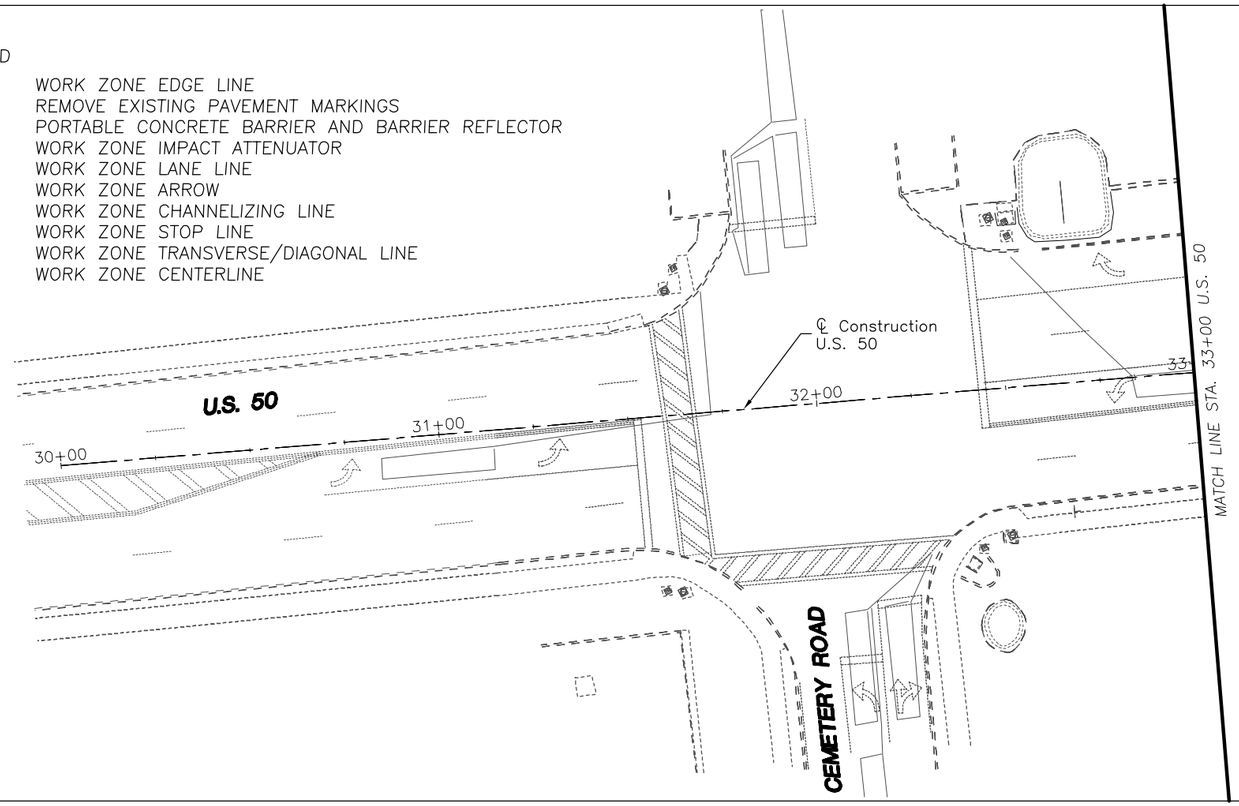
SECTION G–G

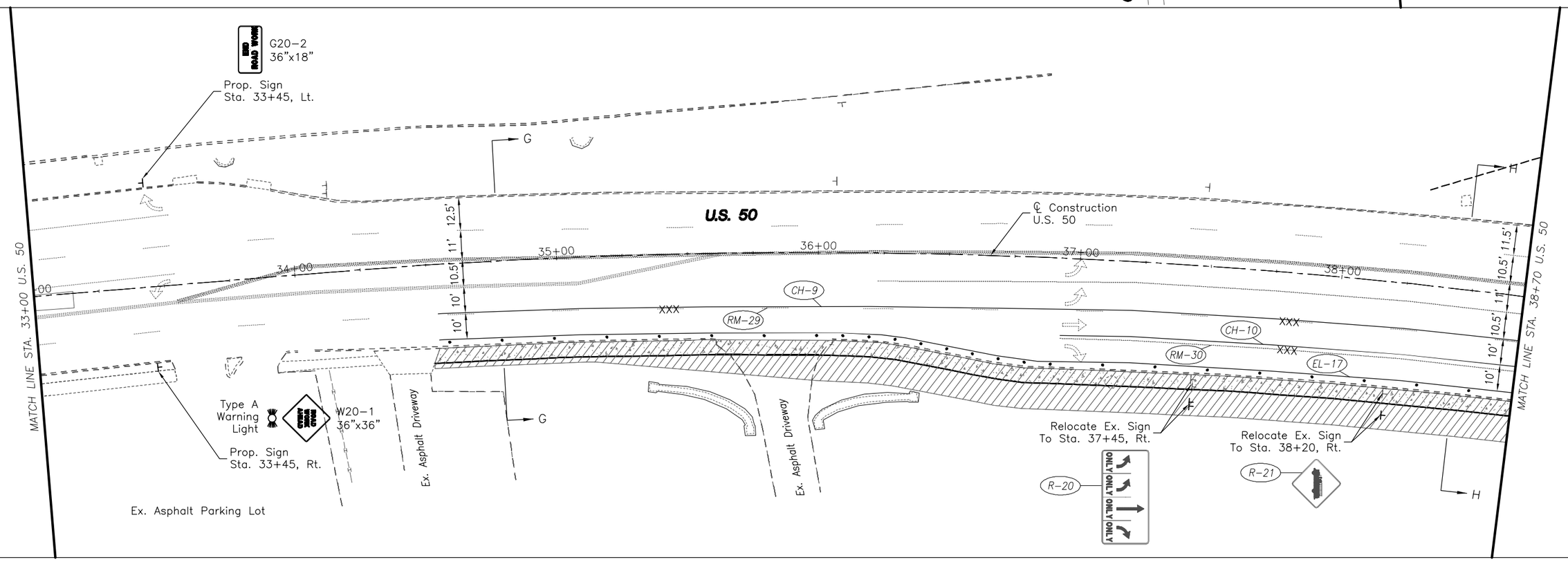


SECTION H–H

LEGEND

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE





HORIZONTAL SCALE IN FEET
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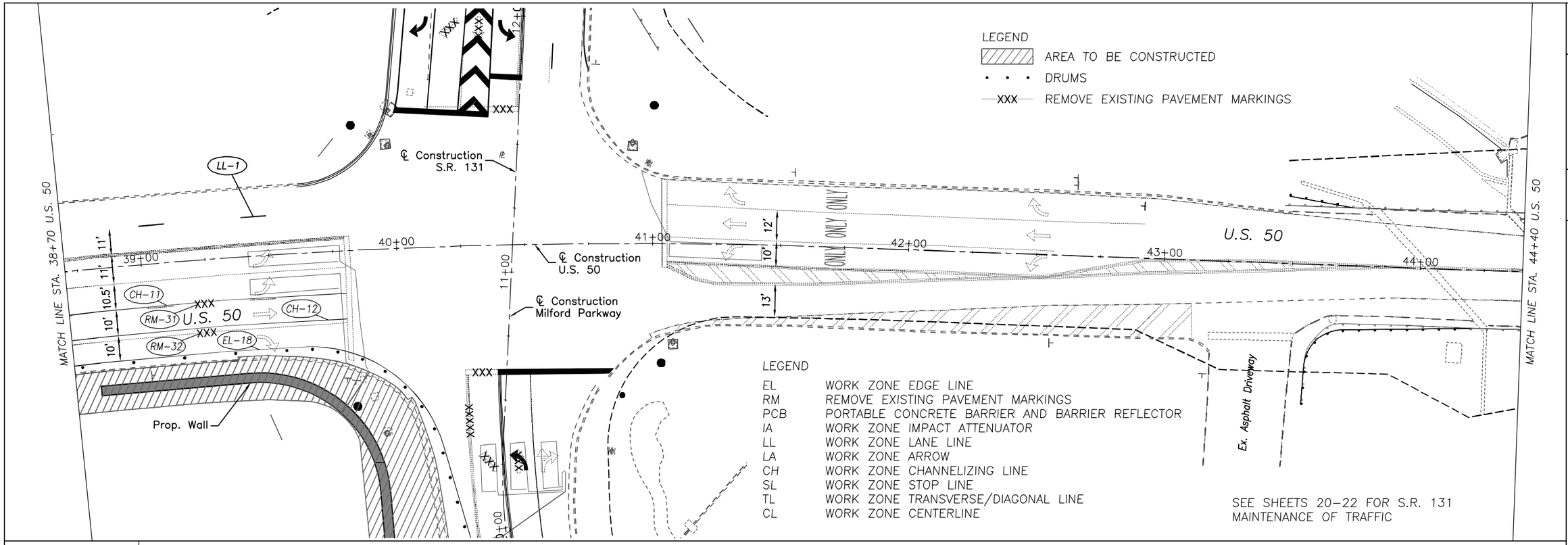
CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - PHASE TWO
STA. 33+00 TO STA. 38+70

CLE-50-1.48
MILFORD PARKWAY

18
132

Plot time: Aug 29, 2012 – 9:08am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT – Layout Tab: 18 MOT PH2



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - U.S. 50 - PHASE TWO
STA. 38+70 TO STA. 47+13

CLE-50-1.48
MILFORD PARKWAY

19
132

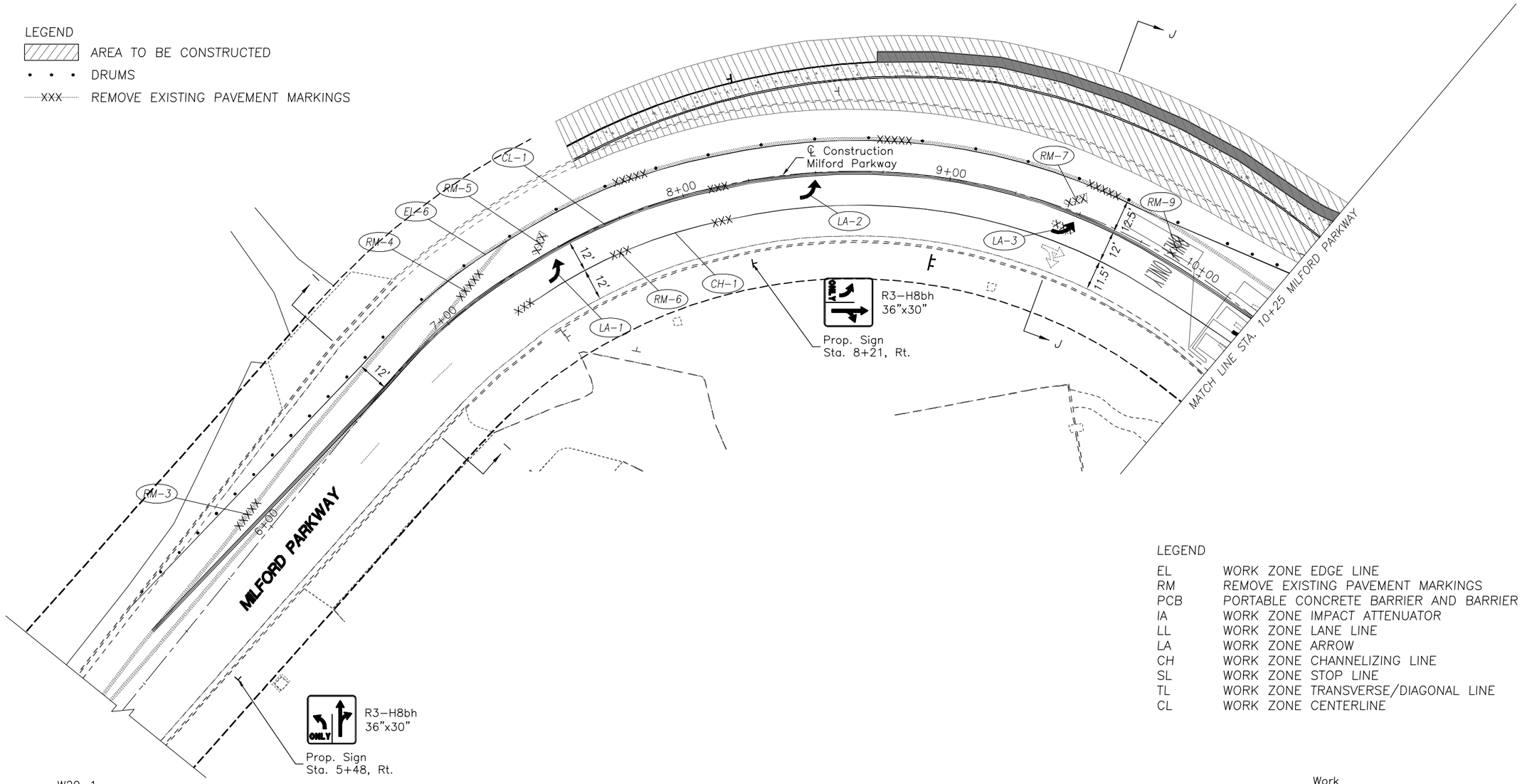
Plot time: Aug 31, 2012 - 8:42am
Drawing name: i:\2009\09C145-001\TR\DWG\09C145-001 MOT - Layout Tab: 19 MOT PH2

LEGEND

AREA TO BE CONSTRUCTED

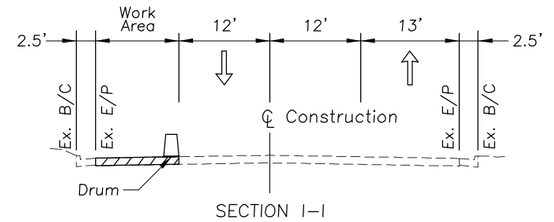
DRUMS

XXX REMOVE EXISTING PAVEMENT MARKINGS

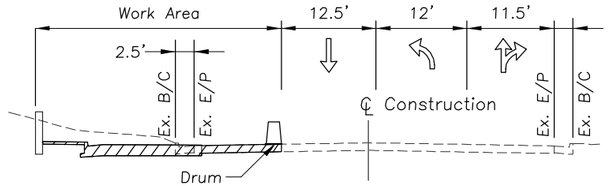


LEGEND

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE



SECTION I–I



SECTION J–J

HORIZONTAL SCALE IN FEET
0 10 20 40

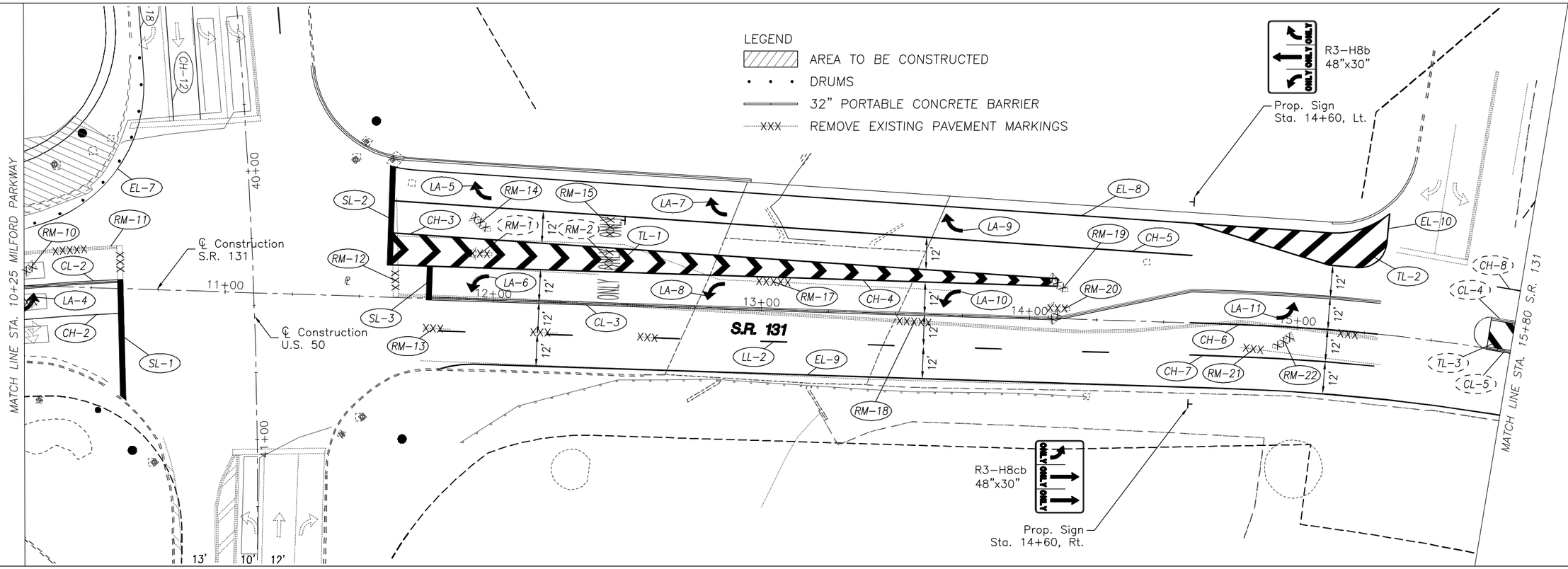
CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - MILFORD PARKWAY - PHASE TWO STA. 6+50 TO STA. 10+25

CLE-50-1.48
MILFORD PARKWAY

20
132

Plot time: Aug 29, 2012 – 10:00am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT – Layout Tab: 20 MOT PH2



LEGEND

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - S.R. 131 - PHASE TWO
STA. 10+25 TO STA. 21+50

CLE-50-1.48
MILFORD PARKWAY

21
132

Plot time: Aug 29, 2012 – 9:48am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT – Layout Tab: 21 MOT PH2

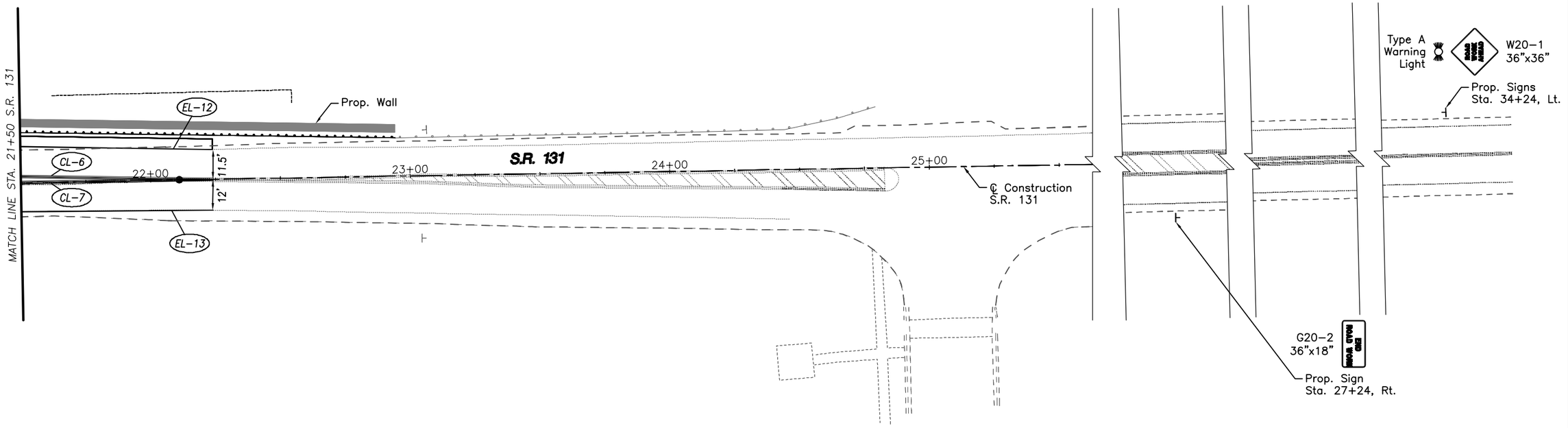
LEGEND

AREA TO BE CONSTRUCTED

32" PORTABLE CONCRETE BARRIER

XXX REMOVE EXISTING PAVEMENT MARKINGS

EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE



N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - S.R. 131 - PHASE TWO
STA. 21+50 TO STA. 24+00

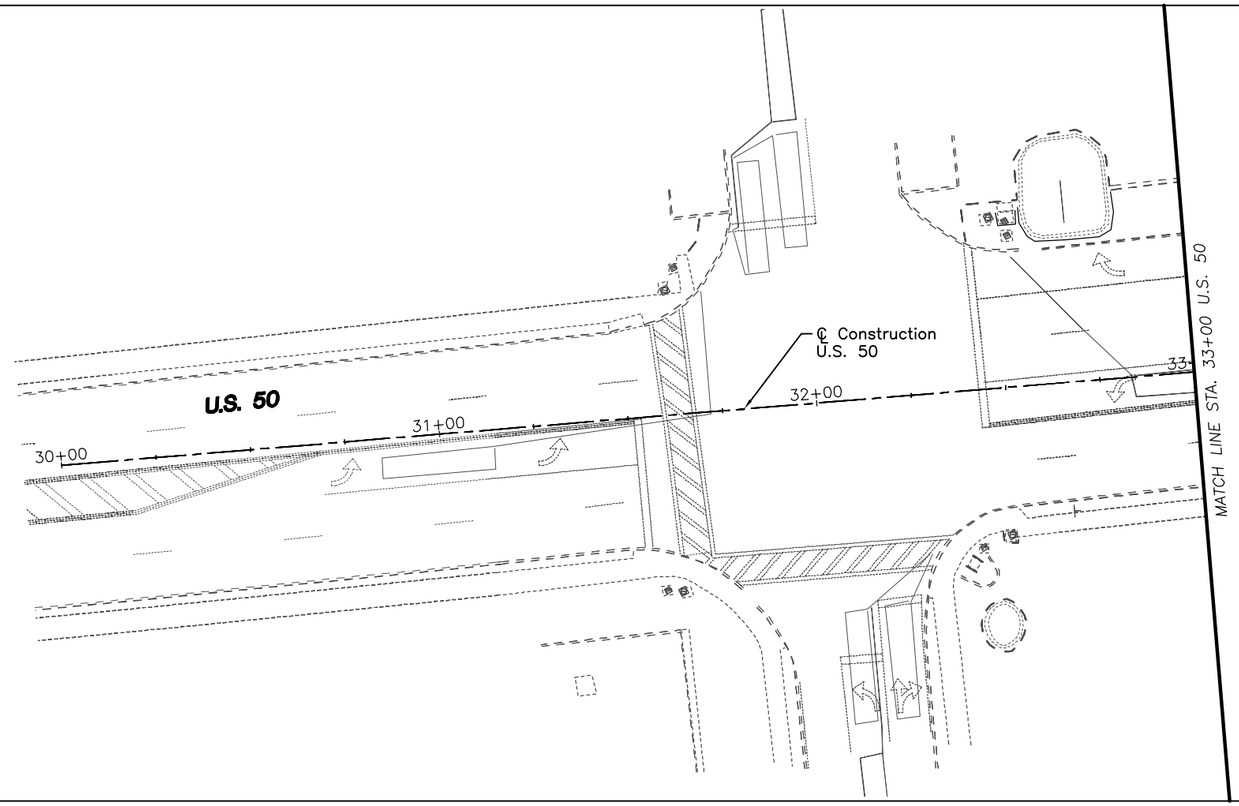
CLE-50-1.48
MILFORD PARKWAY

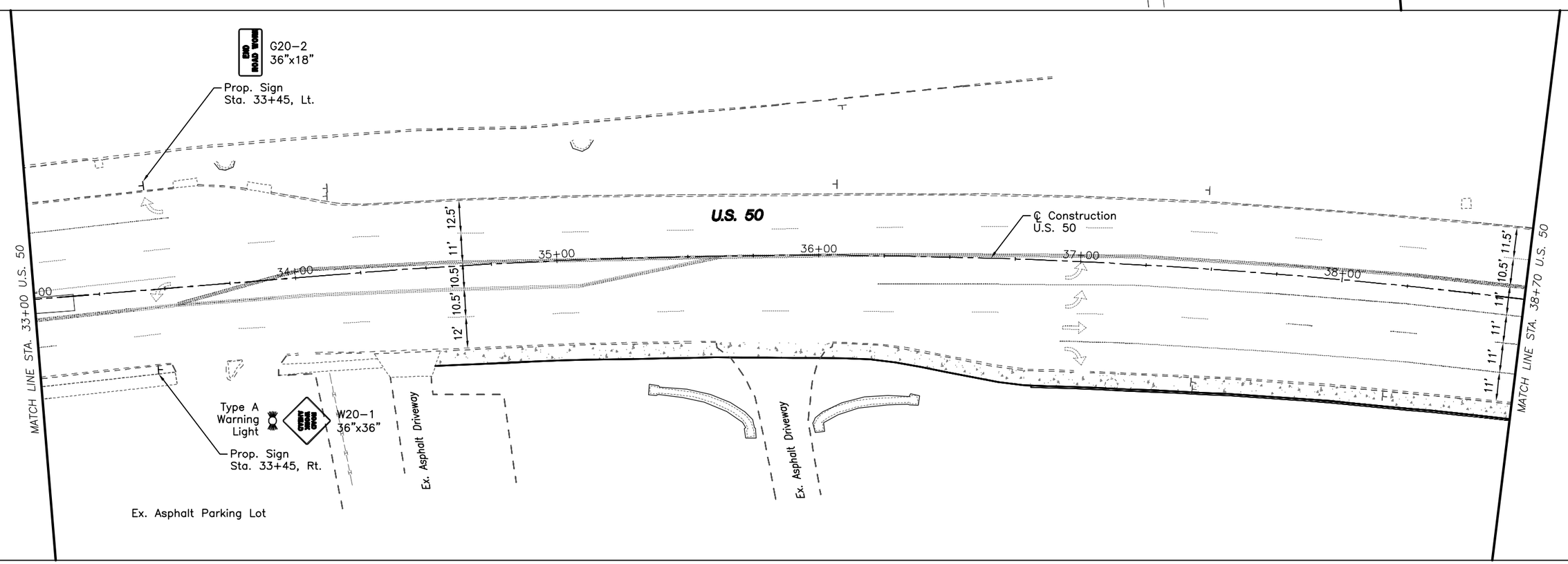
22
132

Plot time: Jun 14, 2012 - 1:52pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT - Layout Tab: 22 MOT PH2

LEGEND

▨	AREA TO BE CONSTRUCTED
• • •	DRUMS
·····XXX·····	REMOVE EXISTING PAVEMENT MARKINGS
EL	WORK ZONE EDGE LINE
RM	REMOVE EXISTING PAVEMENT MARKINGS
PCB	PORTABLE CONCRETE BARRIER AND BARRIER REFLECTOR
IA	WORK ZONE IMPACT ATTENUATOR
LL	WORK ZONE LANE LINE
LA	WORK ZONE ARROW
CH	WORK ZONE CHANNELIZING LINE
SL	WORK ZONE STOP LINE
TL	WORK ZONE TRANSVERSE/DIAGONAL LINE
CL	WORK ZONE CENTERLINE
RM	WORK ZONE EDGE LINE





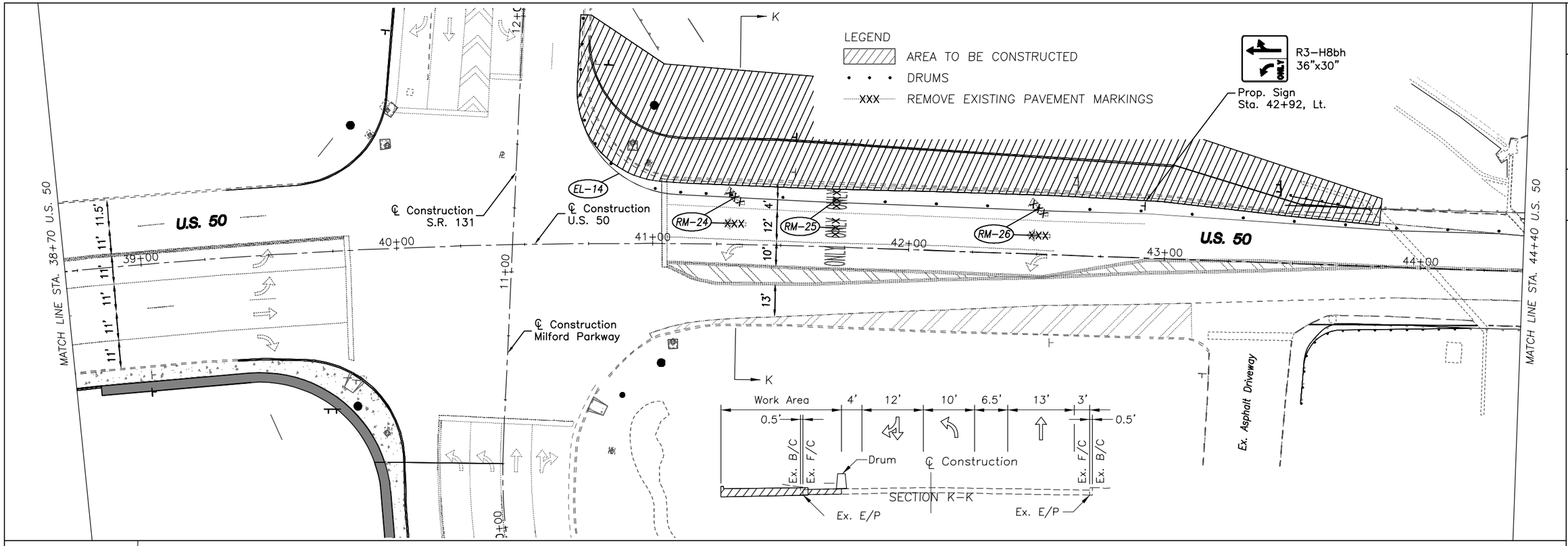
HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - PHASE THREE
STA. 33+00 TO STA. 38+70

CLE-50-1.48
MILFORD PARKWAY

Plot time: Jun 14, 2012 - 2:06pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT - Layout Tab: 23 MOT PH3



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

MAINTENANCE OF TRAFFIC PLAN - U.S. 50 - PHASE THREE
STA. 38+70 TO STA. 47+13

CLE-50-1.48
MILFORD PARKWAY

Plot time: Jun 14, 2012 - 3:10pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 MOT - Layout Tab: 24 MOT PH3

SHEET NUMBER									ITEM	ITEM EXT.	02/S>2/ OT/	01/MPO/ OT/CLE	GRAND TOTAL	UNIT		SEE SHEET NO.
	OFFICE CALCS	31	29	30												
															ROADWAY	
	LUMP								201	11000	LUMP	LUMP	LUMP		CLEARING AND GRUBBING	
		3							202	20010	2	1	3	EACH	HEADWALL REMOVED	
	547								202	23010	53	494	547	SQ YD	PAVEMENT REMOVED, ASPHALT	
			877						202	32000		877	877	FT	CURB REMOVED	
		26							202	35100		26	26	FT	PIPE REMOVED, 24" AND UNDER	
		166							202	35200	76	90	166	FT	PIPE REMOVED, OVER 24"	
			1011						202	38000	189	822	1011	FT	GUARDRAIL REMOVED	
		2							202	58000		2	2	EACH	MANHOLE REMOVED	
		1							202	58300		1	1	EACH	CATCH BASIN OR INLET REMOVED	
			38						202	98300		38	38	SQ YD	REMOVAL MISC.: CONCRETE DISPLAY AREA	
			1391						203	10001	37	1354	1391	CU YD	EXCAVATION, AS PER PLAN	7
			917						203	20000	254	663	917	CU YD	EMBANKMENT	
	2								204	45000	0.14	1.86	2	HOUR	PROOF ROLLING	
	2921								206	11001	221	2700	2921	SQ YD	CURING COAT, AS PER PLAN	8
	2921								206	25020	221	2700	2921	SQ YD	LIME KILN DUST STABILIZED SUBGRADE, 14 INCHES DEEP	
	53								206	25100	4	49	53	TON	LIME KILN DUST	
	0.16								209	72051	0.04	0.12	0.16	MI	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN	8
				10					604	38501		10	10	EACH	MONUMENT ASSEMBLY, AS PER PLAN	7
									604	40501		9	9	EACH	REFERENCE MONUMENT, AS PER PLAN	8
			1020						606	13000	189	831	1020	FT	GUARDRAIL, TYPE 5	
		1							606	26100		1	1	EACH	ANCHOR ASSEMBLY, TYPE E	
		1							606	32160		1	1	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE TST	
			2						625	75400		2	2	EACH	LIGHT POLE REMOVED	
				4703					608	10000		4703	4703	SQ FT	4" CONCRETE WALK	
				2					608	52120		2	2	EACH	CURB RAMP, A2	
	20								626	00100	4	16	20	EACH	BARRIER REFLECTOR	
			2						630	86320		2	2	EACH	REMOVAL OF STRUCTURE MOUNTED SIGN AND REERECTION	
				1					690	50350		1	1	EACH	SPECIAL - MAILBOX REMOVED AND RESET	7-8
															EROSION CONTROL	
		9.67							601	32100	7	2.67	9.67	CU YD	ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER	
	6.80								616	10000		6.80	6.80	MGAL	WATER	
				1208					659	10000	112	1096	1208	SQ YD	SEEDING AND MULCHING	
				60					659	14000	6	54	60	SQ YD	REPAIR SEEDING AND MULCHING	
				0.163					659	20000	0.02	0.143	0.163	TON	COMMERCIAL FERTILIZER	
				6.52					659	35000	0.6	5.92	6.52	MGAL	WATER	
	LUMP								832	15000		LUMP	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
	15793								832	30000	588	15205	15793	EACH	EROSION CONTROL	
				48					835	10000		48	48	FT	EXFILTRATION TRENCH, TYPE A	
															DRAINAGE	
		9.95							602	20000	7.69	2.26	9.95	CU YD	CONCRETE MASONRY	
		1							602	98300		1	1	EACH	MASONRY, MISC: COLLAR	
		55							603	00510		55	55	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
		185							603	04400		185	185	FT	12" CONDUIT, TYPE B	
		141							603	04600		141	141	FT	12" CONDUIT, TYPE C	
		10							603	05700		10	10	FT	15" CONDUIT, TYPE A, 706.02	
		67							603	16200	67		67	FT	36" CONDUIT, TYPE A, 706.02	
		98							603	21100		98	98	FT	48" CONDUIT, TYPE C	
		1							604	00400		1	1	EACH	CATCH BASIN, NO. 3	
		3							604	00401		3	3	EACH	CATCH BASIN, NO. 3, AS PER PLAN	9
		2							604	09001		2	2	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	9
		1							604	31500		1	1	EACH	MANHOLE, NO. 3	
		1							604	36600		1	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
				2641					605	14001	378	1652	2641	FT	6" BASE PIPE UNDERDRAINS, AS PER PLAN	8

CALCULATED LWB
CHECKED EMR

GENERAL SUMMARY

CLE-50-1.48
MILFORD PARKWAY

SHEET NUMBER									ITEM	ITEM EXT.	02/S>2/ OT/	01/MPO/ OT/CLE	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	OFFICE CALCS	32	30	31												
															PAVEMENT	
		2433							254	01001		2433	2433	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN	8
		675							301	46000	112	563	675	CU YD	ASPHALT CONCRETE BASE, PG64-22	
		458							304	20000	42	416	458	CU YD	AGGREGATE BASE	
		963							407	10001	44	919	963	GAL	TACK COAT, AS PER PLAN	7
		240							407	14000	11	229	240	GAL	TACK COAT FOR INTERMEDIATE COURSE	
		133							448	46050	12	121	133	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
		451							448	47020	25	426	451	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	
		313							448	90000	40	273	313	CU YD	ASPHALT CONCRETE, MISC.: LEVELING COURSE, TYPE 2, PG64-22	
			384						609	12000		384	384	FT	COMBINATION CURB AND GUTTER, TYPE 2	
			436						609	26000		436	436	FT	CURB, TYPE 6	
			193						609	28000		193	193	FT	CURB, TYPE 7	
															SANITARY SEWER	
			2						604	34500		2	2	EACH	MANHOLE ADJUSTED TO GRADE	
															MODULAR BLOCK RETAINING WALL STRUCTURE	
			1120						610	50010		1120	1120	SQ FT	SPECIAL - RETAINING WALL, MISC.: MODULAR BLOCK	
															PILE AND LAGGING RETAINING WALL STRUCTURE	
		176							507	00400		176	176	FT	STEEL PILES, MISC.: SOLDIER PILES HP14x73	
		946							507	00400		946	946	FT	STEEL PILES, MISC.: SOLDIER PILES W21x83	
		1820							507	00400	1167	653	1820	FT	STEEL PILES, MISC.: SOLDIER PILES W36x256	
		980							524	94603		980	980	FT	DRILLED SHAFTS 30" DIAMETER, ABOVE BEDROCK, AS PER PLAN	80
		143							524	94605		143	143	FT	DRILLED SHAFTS 30" DIAMETER, INTO BEDROCK, AS PER PLAN	80
		1093							524	94903	691	402	1093	FT	DRILLED SHAFTS 48" DIAMETER, ABOVE BEDROCK, AS PER PLAN	80
		727							524	94905	476	251	727	FT	DRILLED SHAFTS 48" DIAMETER, INTO BEDROCK, AS PER PLAN	80
		6069							610	50010	2261	3808	6069	SQ FT	SPECIAL - RETAINING WALL, MISC.: PRECAST LAGGING	
															BRIDGE	
	LUMP								202	11203		LUMP	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	93
	18								202	22901		18	18	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN	93
	LUMP								503	11100		LUMP	LUMP		COFFERDAMS AND EXCAVATION BRACING	
	LUMP								503	21300		LUMP	LUMP		UNCLASSIFIED EXCAVATION	
	LUMP								505	11100		LUMP	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION	
	720								507	00500		720	720	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	
	720								507	00550		720	720	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	
	17360								509	10000		17360	17360	POUND	EPOXY COATED REINFORCING STEEL	
	100								509	20001		100	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN	93
	16								510	10000		16	16	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	
	49								511	33400		49	49	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE	
	71								511	44100		71	71	CU YD	CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING	
	60								511	46500		60	60	CU YD	CLASS C CONCRETE, FOOTING	
	52								512	10100		52	52	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	
	8								512	10300		8	8	SQ YD	SEALING CONCRETE BRIDGE DECK WITH HMWM RESIN	
	77								512	33000		77	77	SQ YD	TYPE 2, WATERPROOFING	
	6								516	13600		6	6	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	
	39								517	70000		39	39	FT	RAILING (TWIN STEEL TUBE)	
	38								517	72710		38	38	FT	RAILING (DEEP BEAM BRIDGE RETROFIT RAILING)	
	42								SPECIAL	51822300		42	42	FT	STEEL DRIP STRIP	
	1								523	20000		1	1	EACH	DYNAMIC LOAD TESTING	
	42								526	15001		42	42	SQ YD	REINFORCED CONCRETE APPROACH SLAB (T=13")	
	22								601	32000		22	22	CU YD	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER	
															STREAM STABILIZATION	
	17700								201	11000		LUMP	LUMP		CLEARING AND GRUBBING	
	1700								202	98400		1700	1700	SQ FT	REMOVAL MISC.: FLEXAMAT REMOVAL	

CALCULATED LWB
CHECKED EMR

GENERAL SUMMARY

CLE-50-1.48
MILFORD PARKWAY

SHEET NUMBER									ITEM	ITEM EXT.	02/S>2/ OT/	01/MPO/ OT/CLE	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	OFFICE CALCS	34	35	36	37											
															STREAM STABILIZATION (CONT.)	
	345								202	98200		345	345	FT	REMOVAL MISC.: STONEWALL REMOVAL	
	325								203	10000		325	325	CU YD	EXCAVATION	
	459								203	20000		459	459	CU YD	EMBANKMENT	
	10.5								SPECIAL	SPECIAL		10.5	10.5	CU YD	CREST STONE (RIFFLES)	
	15.9								SPECIAL	SPECIAL		15.9	15.9	CU YD	SUPPORT STONE (RIFFLES)	
	12.6								SPECIAL	SPECIAL		12.6	12.6	CU YD	FILL STONE (RIFFLES)	
	142								SPECIAL	SPECIAL		142	142	CU YD	FIELD STONE (ROCK TOE)	
	100								SPECIAL	SPECIAL		100	100	CU YD	#2 STONE (ROCK TOE)	
	430								690	12010		430	430	CU YD	SPECIAL - GEOTEXTILE FABRIC	
	2300								659	98400		2300	2300	SQ FT	SEEDING, MISC.: LTZ SEED	
	13100								659	98400		13100	13100	SQ FT	SEEDING, MISC.: UTZ SEED	
	15400								SPECIAL	SPECIAL		15400	15400	SQ YD	EROSION BLANKET	
	588								SPECIAL	SPECIAL		588	588	EACH	LIVE STAKES	
															TRAFFIC CONTROL	
		6							620	00500	2	4	6	EACH	DELINEATOR, POST MOUNTED	
		66							621	10000		66	66	EACH	RPM, LOW PROFILE, YELLOW/YELLOW	
		90							621	10020		90	90	EACH	RPM, LOW PROFILE, WHITE/RED	
		302							630	03100	13	328	341	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
		51.25							630	80100		51.25	51.25	SQ FT	SIGN, FLATSHEET	
		3							630	84900		3	3	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
		21							630	85100	1	22	23	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
		18							630	86002	1	20	21	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
		0.62							644	00100	0.07	0.55	0.62	MI	EDGE LINE, 4"	
		0.07							644	00200		0.07	0.07	MI	LANE LINE, 4"	
		0.57							644	00300	0.07	0.5	0.57	MI	CENTER LINE	
		2908							644	00400		2908	2908	FT	CHANNELIZING LINE, 8"	
		214							644	00500		214	214	FT	STOP LINE	
		179							644	00600		179	179	FT	CROSSWALK LINE	
		712							644	00700	26	686	712	FT	TRANSVERSE/DIAGONAL LINE	
		52							644	00900		52	52	SQ FT	ISLAND MARKING	
		21							644	01300		21	21	EACH	LANE ARROW	
		241							644	01510		241	241	FT	DOTTED LINE, 6"	
															TRAFFIC SIGNAL	
			4						625	18500		4	4	EACH	BRACKET ARM, 25'	
			56						625	25400		56	56	FT	CONDUIT, 2", 725.04	
			36						625	25500		36	36	FT	CONDUIT, 3", 725.04	
			325						625	25900		325	325	FT	CONDUIT, JACKED OR DRILLED, 2"	
			4						625	26250		4	4	EACH	LUMINAIRE, CONVENTIONAL, 200 WATT, 120 VOLT, HIGH PRESSURE SODIUM	
			56						625	29000		56	56	FT	TRENCH	
			5						625	30700		5	5	EACH	PULL BOX, 725.08, 18"	
			6						625	32000		6	6	EACH	GROUND ROD	
				19					630	79100		19	19	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
				6					630	79500		6	6	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
				139.5					630	80100		139.5	139.5	SQ FT	SIGN, FLAT SHEET	
				9					632	04913		9	9	EACH	VEHICULAR SIGNAL HEAD,(LED), YELLOW, 3 SECT., 12" LENS, 1-WAY, W/ BACK PLATE, AS PER PLAN	84-85
				4					632	04923		4	4	EACH	VEHICULAR SIGNAL HEAD,(LED), YELLOW, 5 SECT., 12" LENS, 1-WAY, W/ BACK PLATE, AS PER PLAN	84-85
				2					632	20731		2	2	EACH	PEDESTRIAN SIGNAL HEAD (LED), COUNTDOWN, TYPE D2, AS PER PLAN	85
				13					632	25000		13	13	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
				2					632	25010		2	2	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
			2						632	26000		2	2	EACH	PEDESTRIAN PUSHBUTTON	
			855	2205					632	40700		3060	3060	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
				466					632	40900		466	466	FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	
				4					632	64010		4	4	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	

CALCULATED LWB
CHECKED EMR

GENERAL SUMMARY

CLE-50-1.48
MILFORD PARKWAY

SHEET NUMBER									ITEM	ITEM EXT.	02/S>2/ OT/	01/MPO/ OT/CLE	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	OFFICE CALCS	35	36	37	39											
															TRAFFIC SIGNAL (CONT.)	
				1					632	64020		1	1	EACH	PEDESTAL FOUNDATION	
				45					632	68200		45	45	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	
				1					632	70001		1	1	EACH	POWER SERVICE, AS PER PLAN	85
				4					632	81700		4	4	EACH	COMBINATION SIGNAL SUPPORT, MISC.: TYPE TC-81.21, SPECIAL, WITH MAST ARM, AS PER PLAN	84
				1					632	89600		1	1	EACH	PEDESTAL, 8'	
				1					632	90100		1	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	
				1					633	65001		1	1	EACH	CABINET WITHOUT CONTROLLER, AS PER PLAN	86
				1					633	67100		1	1	EACH	CABINET FOUNDATION	
				1					633	67200		1	1	EACH	CONTROLLER WORK PAD	
	1								633	69000		1	1	EACH	ADVANCE/DILEMMA ZONE DETECTION ZONE	
	1								633	99000		1	1	EACH	CONTROLLER ITEM, MISC.: REUSE UNINTERRUPTIBLE POWER SUPPLY	
	1								633	99000		1	1	EACH	CONTROLLER ITEM, MISC.: REUSE CONTROLLER UNIT, TYPE T2/A2	
	1								633	99000		1	1	EACH	CONTROLLER ITEM, MISC.: REUSE BROADBAND ROUTER	
	1								633	99000		1	1	EACH	CONTROLLER ITEM, MISC.: REUSE CAT5 PATCH CORD	
	1								633	99000		1	1	EACH	CONTROLLER ITEM, MISC.: REUSE 10/100 ETHERNET SWITCH	
	1								816	30001		1	1	EACH	VIDEO DETECTION SYSTEM, AS PER PLAN	87
															MISCELLANEOUS	
	LUMP								614	11000		LUMP	LUMP		MAINTAINING TRAFFIC	
	LUMP								623	10000		LUMP	LUMP		CONSTRUCTION LAYOUT STAKES	
	LUMP								624	10000		LUMP	LUMP		MOBILIZATION	
															MAINTENANCE OF TRAFFIC	
	10								304	20000		10	10	CU YD	AGGREGATE BASE	
	100								614	11110		100	100	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
	1								614	12336		1	1	EACH	WORK ZONE IMPACT ATTENUATOR (UNDIRECTIONAL)	
	1								614	12338		1	1	EACH	WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	
	LUMP								614	12420		LUMP	LUMP		DETOUR SIGNING	
	23								614	13302	3	20	23	EACH	BARRIER REFLECTOR, TYPE B2	
					23				614	13350	3	20	23	EACH	OBJECT MARKER, ONE WAY	
					0.07				614	20200		0.07	0.07	MI	WORK ZONE LANE LINE, CLASS I, 740.06, TYPE II	
	0.07								614	20400		0.07	0.07	MI	WORK ZONE LANE LINE, CLASS III	
	0.46								614	21300		0.46	0.46	MI	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE II	
	0.57								614	21400		0.57	0.57	MI	WORK ZONE CENTER LINE, CLASS III	
					0.10				614	22200		0.10	0.10	MI	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE I (WHITE)	
					1.02				614	22200		1.02	1.02	MI	WORK ZONE EDGE LINE, CLASS I, 740.06, TYPE II (WHITE)	
	0.64								614	22310	0.07	0.55	0.62	MI	WORK ZONE, EDGE LINE, CLASS III	
					813				614	23400		813	813	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE I	
					1357				614	23400		1357	1357	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 740.06, TYPE II	
	2908								614	23650		2908	2908	FT	WORK ZONE CHANNELIZING LINE, CLASS III	
	783								614	25210		783	783	FT	WORK ZONE, TRANSVERSE/DIAGONAL LINE, CLASS III, 642 PAINT	
					459				614	25400		459	459	FT	WORK ZONE TRANSVERSE/DIAGONAL LINE, CLASS I, 740.06, TYPE I	
					93				614	26400		93	93	FT	WORK ZONE STOP LINE, CLASS I, 740.06, TYPE II	
					12				614	30400		12	12	EACH	WORK ZONE ARROW, CLASS I, 740.06, TYPE I	
	214								614	26610		214	214	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
	22								614	30650		22	22	EACH	WORK ZONE ARROW, CLASS III, 642 PAINT	
					1056				622	40020	189	867	1056	FT	PORTABLE CONCRETE BARRIER, 32"	

CALCULATED LWB
CHECKED EMR

GENERAL SUMMARY

CLE-50-1.48
MILFORD PARKWAY

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 CURB REMOVED FT	202 GUARDRAIL REMOVED FT	202 REMOVAL MISC.: CONCRETE DISPLAY AREA SQ YD	203 EXCAVATION, AS PER PLAN CU YD	203 EMBANKMENT CU YD	606 GUARDRAIL, TYPE 5 FT	630 REMOVAL OF STRUCTURE MOUNTED SIGN AND REERECTION EACH	606 ANCHOR ASSEMBLY, TYPE E EACH	606 BRIDGE TERMINAL ASSEMBLY, TYPE TST EACH	625 LIGHT POLE REMOVED EACH
	47	34+50	35+50	RT				8	6					
	48	36+00	37+00	RT				27						
	49	37+50	38+50	RT				38						
	50	39+00	40+50	RT				29						
	51	41+00	42+50	LT				192	7					
	52	43+00	44+50	LT				36	21					
	53	45+00	46+50	LT & RT				10	6					
	55	6+50	8+50	LT				77						
	56	9+00	10+50	LT				164						
	57	11+00	12+50	LT				175	1					
	58	13+00	14+50	LT & RT				387	83					
	59	15+00	16+50	LT				78	18					
	60	17+00	18+00	LT				92	264					
	61	18+50	19+00	LT				34	229					
	62	19+50	20+00	LT				21	162					
	63	20+50	21+00	LT				16	92					
	64	21+50	22+00	LT				7	28					
GR-1	41	43+48	43+73	LT						25				
GR-2	41	43+55	44+21	RT						88				
GR-3	44	12+83	14+46	LT						162		1	1	
GR-4	44	15+75	15+80	LT						16				
GR-5	45	15+80	21+50	LT						584				
GR-6	46	21+50	22+95	LT						145				
R-1	41	40+76	43+49	LT	314									
R-2	41	41+66		LT							1			
R-3	41	42+16		LT			19							
R-4	41	42+61		LT			19							
R-5	41	43+46	43+73	LT		27								
R-6	41	43+55	44+21	RT		89								
R-7	43	7+68	10+25	LT	286									
R-8	44	10+25	10+60	LT	95									
R-9	44	11+30	12+85	LT	182									
R-13	44	12+85	14+43	LT		158								
R-14	44	15+15		LT							1			
R-15	44	15+76	15+80	LT		13								
R-16	45	15+80	21+50	LT		579								
R-19	46	21+50	22+95	LT		145								
LP-1	41	39+53		LT										1
LP-2	41	39+77		LT										1
TOTALS CARRIED TO GENERAL SUMMARY					877	1011	38	1391	917	1020	2	1	1	2

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	604 REFERENCE MONUMENT EACH	608 4" CONCRETE WALK SQ FT	608 CURB RAMP, TYPE A2 EACH	609 COMBINATION CURB AND GUTTER, TYPE 2 FT	609 CURB, TYPE 6 FT	609 CURB, TYPE 7 FT	SPECIAL MAILBOX RELOCATED EACH		659 SEEDING AND MULCHING SQ YD	659 REPAIR SEEDING AND MULCHING SQ YD	659 COMMERCIAL FERTILIZER TON	659 WATER M GAL	835 EXFILTRATION TRENCH, TYPE A FT		604 MANHOLE ADJUSTED TO GRADE EACH		610 SPECIAL - RETAINING WALL, MISC.: MODULAR BLOCK SQ FT	
	47	34+50	35+50	RT									39	2	0.005	0.21						
	48	36+00	37+00	RT									48	2	0.006	0.26						
	49	37+50	38+50	RT									70	3	0.009	0.37						
	51	41+00	42+50	LT & RT									116	6	0.016	0.63						
	52	43+00	44+50	LT & RT									89	4	0.012	0.48						
	53	45+00	46+50	LT & RT									31	1	0.004	0.17						
	54	47+00	48+50	LT & RT									1	0	0.000	0.01						
	55	6+50	8+50	LT & RT									14	1	0.001	0.08						
	57	11+00	12+50	LT & RT									56	3	0.008	0.30						
	58	13+00	14+50	LT & RT									319	16	0.043	1.72						
	59	15+00	16+50	LT & RT									106	5	0.014	0.57						
	60	17+00	18+00	LT & RT									116	6	0.016	0.63						
	61	18+50	19+00	LT & RT									56	3	0.008	0.30						
	62	19+50	20+00	LT & RT									56	3	0.008	0.30						
	63	20+50	21+00	LT & RT									56	3	0.008	0.30						
	64	21+50	22+00	LT & RT									35	2	0.005	0.19						
C-1	40	36+83	38+80	RT						193												
C-2	41	40+76	43+02	LT					255													
C-3	43	7+68	10+25	LT				296														
C-4	44	10+25	10+60	LT				88														
C-5	44	11+30	12+94	LT					181													
CR-1	41	39+82		RT			1															
CR-2	41	40+75		RT			1															
SW-1	40	34+51	38+70	RT		2261																
SW-2	41	38+70	39+93	RT		775																
SW-3	43	7+68	10+25	LT		1667																
ET-1	41	40+87	40+98	LT													12					
ET-2	41	42+72	42+84	LT													12					
ET-3	41	39+62	39+74	LT													12					
ET-4	41	12+51	12+63	LT													12					
RW-1	41	38+80	39+91	LT																	449	
RW-2	43	8+72	10+25	LT																	671	
SS-1	40	37+14		RT															1			
SS-2	41	39+93		RT															1			
MB-1	40	36+09		RT							1											
RM-1	108	34+14		℄	1																	
RM-2	108	34+51		℄	1																	
RM-3	109	40+45		℄	1																	
RM-4	109	41+72		℄	1																	
RM-5	110	47+13		℄	1																	
RM-6	111	14+74		℄	1																	
RM-7	112	18+14		℄	1																	
RM-8	113	21+23		℄	1																	
RM-9	114	7+68		℄	1																	
TOTALS CARRIED TO GENERAL SUMMARY					9	4703	2	384	436	193	1		1208	60	0.163	6.52	48		2		1120	

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

REF NO.	STORM SEWER PROFILE SHEET NO.	PLAN & PROFILE SHEET NO.	STATION FROM	STATION TO	SIDE	202 HEADWALL REMOVED EACH	202 PIPE REMOVED, 24" AND UNDER FT	202 PIPE REMOVED, OVER 24" FT	202 MANHOLE REMOVED EACH	202 CATCH BASIN OR INLET REMOVED EACH	601 ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER CU YD	602 CONCRETE MASONRY CU YD	602 MASONRY, COLLAR EACH	603 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS FT	603 12" CONDUIT, TYPE B FT	603 12" CONDUIT, TYPE C FT	603 15" CONDUIT, TYPE A, 706.02 FT	603 36" CONDUIT, TYPE A, 706.02 FT	603 48" CONDUIT, TYPE C FT	604 CATCH BASIN, NO. 3 EACH	604 CATCH BASIN, NO. 3, AS PER PLAN EACH	604 MANHOLE, NO.3 EACH	604 PRECAST REINFORCED CONCRETE OUTLET EACH	605 6" BASE PIPE UNDERDRAINS, AS PER PLAN FT	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN EACH
D-1		40	35+52		RT																					1
D-2		41	39+89		RT																					1
D-3		41	41+13	42+99	LT										185						1					
D-4		41	42+99	43+64	LT							2.01				64					1					
D-5		44	11+42	12+17	LT											77				1						
D-6		44	12+17	12+78	LT													59				1				
D-7		44	12+78	13+17	LT													39			1					
D-8	75	45	18+35		LT						2.67	0.25	1				10									
D-9	75	45	20+58		LT&RT						7.00	7.69						67								
R-10		44	12+19	12+78	LT			59	1																	
R-9		44	12+78	13+09	LT			31	1																	
R-11		44	12+78		LT		26			1																
R-17		45	18+27		LT	1																				
R-18		45	20+58		LT&RT	2		76																		
U-1		41	40+76	42+96	LT																				245	
U-2		43	7+68	10+25	LT																				297	
U-3		44	10+25	10+60	LT																				87	
U-4		44	11+31	12+78	LT																				162	
U-5		44	11+45	12+78	LT									22											137	
U-6		44	13+79		LT									33									1			
U-7		44	13+79	15+80	LT																				206	
U-8		44	13+79	15+80	LT																				204	
U-9		45	15+80	21+50	LT																				580	
U-10		45	15+80	21+50	LT																				575	
U-11		46	21+50	22+24	LT																				74	
U-12		46	21+50	22+24	LT																				74	
TOTALS CARRIED TO GENERAL SUMMARY						3	26	166	2	1	9.67	9.95	1	55	185	141	10	67	98	1	3	1	1	2641	2	

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

ESTIMATED QUANTITIES

SHEET NO.	STATION/LOCATION FROM	STATION/LOCATION TO	SIDE	254	301	304	407	407	448	448	448	507	507	507	524	524	524	524	610
				PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN	ASPHALT CONCRETE BASE, PG64-22	AGGREGATE BASE	TACK COAT, AS PER PLAN	TACK COAT FOR INTERMEDIATE COURSE	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	ASPHALT CONCRETE, MISC.: LEVELING COURSE, TYPE 2, PG64-22	STEEL PILES HP14X73	STEEL PILES W21X83	STEEL PILES W36X256	DRILLED SHAFTS 30" DIAMETER ABOVE BEDROCK, AS PER PLAN	DRILLED SHAFTS 48" DIAMETER ABOVE BEDROCK, AS PER PLAN	DRILLED SHAFTS 30" DIAMETER INTO BEDROCK, AS PER PLAN	DRILLED SHAFTS 48" DIAMETER INTO BEDROCK, AS PER PLAN	RETAINING WALL PRECAST LAGGING
				SQ YD	CU YD	CU YD	GAL	GAL	CU YD	CU YD	CU YD	FT	FT	FT	FT	FT	FT	FT	SQ FT
41	39+35	40+75	LT&RT				75			35									
41	40+75	43+02	LT&RT		76	57	134	89	17	62	59								
41	43+02	43+81	LT&RT		10	8	32	22	2	15	8								
41	43+81	44+23	LT&RT		2	1	15	2	1	7	1								
41,42	44+23	45+64	LT&RT				47	1		22	6								
42	45+64	45+80	LT&RT		1	1	4			2	2								
42	45+80	46+84	LT&RT		10	8	27		2	12	17								
42	46+84	46+97	LT&RT				3	2		1	2								
42	46+97	47+13	LT				4			2	1								
43	7+68	10+72	LT&RT		71	53	157	16	15	73	16								
44	11+35	12+74	LT&RT		54	35	83	17	10	42	46								
44	13+50	15+10	LT&RT	635	89	66	87	22	19	41	34								
44,45	15+10	16+01	LT&RT	676	37	28	63	8	8	29	35								
45	16+01	16+72	LT&RT	339	37	28	38	8	8	18	14								
45	16+72	17+21	LT&RT	194	29	21	24	7	6	11	5								
45,46	17+21	22+24	LT&RT	589	259	152	170	46	45	79	67								
78												176							
78													946						
78														1820					
78															980				
78																1093			
78																	143		
78																		727	
78																			6069
TOTALS CARRIED TO GENERAL SUMMARY				2433	675	458	963	240	133	451	313	176	946	1820	980	1093	143	727	6069

CALCULATED LWB CHECKED EMR

CLE-50-1.48
MILFORD PARKWAY

REF NO.	SHEET NO.	STATION		SIDE	620	621		630					644										
					DELINEATOR, POST MOUNTED	RPM, LOW PROFILE, YELLOW/YELLOW	RPM, LOW PROFILE, WHITE/RED	GROUND MOUNTED SUPPORT, NO. 3 POST	SIGN, FLATSHEET	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	EDGE LINE, 4"	LANE LINE, 4"	CENTER LINE	CHANNELIZING LINE, 8"	STOP LINE	CROSSWALK LINE	TRANSVERSE/DIAGONAL LINE, YELLOW	TRANSVERSE/DIAGONAL LINE, WHITE	ISLAND MARKING	LANE ARROW	DOTTED LINE, 6"
		FROM	TO		EACH	EACH	EACH	FT	SQ FT	EACH	EACH	EACH	FT	MILE	MILE	FT	FT	FT	FT	FT	SF	EACH	FT
CH-1	81	39+35	39+82	RT			2									47							
CH-2	81	39+35	39+82	RT			2									47							
CH-3	81	39+35	39+82	RT			2									47							
CH-4	81	40+98	43+02	LT			6									204							
CH-5	81	40+98	43+23	LT			6									225							
CH-6	81	40+98	43+36	LT			6									238							
CH-7	81	40+98	44+75	LT			10									377							
CH-8	82	9+10	10+43	LT			4									133							
CH-9	82	7+68	10+43	CT			7									275							
CH-10	82	7+68	10+43	RT			7									275							
CH-11	82	11+60	14+60	LT			8									300							
CH-12	82	11+60	14+10	LT			7									250							
CH-13	82	11+60	14+10	LT			7									250							
CH-14	82	14+60	15+30	CT			3									70							
CH-15	82	14+60	15+30	RT			3									70							
CH-16	83	15+71	16+71	LT			3									100							
CL-1	81	39+35	39+67	LT		1									0.01								
CL-2	81	41+13	47+13	RT		8									0.11								
CL-3	81	42+75	47+13	LT&RT		5									0.05								
CL-4	82	7+68	10+43	LT		15									0.06								
CL-5	82	7+68	9+10	LT		6									0.03								
CL-6	82	11+75	15+30	CT&LT		8									0.07								
CL-7	83	15+71	22+24	LT		11									0.12								
CL-8	83	15+71	22+24	CT		12									0.12								
CW-1	82	10+48	10+59	LT&RT														179					
DL-1	81	39+67	40+27	LT&RT																			121
DL-2	81	39+82	40+61	LT&RT																			120
EL-1	81	40+98	47+13	LT									0.12										
EL-2	81	41+13	47+13	LT									0.11										
EL-3	82	11+60	15+30	LT									0.07										
EL-4	82	11+80	15+80	RT									0.08										
EL-5	83	15+81	22+24	LT									0.12										
EL-6	83	15+80	22+24	RT									0.12										
IM-1	82	15+65	15+71	LT																	52		
LA-1	81	39+52		RT																		1	
LA-2	81	39+52		RT																		1	
LA-3	81	39+52		RT																		1	
LA-4	81	41+28		LT																		1	
LA-5	81	41+28		RT																		1	
LA-6	81	42+18		LT																		1	
LA-7	81	42+18		RT																		1	
LA-8	81	43+05		RT																		1	
LA-9	81	43+93		RT																		1	
LA-10	82	8+54		LT																		1	
LA-11	82	9+42		LT																		1	
LA-12	82	9+42		LT																		1	
LA-13	82	10+30		LT																		1	
LA-14	82	10+30		LT																		1	
LA-15	82	11+90		LT																		1	
LA-16	82	11+90		LT																		1	

CALCULATED CPT
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	620 DELINEATOR, POST MOUNTED	621 RPM, LOW PROFILE YELLOW/YELLOW	621 RPM, LOW PROFILE WHITE/RED	630 GROUND MOUNTED SUPPORT, NO. 3 POST	630 SIGN, FLATSHEET	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	644 EDGE LINE, 4"	644 LANE LINE, 4"	644 CENTER LINE	644 CHANNELIZING LINE, 8"	644 STOP LINE	644 CROSSWALK LINE	644 TRANSVERSE/DIAGONAL LINE, YELLOW	644 TRANSVERSE/DIAGONAL LINE, WHITE	644 ISLAND MARKING	644 LANE ARROW	644 DOTTED LINE, 6"
					EACH	EACH	EACH	FT	SQ FT	EACH	EACH	EACH	MILE	MILE	MILE	FT	FT	FT	FT	FT	FT	EACH	FT
LA-17	82	12+78		LT																		1	
LA-18	82	12+78		LT																		1	
LA-19	82	13+66		LT																		1	
LA-20	82	13+66		LT																		1	
LA-21	82	15+00		LT																		1	
LL-1	81	39+35	39+67	LT			1							0.01									
LL-2	82	11+75	14+60	RT			4							0.05									
LL-3	83	15+80	16+48	LT			2							0.01									
R-1	81	39+00		RT				13			2	1											
R-2	81	41+55		LT				13			2	1											
R-3	81	42+65		LT						1		2											
R-4	82	8+59		LT				13			1	1											
R-5	82	10+55		LT				26			3	2											
R-6	82	11+83		RT						1		1											
R-7	82	12+41		RT				13			1	1											
R-8	82	13+49		LT				13			1	1											
R-9	82	14+09		RT				13			2	1											
R-10	82	14+16		LT						1		2											
R-11	82	14+86		LT				16			3	1											
R-12	82	15+30		LT				13			1	1											
R-13	83	15+79		LT				13			1	1											
R-14	83	18+45		LT				13			2	1											
R-15	83	21+12		LT				13			2	1											
R-16	82	11+92		LT				13															
R-20	18	37+45		RT				26			1	2											
R-21	18	38+20		RT				13			1	1											
S-1	81	43+45		LT				26	11.25														
S-2	82	9+00		RT				26	12.50														
S-3	82	14+60		LT				26	10.00														
S-4	82	14+09		RT				26	10.00														
S-5	83	17+25		LT				13	7.50														
S-6	83	17+80		RT	1																		
S-7	83	18+60		RT	1																		
S-8	83	19+40		RT	1																		
S-9	83	20+20		RT	1																		
S-10	83	21+00		RT	1																		
S-11	83	21+80		RT	1																		
SL-1	81	39+67		LT&RT													12						
SL-2	81	39+82		RT													40						
SL-3	81	40+98		LT&RT													48						
SL-4	81	41+13		RT													12						
SL-5	82	10+43		LT&RT													53						
SL-6	82	11+60		LT													37						
SL-7	82	11+75		LT													12						
TL-1	81	40+98	43+36	LT&RT																192			
TL-2	81	44+75	47+13	LT&RT															91				
TL-3	82	7+68	9+10	LT															42				
TL-4	82	11+60	14+10	LT																223			
TL-5	83	15+71	21+50	LT															164				
TOTALS CARRIED TO GENERAL SUMMARY					6	66	90	341	51.25	3	23	21	0.62	0.07	0.57	2908	214	179	297	415	52	21	241

CALCULATED CPT
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

SHEET NO.	STATION/LOCATION		SIDE	625								630			632							
	FROM	TO		BRACKET ARM, 25'	CONDUIT, 2", 725.04	CONDUIT, 3", 725.04	CONDUIT, JACKED OR DRILLED, 2"	LUMINAIRE, CONVENTIONAL	TRENCH	PULL BOX, 725.08, 18"	GROUND ROD	SIGN HANGER ASSEMBLY, MAST ARM	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	SIGN, FLAT SHEET, TYPE G	VEHICULAR SIGNAL HEAD, (LED), YELLOW, 3 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	VEHICULAR SIGNAL HEAD, (LED), YELLOW, 5 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN	PEDESTRIAN SIGNAL HEAD (LED), COUNTDOWN, TYPE D2, AS PER PLAN	COVERING OF VEHICULAR SIGNAL HEAD	COVERING OF PEDESTRIAN SIGNAL HEAD	PEDESTRIAN PUSH BUTTON	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
				EACH	LF	LF	LF	EACH	LF	EACH	EACH	EACH	EACH	SQ FT	EACH	EACH	EACH	EACH	EACH	EACH	FT	FT
91	39+84		LT	1							1											
91	11+68		RT	1							1											
91	41+04		RT	1							1											
91	10+45		LT	1							1											
91	P1	PB2	LT		15				15													
91	P2	PB3	RT		6				6													
91	P3	PB4	RT		6				6													
91	P4	PB5	LT		13				13													
91	P5	PB4	RT		16				16													
91	P1	PB1	LT			7																
91	PB1	C1	LT			18																
91	ES	C1	LT			11																
91	PB1	PB3	LT&RT				118															
91	PB4	PB5	LT&RT				120															
91	PB2	PB5	LT&RT				87															
91	11+00		RT					1													327	
91	11+21		LT					1													98	
91	40+13		RT					1													214	
91	40+68		LT					1													216	
91	11+60		LT							1												
91	39+75		LT							1												
91	11+64		RT							1												
91	10+67		RT							1												
91	39+75		RT							1												
91	11+69		LT								1											
91	10+54		LT								1											
TOTALS CARRIED TO GENERAL SUMMARY				4	56	36	325	4	56	5	6										855	

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

SHEET NO.	STATION/LOCATION FROM	STATION/LOCATION TO	SIDE	625 BRACKET ARM, 25' EACH	625 CONDUIT, 2", 725.04 LF	625 CONDUIT, 3", 725.04 LF	625 CONDUIT, JACKED OR DRILLED, 2" LF	625 LUMINAIRE, CONVENTIONAL EACH	625 TRENCH LF	625 PULL BOX, 725.08, 18" EACH	625 GROUND ROD EACH	630 SIGN HANGER ASSEMBLY, MAST ARM EACH	630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED EACH	630 SIGN, FLAT SHEET SQ FT	632 VEHICULAR SIGNAL HEAD, (LED), YELLOW, 3 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN EACH	632 VEHICULAR SIGNAL HEAD, (LED), YELLOW, 5 SECTION, 12" LENS, 1-WAY, WITH BACKPLATE, AS PER PLAN EACH	632 PEDESTRIAN SIGNAL HEAD (LED), COUNTDOWN, TYPE D2, AS PER PLAN EACH	632 COVERING OF VEHICULAR SIGNAL HEAD EACH	632 COVERING OF PEDESTRIAN SIGNAL HEAD EACH	632 PEDESTRIAN PUSH BUTTON EACH	632 SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG LF	632 SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG LF
91	11+14		LT									2		16								
91	11+05		LT									1		7.5								
91	11+01		LT									1		5								
91	10+93		LT									1		7.5								
91	40+38		LT									1		5								
91	40+45		LT									1		5								
91	40+48		LT									1		7.5								
91	40+53		LT									2		12								
91	11+12		RT									1		5								
91	11+04		RT									1		5								
91	11+04		RT									1		7.5								
91	10+98		RT									2		16								
91	40+16		RT									2		12								
91	40+21		RT									1		7.5								
91	40+34		RT									1		7.5								
91	10+55		RT														1		1		1	299
91	10+46		LT														1		1		1	167
91	39+84		LT										1	2.25								
91	11+54		LT										1	2.25								
91	11+68		RT										1	2.25								
91	41+00		LT										1	2.25								
91	41+04		RT										1	2.25								
91	39+82		RT										1	2.25								
91	11+23		LT												1			1			81.5	
91	10+97		LT												1			1			107.5	
91	40+34		LT												1			1			245	
91	40+41		LT												1			1				
91	40+57		LT												1			1			221	
91	40+65		LT												1			1				
91	11+15		RT												1			1			355.5	
91	11+07		RT												1			1				
91	10+93		RT												1			1			333.5	
91	11+31		LT													1		1			73.5	
91	10+85		RT													1		1			325.5	
91	40+10		RT													1		1			222.5	
91	40+27		RT													1		1			239.5	
TOTALS CARRIED TO GENERAL SUMMARY												19	6	139.5	9	4	2	13	2	2	2205	466

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

SHEET NO.	STATION FROM	STATION TO	SIDE	632 SIGNAL SUPPORT FOUNDATION, AS PER PLAN	632 PEDESTAL FOUNDATION	632 POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	632 POWER SERVICE, AS PER PLAN	632 COMBINATION SIGNAL SUPPORT, MISC.: TYPE TC-81.21, SPECIAL, WITH MAST ARM, AS PER PLAN	632 PEDESTAL, 8'	633 CONTROLLER WORK PAD	633 CABINET FOUNDATION
				EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH
91	10+54		RT		1				1		
91	39+84		LT	1				1			
91	11+68		RT	1				1			
91	41+04		RT	1				1			
91	10+45		LT	1				1			
91	ES	C1	LT			45					
91	11+65		LT				1				
91	19+69		LT							1	1
TOTALS CARRIED TO GENERAL SUMMARY				4	1	45	1	4	1	1	1

CALCULATED LWB
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

SHEET NO.	REF. NO.	PHASE	STATION		SIDE	614													622
						WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL)	WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	BARRIER REFLECTOR TYPE B2	WORK ZONE LANE LINE CLASS I, 740.06, TYPE II	WORK ZONE CENTER LINE CLASS I, 740.06, TYPE II (DOUBLE SOLID)	WORK ZONE EDGE LINE CLASS I, 740.06, TYPE I (WHITE)	WORK ZONE EDGE LINE CLASS I, 740.06, TYPE II (WHITE)	WORK ZONE CHANNELIZING LINE CLASS I, 740.06, TYPE I	WORK ZONE CHANNELIZING LINE CLASS I, 740.06, TYPE II	WORK ZONE TRANSVERSE/DIAGONAL LINE CLASS I, 740.06, TYPE II	WORK ZONE STOP LINE CLASS I, 740.06, TYPE II	WORK ZONE ARROW CLASS I, 740.06, TYPE II	OBJECT MARKER, ONE WAY	PORTABLE CONCRETE BARRIER, 32"
			FROM	TO		EACH	EACH	EACH	MILE	MILE	MILE	MILE	FT	FT	FT	FT	FT	EACH	EACH	FT
13	EL-1	1	37+35	38+70	LT							0.03							
14	EL-2	1	38+70	40+22	LT							0.03							
16	RM-1	1	11+95		LT														
16	RM-2	1	12+43		LT														
16	RM-28	1	14+07		LT&RT														
16	EL-3	1	11+66	15+40	LT							0.08							
16	EL-4	1	15+70	21+50	LT&RT							0.12							
16	PCB-1	1	12+68	14+46	LT			4										4	180
16	PCB-2	1	16+72	21+50	LT&RT			10										10	478
16	IA-1	1	14+46	14+66	LT		1												
17	EL-5	1	21+50	25+26	LT							0.07							
17	PCB-3	1	21+50	25+47	LT			9										9	398
17	IA-2	1	25+47	25+67	LT	1													
PHASE 1 TOTALS						1	1	23	0	0	0	0.33	0	0	0	0	0	23	1056
18	CH-9	2	34+53	38+70	RT								417						
18	CH-10	2	36+93	38+70	RT								177						
18	EL-17	2	34+53	38+70	RT						0.08								
18	RM-29	2	34+53	38+70	RT														
18	RM-30	2	36+93	38+70	RT														
19	CH-11	2	38+70	39+80	RT								110						
19	CH-12	2	38+70	39+79	RT								109						
19	EL-18	2	38+70	39+63	RT						0.02								
19	LL-1	2	39+00	39+50	RT				0.01										
19	RM-31	2	38+70	39+80	RT														
19	RM-32	2	38+70	39+79	LT														
20	RM-3	2	5+42	10+25	LT														
20	RM-4	2	6+85	7+35	LT														
20	RM-5	2	7+44		LT														
20	RM-6	2	7+22	9+34	RT														
20	RM-7	2	9+47		LT														
20	RM-9	2	9+87		LT														
20	EL-6	2	5+43	10+25	LT							0.10							
20	LA-1	2	7+49		RT												1		
20	LA-2	2	8+52		RT												1		
20	LA-3	2	9+51		RT												1		
20	CH-1	2	7+29	10+25	RT									280					
20	CL-1	2	5+42	10+25	LT&RT					0.09									
21	RM-10	2	10+26		LT														
21	RM-11	2	10+25	10+61	LT														
21	RM-12	2	11+61	11+65	LT														
21	RM-13	2	11+74	12+61	RT														
21	RM-14	2	11+95		LT														
21	RM-15	2	12+43		LT														
21	RM-16	2	11+63	15+09	LT														
21	RM-17	2	11+64	13+74	LT														
21	RM-18	2	11+65	15+30	LT&RT														
21	RM-19	2	14+10		LT														
21	RM-20	2	14+10		LT														
21	RM-21	2	14+79	15+32	RT														
21	RM-22	2	14+95		RT														
21	RM-23	2	15+91	21+50	RT														
21	LA-4	2	10+26		RT												1		
21	LA-5	2	11+94		LT												1		

CALCULATED CPT
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

SHEET NO.	REF. NO.	PHASE	STATION FROM	STATION TO	SIDE	614 WORK ZONE IMPACT ATTENUATOR (UNIDIRECTIONAL) EACH	614 WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL) EACH	614 BARRIER REFLECTOR TYPE B2 EACH	614 WORK ZONE LANE LINE CLASS I, 740.06, TYPE II MILE	614 WORK ZONE CENTER LINE CLASS I, 740.06, TYPE II (DOUBLE SOLID) MILE	614 WORK ZONE EDGE LINE CLASS I, 740.06, TYPE I (WHITE) MILE	614 WORK ZONE EDGE LINE CLASS I, 740.06, TYPE II (WHITE) MILE	614 WORK ZONE CHANNELIZING LINE CLASS I, 740.06, TYPE I FT	614 WORK ZONE CHANNELIZING LINE CLASS I, 740.06, TYPE II FT	614 WORK ZONE TRANSVERSE/DIAGONAL LINE CLASS I, 740.06, TYPE II FT	614 WORK ZONE STOP LINE CLASS I, 740.06, TYPE II FT	614 WORK ZONE ARROW CLASS I, 740.06, TYPE II EACH	614 OBJECT MARKER, ONE WAY EACH	622 PORTABLE CONCRETE BARRIER, 32" FT
21	LA-6	2	11+94		LT												1		
21	LA-7	2	12+82		LT												1		
21	LA-8	2	12+82		LT												1		
21	LA-9	2	13+70		LT												1		
21	LA-10	2	13+70		LT												1		
21	LA-11	2	14+97		LT												1		
21	LA-12	2	16+05		LT												1		
21	CH-2	2	10+25	10+60	RT									35					
21	CH-3	2	11+60	14+10	LT									250					
21	CH-4	2	11+60	14+10	LT									250					
21	CH-5	2	11+60	14+60	LT									300					
21	CH-6	2	14+60	15+30	CT									70					
21	CH-7	2	14+60	15+30	RT									70					
21	CH-8	2	15+71	16+71	LT									102					
21	SL-1	2	10+60	10+64	LT&RT											44			
21	SL-2	2	11+60	11+62	LT											37			
21	SL-3	2	11+75	11+77	LT											12			
21	TL-1	2	11+60	14+10	LT										223				
21	TL-2	2	14+60	15+30	LT										72				
21	TL-3	2	15+71	21+50	LT										164				
21	CL-2	2	10+25	10+62	LT&RT					0.01									
21	CL-3	2	11+75	15+30	CT&LT					0.07									
21	LL-2	2	11+80	14+30	RT				0.05										
21	LL-3	2	15+97	16+48	RT				0.01										
21	EL-7	2	10+25	10+62	LT							0.01							
21	EL-8	2	11+60	15+30	LT							0.07							
21	EL-9	2	11+80	21+50	RT							0.18							
21	EL-10	2	14+60	15+30	LT							0.02							
21	EL-11	2	15+81	21+50	LT							0.11							
21	CL-4	2	15+71	21+50	LT					0.11									
21	CL-5	2	15+71	21+50	CT					0.11									
22	EL-12	2	21+50	22+24	LT							0.01							
22	EL-13	2	21+50	22+24	RT							0.01							
22	CL-6	2	21+50	22+24	LT					0.01									
22	CL-7	2	21+50	22+24	CT					0.01									
PHASE 2 TOTALS						0	0	0	0.07	0.41	0.10	0.61	813	1357	459	93	12	0	0
24	RM-24	3	41+35		LT														
24	RM-25	3	41+71		LT														
24	RM-26	3	42+51		LT														
24	RM-27	3	44+96	47+74	CT														
24	EL-14	3	40+73	46+40	LT							0.12							
24	EL-15	3	45+58	47+74	RT							0.04							
24	EL-16	3	46+88	47+74	LT							0.02							
24	CL-8	3	44+96	47+74	RT					0.05									
			PHASE 3 TOTALS			0	0	0	0	0.05	0	0.18	0	0	0	0	0	0	0
TOTALS CARRIED TO GENERAL SUMMARY						1	1	23	0.07	0.46	0.10	1.02	813	1357	459	93	12	23	1056

CALCULATED CPT
CHECKED EMR

ESTIMATED QUANTITIES

CLE-50-1.48
MILFORD PARKWAY

FOR ESTIMATED QUANTITIES SEE SHEETS 29–32
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2

Toebben LTD
O.R. 1680, Pg. 172
210725.344
S.R. TL75–117
0.798 Ac.

Toebben LTD
D.Bk. 757, Pg. 466
210725.001
S.R. 19M–02, TL9–134, TL12–98
TL35–40 & TL75–117
21.005 Ac. (rem)

Jen Properties
O.R. 2163, Pg 1594
210727.086
S.R. TL18–119
2.714 Ac.

City of Milford
No Deed Found
210737.012P
Pt. 18.112 Ac.

Begin Project
Sta. 34+51.14

S67°10'49"E 413.55'

Ex. Catch Basin Adjusted
To Grade & Replace Ex. Grate
with ADA Compliant Grate

℄ Construction U.S. 50

L=758.792, R=2223.579
D=19.5521

Const. Limits
Prop. Walk
Prop. R/W
Ex. R/W
Ex. B/C
Ex. F/C
Prop. B/C
Prop. F/C
Const. Limits

MB–1
SW–1
D–1
SS–1
C–1

Begin Walk Rt.
Sta. 34+51.14

Ex. Asphalt Driveway

Mailbox To Be
Relocated

Begin Prop. Curb Rt
Sta. 36+82.87

Ex. Manhole
Adjust to Grade
Prop. T/Rim=548.29

MATCH LINE STA. 38+70 U.S. 50

27" Stm
30" Stm
12" Stm
18" Stm
36" Stm
Ex.12"
Ex.15"
Ex.Sign

31'
25'
24'
42'

33+00
34+00
35+00
36+00
37+00
38+00

Ex. Stm. M.H.
Sta. 33+90, 29.7 Rt

Ex. C.B.
Sta. 33+92, 34.9 Lt

Ex. San. M.H.
Sta. 32+98, 63.2 Lt

Ex. C.B.
Sta. 33+64, 39.7 Lt

Ex. C.B.
Sta. 34+02, 28.4 Rt

Ex. San. M.H.
Sta. 34+86, 44.5 Lt

Ex. San. M.H.
Sta. 35+14, 42.5 Rt

Ex. U.S. 50 Profile

Ex. C.B.
Sta. 36+60, 23.3 Lt

Ex. San. M.H.
Sta. 37+14, 45.5 Rt

Ex. C.B.
Sta. 38+44, 33.9 Lt

12" San
4" Gas
8" Water

566.51 565.95 565.39 564.78 564.15 563.56 562.81 561.97 561.07 560.15 559.20 558.27 557.33 556.39 555.45 554.51 553.57 552.43 551.43 550.43 549.44 548.44 547.39 546.33 545.25 544.04 542.84 541.62 540.37 539.11 537.97

575 570 565 560 555 550 545 540 535 530

33+00 34+00 35+00 36+00 37+00 38+00 39+00

CALCULATED CPT CHECKED EMR

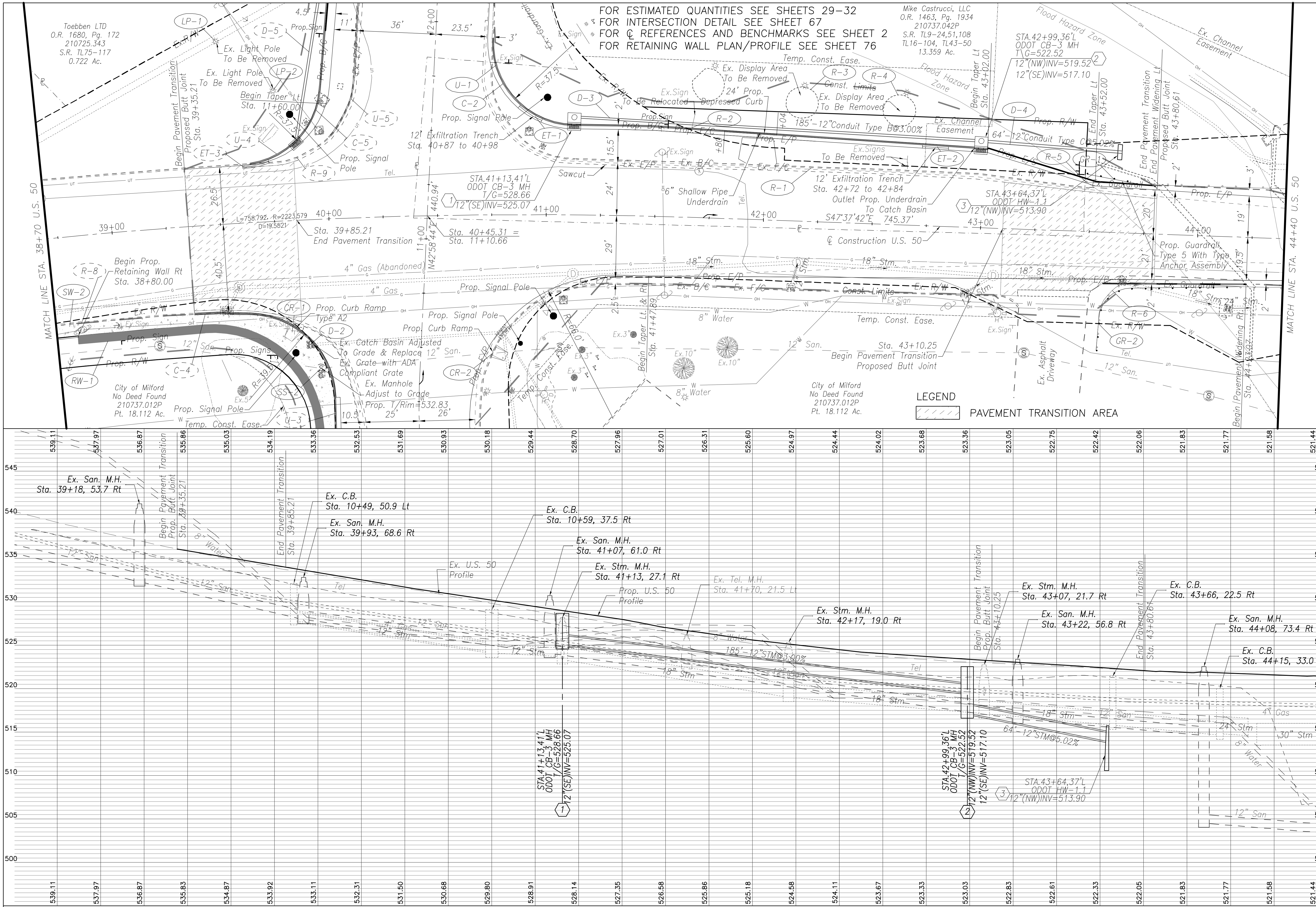
HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE - U.S. 50
STA. 33+00 TO STA. 38+70

CLE-50-1.48
MILFORD PARKWAY

40
132

Plot time: Sep 04, 2012 – 9:37am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 40 (US 50) – Layout Tab: 40 Plan & Profile (US50)



PLAN AND PROFILE - U.S. 50
STA. 38+70 TO STA. 44+40

CLE-50-1.48
MILFORD PARKWAY

CALCULATED CPT
CHECKED EMR

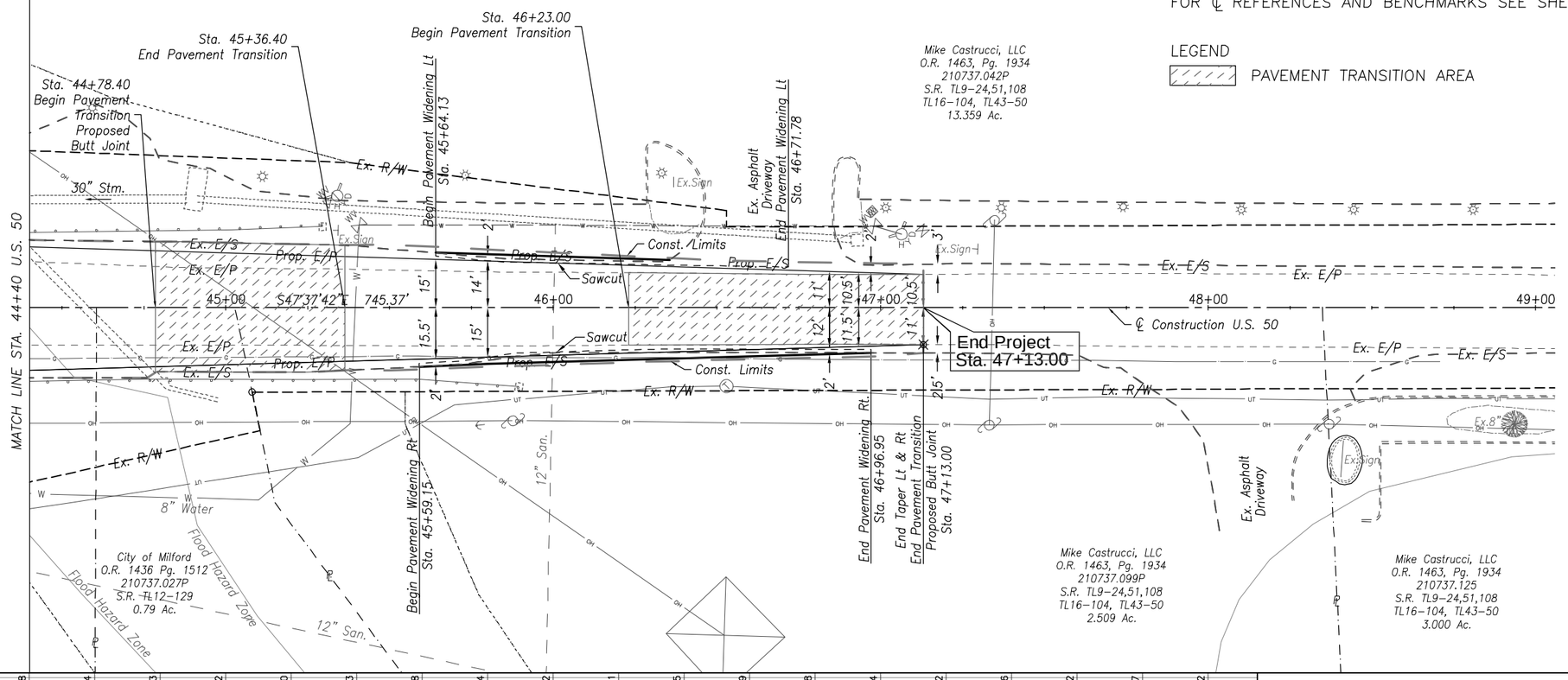
HORIZONTAL SCALE IN FEET: 0 10 20 40

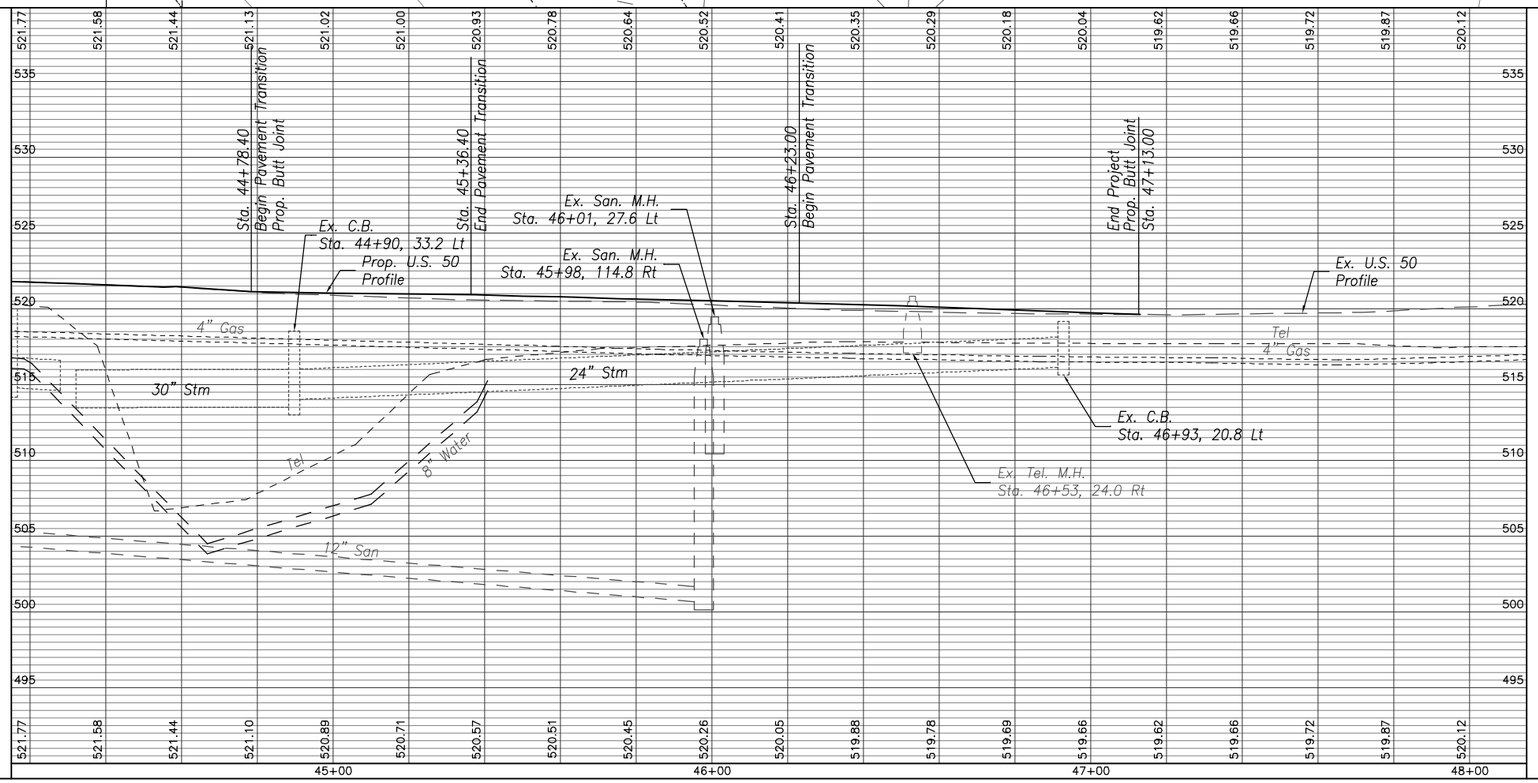
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FOR ESTIMATED QUANTITIES SEE SHEETS 29–32
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2

LEGEND

PAVEMENT TRANSITION AREA





PLAN AND PROFILE - U.S. 50
STA. 44+40 TO STA. 47+13

CLE-50-1.48
MILFORD PARKWAY

CALCULATED CPT
CHECKED EMR

HORIZONTAL SCALE IN FEET
0 10 20 40

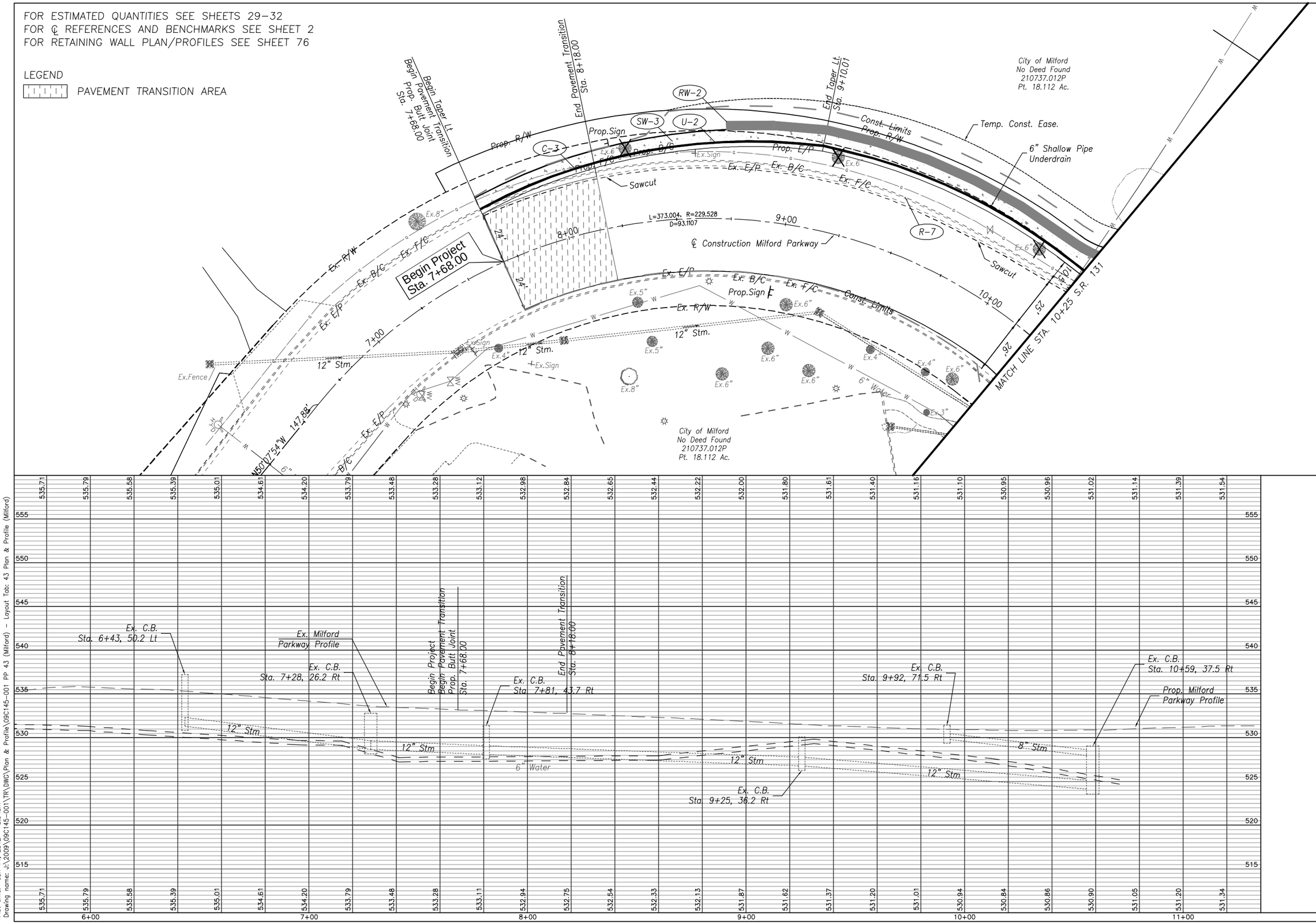
42
132

Plot time: Jun 14, 2012 – 8:17am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 42 (US 50) – Layout Tab: 42 Plan & Profile (US50)

FOR ESTIMATED QUANTITIES SEE SHEETS 29–32
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2
FOR RETAINING WALL PLAN/PROFILES SEE SHEET 76

LEGEND

PAVEMENT TRANSITION AREA



N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CPT
CHECKED EMR

PLAN AND PROFILE - MILFORD PARKWAY
STA. 6+50 TO STA. 10+25

CLE-50-1.48
MILFORD PARKWAY

43
132

Plot time: Jun 14, 2012 – 8:34am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 43 (Milford) – Layout Tab: 43 Plan & Profile (Milford)

MATCH LINE STA. 10+25 MILFORD PARKWAY

MATCH LINE STA. 15+80 S.R. 131

Const. Limits Begin Taper Lt. Sta. 11+69.00

12' Exfiltration Trench Sta. 39+62 to 39+74

12' Exfiltration Trench Sta. 12+51 to 12+63

Remove Ex. Stm.

59'-48"Conduit Type C@3.10%

Remove Ex. Stm. MH

77'-12"Conduit Type C@3.21%

Remove Ex. Stm.

39'-48"Conduit Type C@1.90%

Toebben LTD
O.R. 1680, Pg. 172
210725.343
S.R. TL75-117
0.722 Ac.

Toebben LTD
D.Bk. 757, Pg. 466
210725.001
S.R. 19M-02, TL9-134, TL12-98
TL35-40 & TL75-117
21.005 Ac. (rem)

Mike Castrucci, LLC
O.R. 1463, Pg. 1934
210737.042P
S.R. TL9-24,51,108
TL16-104, TL43-50
13.359 Ac.

Flood Hazard Zone

Temp. Const. Ease.

Prop. R/W

Prop. Underdrain Outlet

Prop. Guardrail, Type 5

Prop. Type E Anchor Assembly

Prop. Inv. =521.00

Prop. Type TST Bridge Terminal Assembly

Remove Ex. Stm. MH

Remove Ex. Stm. 13+00

Remove Ex. Catch Basin

Sawcut

Outlet Prop. Underdrain To Catch Basin

6" Shallow Pipe Underdrain

STA.11+41.62'L
ODOT CB-3
T/G=533.38
12"(NE)INV=530.38

STA.12+17.54'L
Storm Manhole
T/G=530.92
12"(SW)INV=527.92
48"(NE)INV=523.57
36"(W)INV=524.07

STA.12+78.48'L
ODOT CB-3 MH
T/G=528.33
48"(SW)INV=521.74
48"(NE)INV=521.74

Sta. 11+90.83
Begin Pavement Transition

Sta. 12+64.83
End Pavement Transition
Proposed Butt Joint

Sta. 13+59.23
Begin Pavement Transition
Proposed Butt Joint

Sta. 14+09.23
End Pavement Transition

Meet Ex. Pavement Sta. 1+06.07

℄ Construction S.R. 131

℄ Construction U.S. 50

℄ Construction Happy Hollow Road
L=340.206, R=803.420
D=24.2617

Sta. 15+55.69 = Sta 0+00.00

Begin Taper Lt. & Rt. Sta. 41+47.89

Ex. Block Wall

Ex. Block Wall

FOR BRIDGE WIDENING DETAILS SEE SHEETS 92-103
FOR ESTIMATED QUANTITIES SEE SHEETS 29-32
FOR INTERSECTION DETAILS SEE SHEETS 67-68
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2

LEGEND

PAVEMENT TRANSITION AREA

HORIZONTAL SCALE IN FEET

CALCULATED CPT CHECKED EMR

PLAN AND PROFILE - S.R. 131
STA. 10+25 TO STA. 15+80

CLE-50-1.48
MILFORD PARKWAY

44
132

Ex. C.B.
Sta. 10+59, 37.5 Rt

8" Stm

6" Water

12" Stm

77'-12"STM@3.21%

59'-48"STM@3.10%

36" Stm

39'-48"STM@1.90%

48" Stm

Ex. Stm. M.H.
Sta. 12+19, 51.9 Lt

Ex. Stm. M.H.
Sta. 12+78, 52.4 Lt

Ex. C.B.
Sta. 12+78, 26.1 Lt

Ex. S.R. 131 Profile

Prop. S.R. 131 Profile

Ex. Tel. M.H.
Sta. 14+01, 19.2 Lt

Tel

Plot time: Aug 30, 2012 - 8:27am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 44 (SR131) - Layout Tab: 44 Plan & Profile (SR131)

The 474 Group
D.Bk. 740, Pg. 777
182411F113
S.R. TL12-98
12M-98
1.04 Ac. (rem)

Begin Taper Lt
Sta. 16+71.00

End Taper Lt
Begin Prop. Retaining Wall Lt
Sta. 17+21.00

John C. &
Monica R. Adams
O.R. 1381 Pg. 2410
182411F112
S.R. T3-241A
17M-119
6.64 Ac.

Douglas B. &
Laraine L. Roessler
D.Bk. 731, Pg. 801
182411F114
S.R. T3-241A
17M-119
6.64 Ac.

Begin ODOT Retaining Wall Lt.
Sta. 19+75.00

9'x14'x18" RCP
Type B

Tributary to Happy Hollow

R=26.0'

GR-5

Prop. R/W

U-9

Prop. E/P

Prop. Sign

Ex. Sign

Ex. E/S

Ex. E/P

R-16

U-10

R-17

Ex. Guardrail

L=340.206, R=803.420
D=24.2617

16+00

17+00

18+00

19+00

20+00

21+00

57'

44'

24'

19'

4'

2'

Sawcut

Remove Ex. HW

4'x10'x18"
RCP

D-8

Const. Limits

10'-15" CONDUIT TYPE A @ 15.92%

Prop. Retaining Wall

7 STA.18+23,33'L
ODOT HW-2.2
15"(SE)INV=545.13

Ex.Inv.=555.82

Begin Taper Rt.
Sta. 17+80.00

Ex. R/W

Prop. R/W

8 STA.20+56,42'L
ODOT HW-2.2
36"(SE)INV.=554.87

67'-36" CONDUIT TYPE A
@ 19.74%

D-9

Remove Ex. Stm.

R-18

Remove Ex. HW

9 STA.20+60,24'R
ODOT HW-1.1
36"(NW)INV.=568.06

N67°14'26"E 308.78'

℄ Construction
S.R. 131

Const. Limits

End Taper Rt.
Sta. 21+23.55

MATCH LINE STA. 15+80 S.R. 131

MATCH LINE STA. 21+50 S.R. 131

Doublegate Condominiums
Phase III
216603A00CA
RP6-6
3.486 Ac.

Doublegate Condominiums
Phase II
216603B00CA
RP5-10
1.767 Ac.

FOR RETAINING WALL PLAN/PROFILE SEE SHEET 78
FOR ESTIMATED QUANTITIES SEE SHEETS 29-32
FOR CULVERT PROFILES SEE SHEET 75
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2

Prop. S.R. 131 Profile

Ex. S.R. 131 Profile

Tel

Ex. Storm

Ex. Storm

Ex. Tel. M.H.
Sta. 16+37, 12.3 Lt

542.90 544.63 546.18 547.66 549.08 550.43 551.69 553.03 554.46 555.60 556.80 557.97 559.16 560.38 561.65 562.96 564.29 565.67 567.10 568.57 570.03 571.44 572.62 573.77 575.03 576.49 578.14 579.75 581.24 582.64

542.86 544.63 546.19 547.67 549.08 550.44 551.69 553.05 554.29 555.38 556.49 557.81 559.12 560.34 561.63 562.96 564.28 565.62 566.95 568.29 569.65 570.98 572.27 573.46 574.65 576.07 577.48 579.06 580.63 582.20

580 575 570 565 560 555 550 545 540

16+00 17+00 18+00 19+00 20+00 21+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CPT CHECKED EMR

PLAN AND PROFILE - S.R. 131
STA. 15+80 TO STA. 21+50

CLE-50-1.48
MILFORD PARKWAY

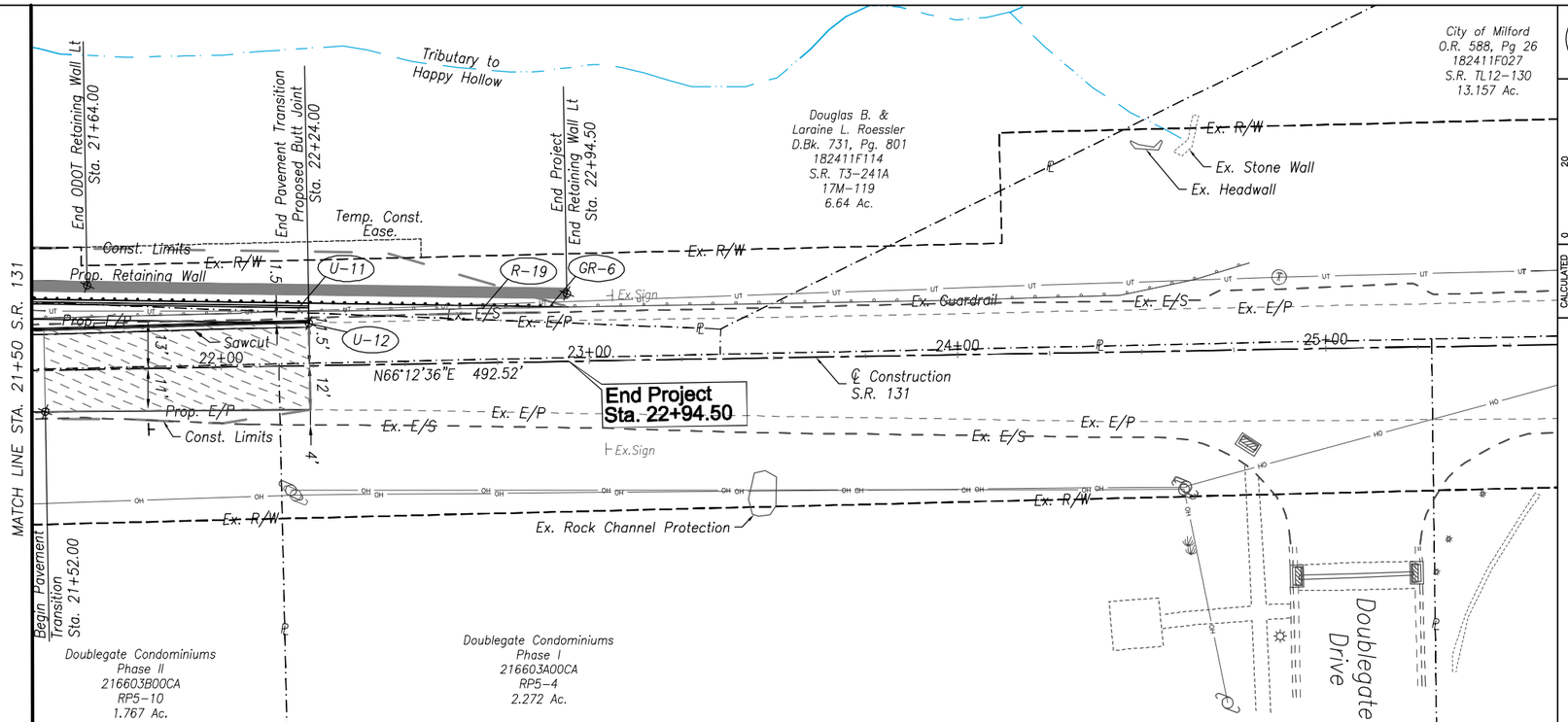
45
132

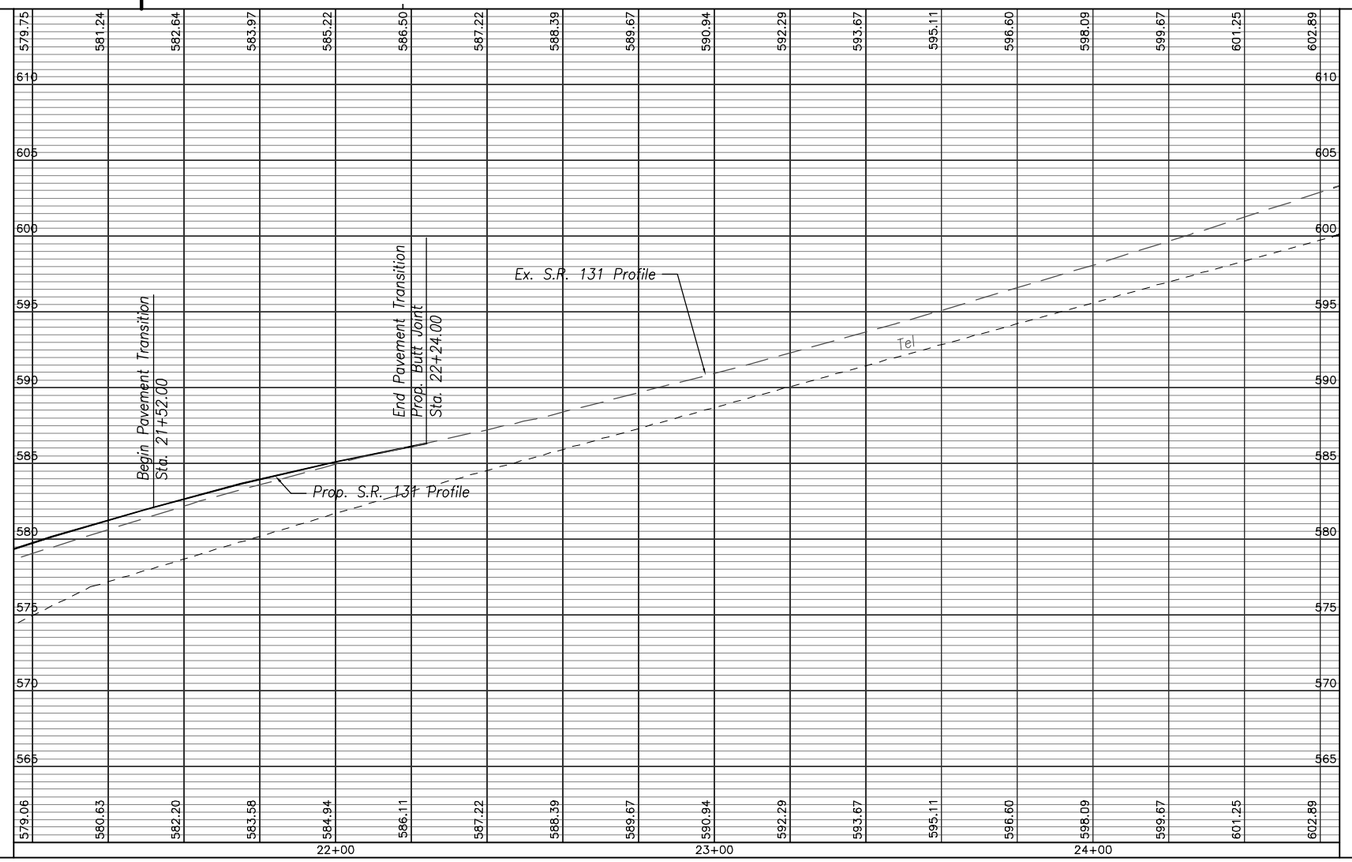
Plot time: Aug 29, 2012 - 11:27am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 45 (SR131) - Layout Tab: 45 Plan & Profile (SR131)

FOR ESTIMATED QUANTITIES SEE SHEETS 29–32
FOR ℄ REFERENCES AND BENCHMARKS SEE SHEET 2

LEGEND

PAVEMENT TRANSITION AREA





HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED CPT
CHECKED EMR

PLAN AND PROFILE - S.R. 131
STA. 21+50 TO STA. 24+00

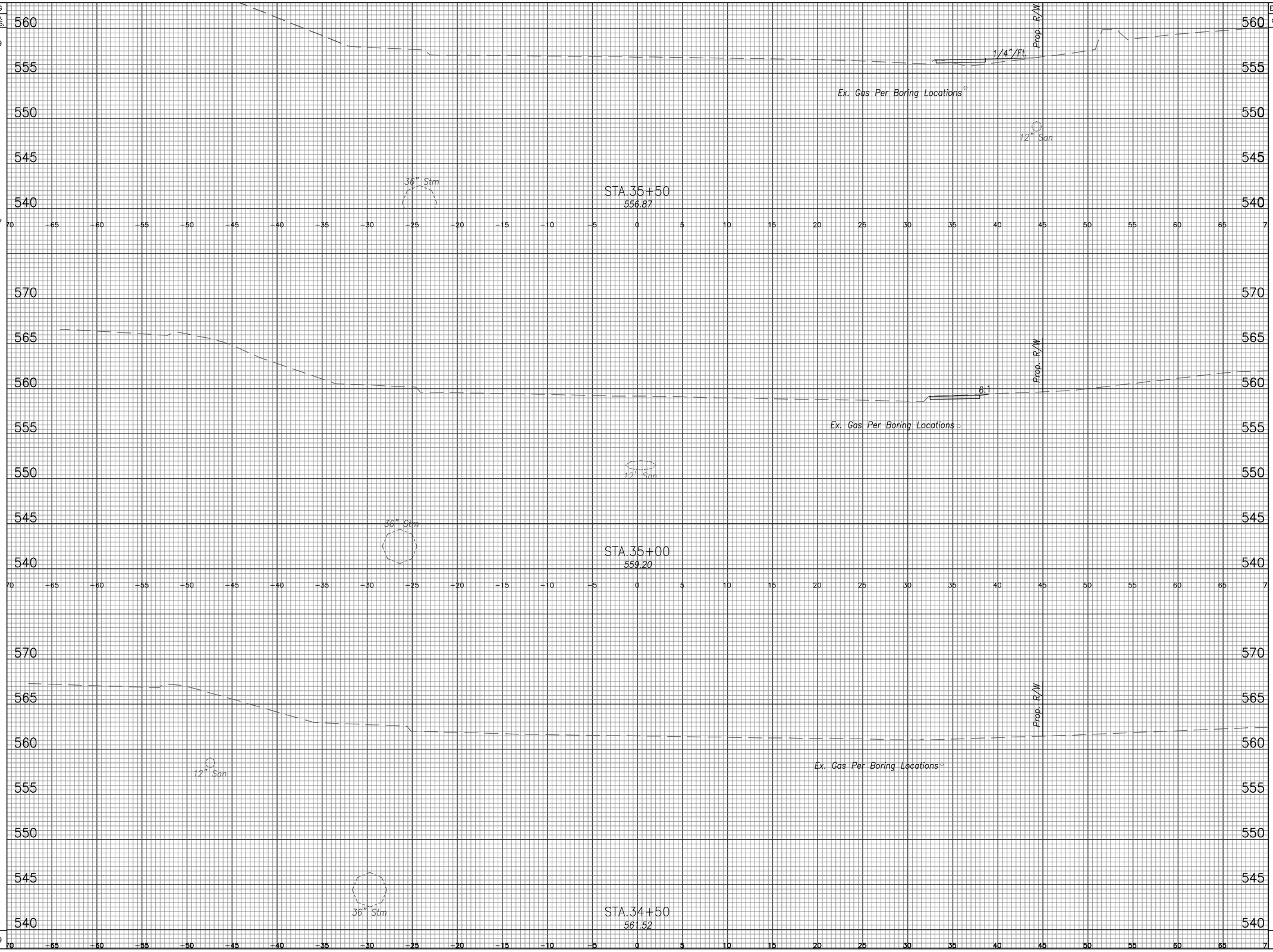
CLE-50-1.48
MILFORD PARKWAY

46
132

Plot time: Jun 14, 2012 – 10:46am
Drawing name: J:\2009\09C145-001\TR\DWG\Plan & Profile\09C145-001 PP 46 (SR131) – Layout Tab: 46 Plan & Profile (SR131)

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
5	19	1	3	3	3
	17			3	3
1		2	0		
3				2	0
0		0	0		
	39			8	6

CALCULATED CPT
CHECKED EMR



CROSS SECTIONS - U.S. 50
STA. 34+50 to STA. 35+50

CLE-50-1.48
MILFORD PARKWAY

47
132

Plot time: Jun 14, 2012 – 11:26am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\GROSS SECTIONS (US50) – Layout Tab: 47 XS34+50

SEEDING		END AREA		VOLUME		CALCULATED	CHECKED
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CPT	EMR
3	17	6	0	10	0		
	17			10	0		
3		5	0				
2	14	2	0	7	0		
	48			27	0		

CROSS SECTIONS - U.S. 50
STA. 36+00 to STA. 37+00

CLE-50-1.48
MILFORD PARKWAY

48
132

Plot time: Jun 14, 2012 – 11:29am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) – Layout Tab: 48 XS36+00

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
4	11	7	0	16	0
7	31	6	0	12	0
3	28	5	0	10	0
	70			38	0

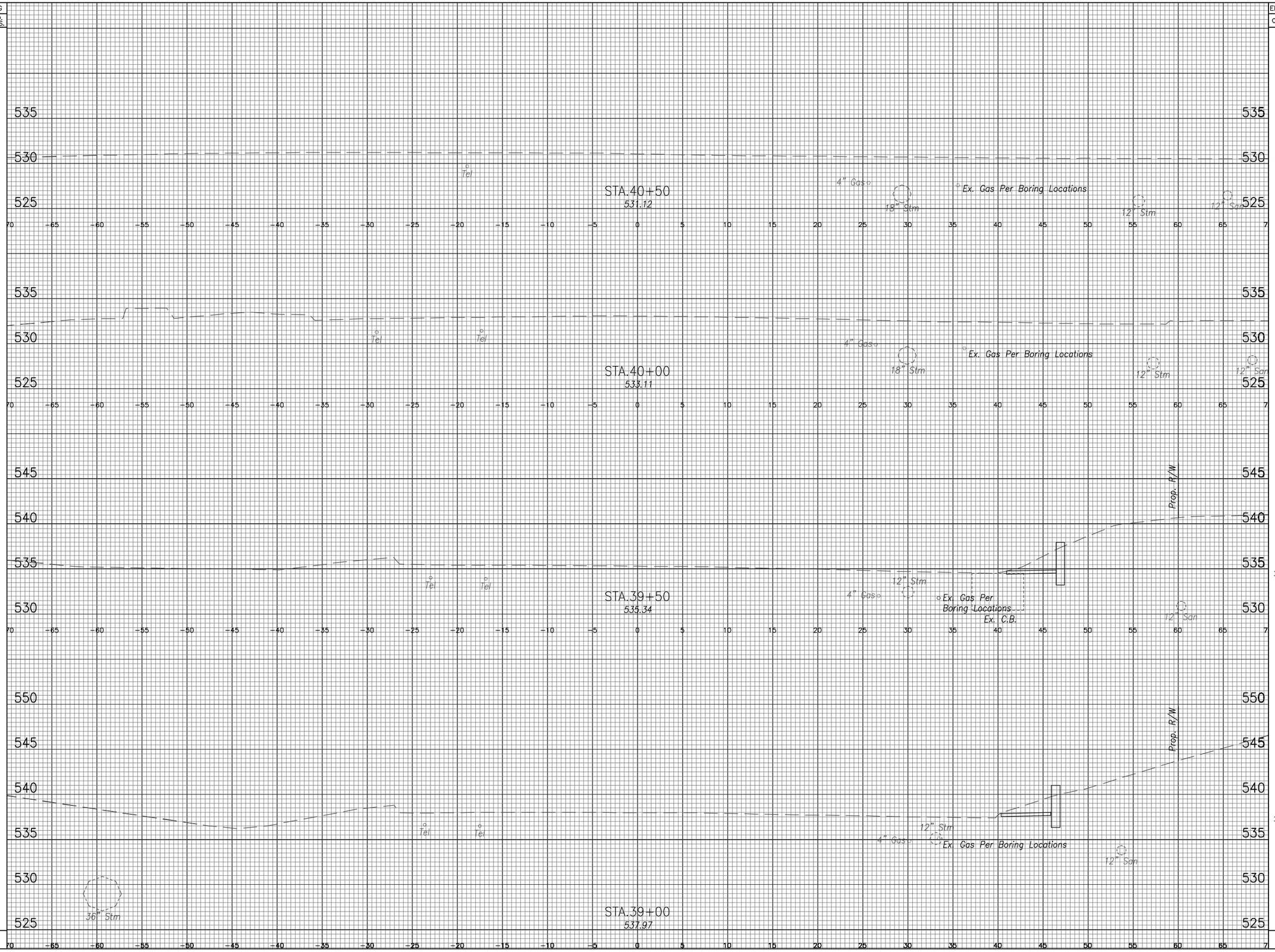
CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - U.S. 50
STA. 37+50 to STA. 38+50

CLE-50-1.48
MILFORD PARKWAY

Plot time: Jun 14, 2012 - 11:34am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) - Layout Tab: 49 XS37+50

SEEDING		END AREA		VOLUME		CALCULATED CPT
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	CHECKED EMR
0	0			0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0			10	0	
0	0	11	0	19	0	
0	0	10	0	29	0	



CROSS SECTIONS - U.S. 50
STA. 39+00 to STA. 40+50

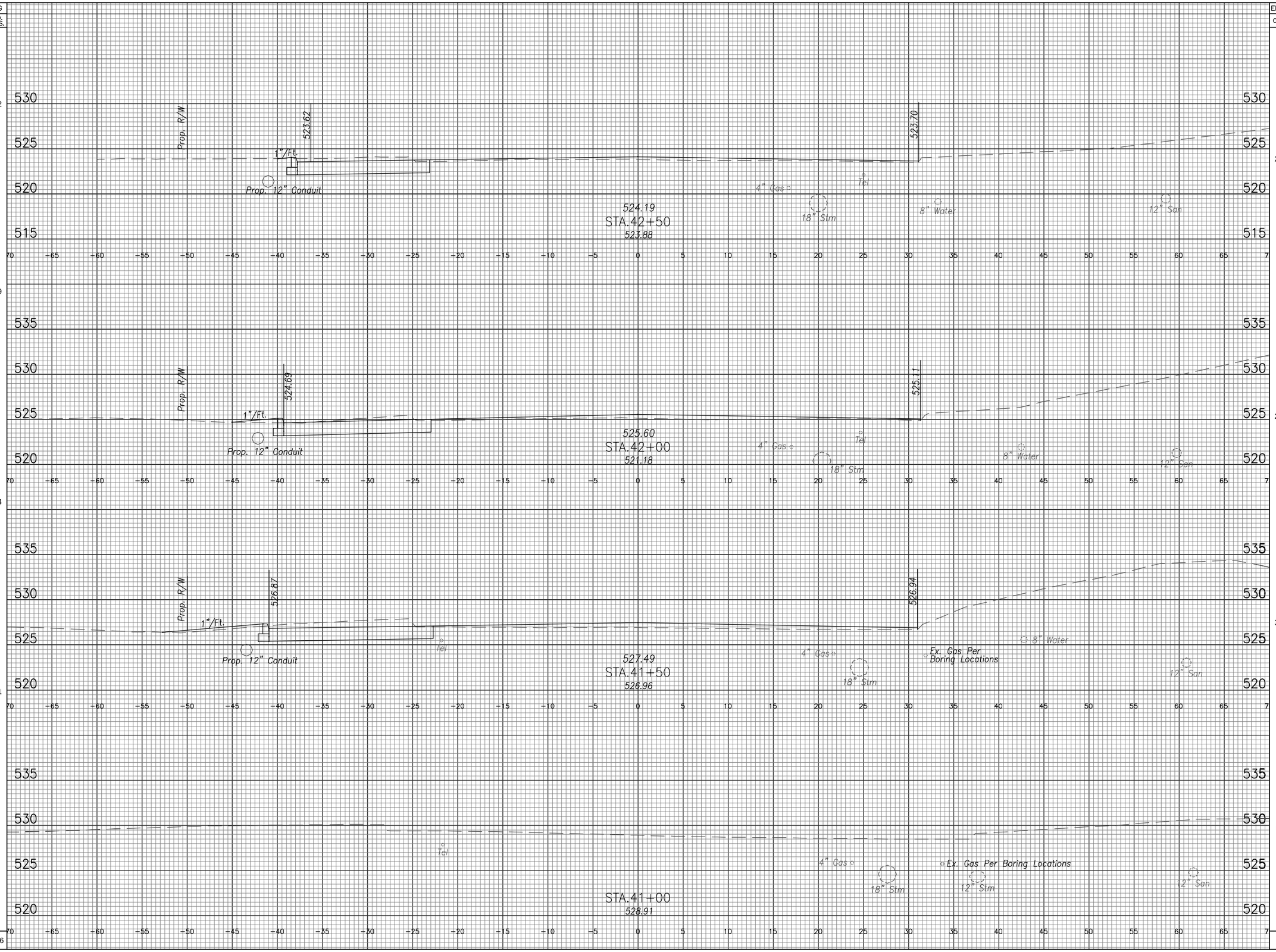
CLE-50-1.48
MILFORD PARKWAY

50
132

Plot time: Jun 14, 2012 – 12:59pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) – Layout Tab: 50 XS39+00

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
2	22	27	0	49	1
5	19	27	1	50	1
11	44	37	2	59	3
0	31	0	0	34	2
	116			192	7

CALCULATED CPT
CHECKED EMR



CROSS SECTIONS - U.S. 50
STA. 41+00 to STA. 42+50

CLE-50-1.48
MILFORD PARKWAY

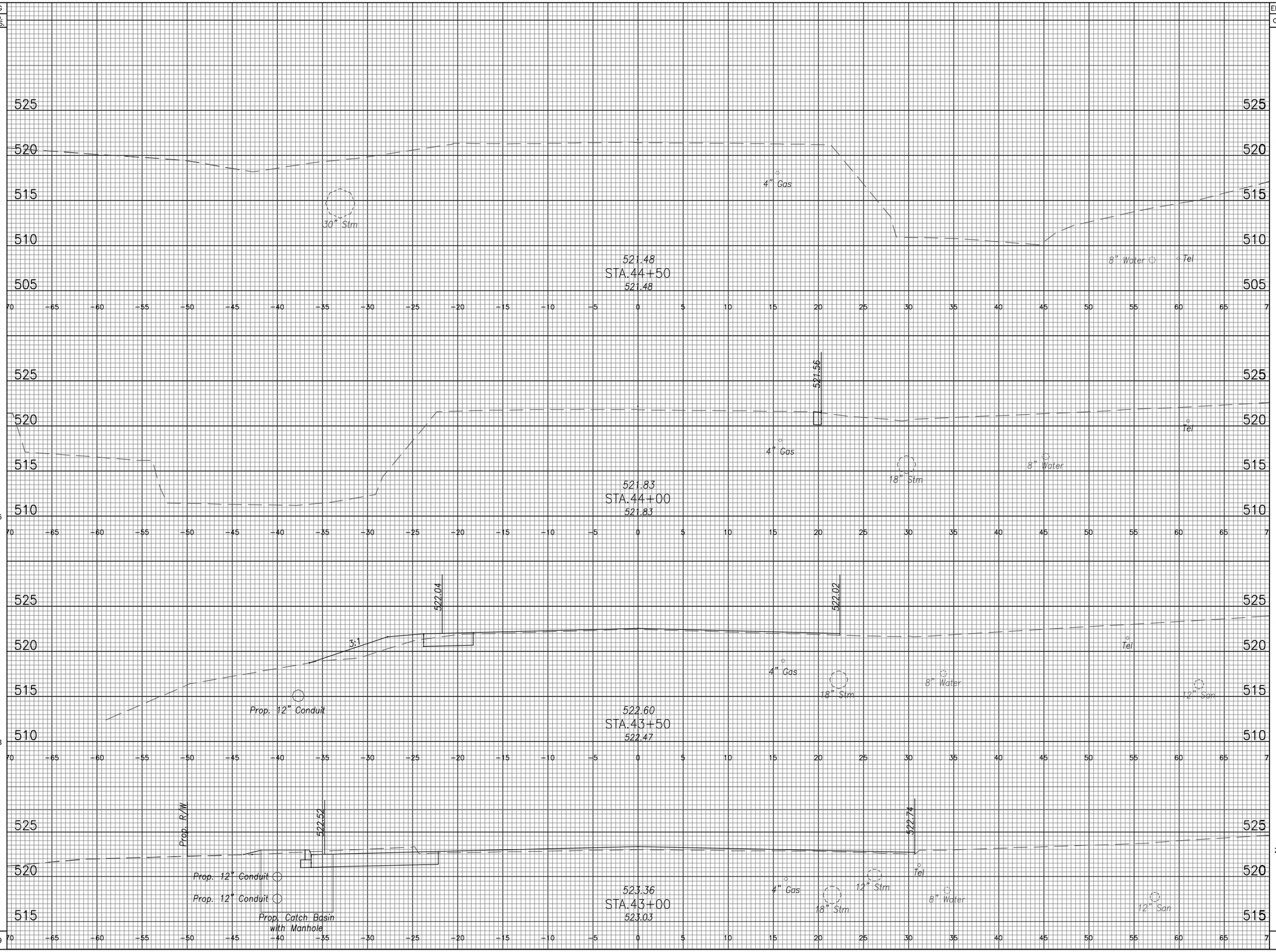
51
132

Plot time: Jun 14, 2012 - 1:01pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) - Layout Tab: 51 XS41+00

SEEDING	
END WIDTH	SQ. YDS.
0	0
0	0
0	36
13	53
6	89

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
0	0	0	0
6	11	6	10
26	1	30	11
		36	21

CALCULATED CPT
CHECKED EMR



CROSS SECTIONS - U.S. 50
STA. 43+00 to STA. 44+50

CLE-50-1.48
MILFORD PARKWAY

52
132

Plot time: Jun 14, 2012 - 2:08pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) - Layout Tab: 52 XS43+00

SEEDING	
END WIDTH	SQ. YDS.
1	6
	8
2	11
	6
0	2
	0
	31

END AREA		VOLUME	
CUT	FILL	CUT	FILL
		2	1
2	1		
		5	2
3	1		
		3	2
0	1		
		0	1
0	0		
		10	6

CALCULATED CPT
CHECKED EMR

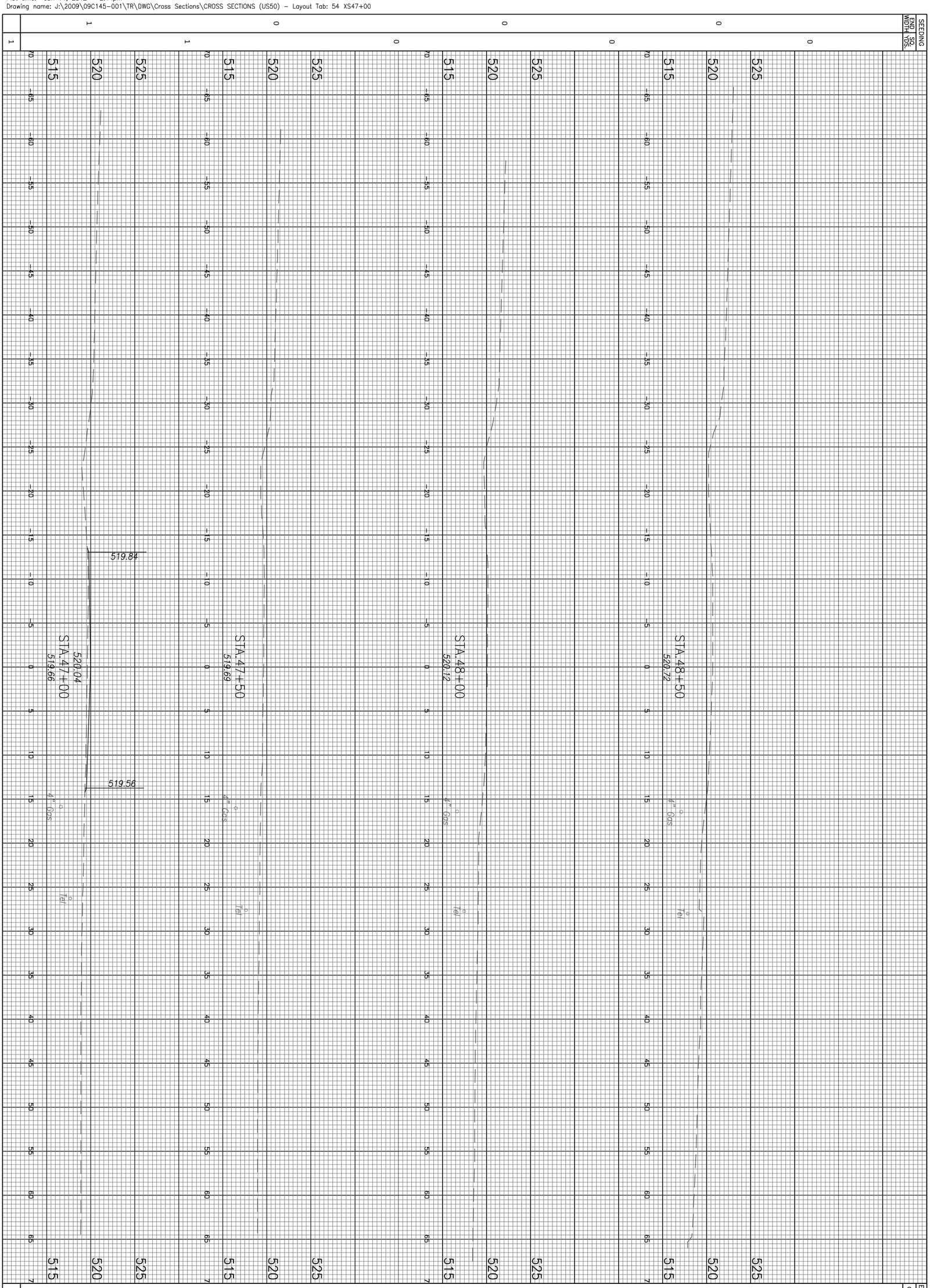
CROSS SECTIONS - U.S. 50
STA. 45+00 to STA. 46+50

CLE-50-1.48
MILFORD PARKWAY

53
132

Plot time: Jun 14, 2012 - 2:12pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) - Layout Tab: 53 XS45+00

Plot time: Jun 14, 2012 – 2:14pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (US50) – Layout Tab: 54 XS47+00



54 / 132	CLE-50-1.48 MILFORD PARKWAY	CROSS SECTIONS - U.S. 50 STA. 47+00 to STA. 48+50	CALCULATED CPT CHECKED EMR

SEEDING	
END WIDTH	SQ. YDS.
5	14
0	0
0	0
0	0
0	0
0	0
0	0
0	0
	14

END AREA		VOLUME	
CUT	FILL	CUT	FILL
16	0	49	0
		23	0
9	0		
		5	0
0	0	0	0
0	0	0	0
0	0	0	0
		77	0

CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - MILFORD PARKWAY
STA. 6+50 to STA. 8+50

CLE-50-1.48
MILFORD PARKWAY

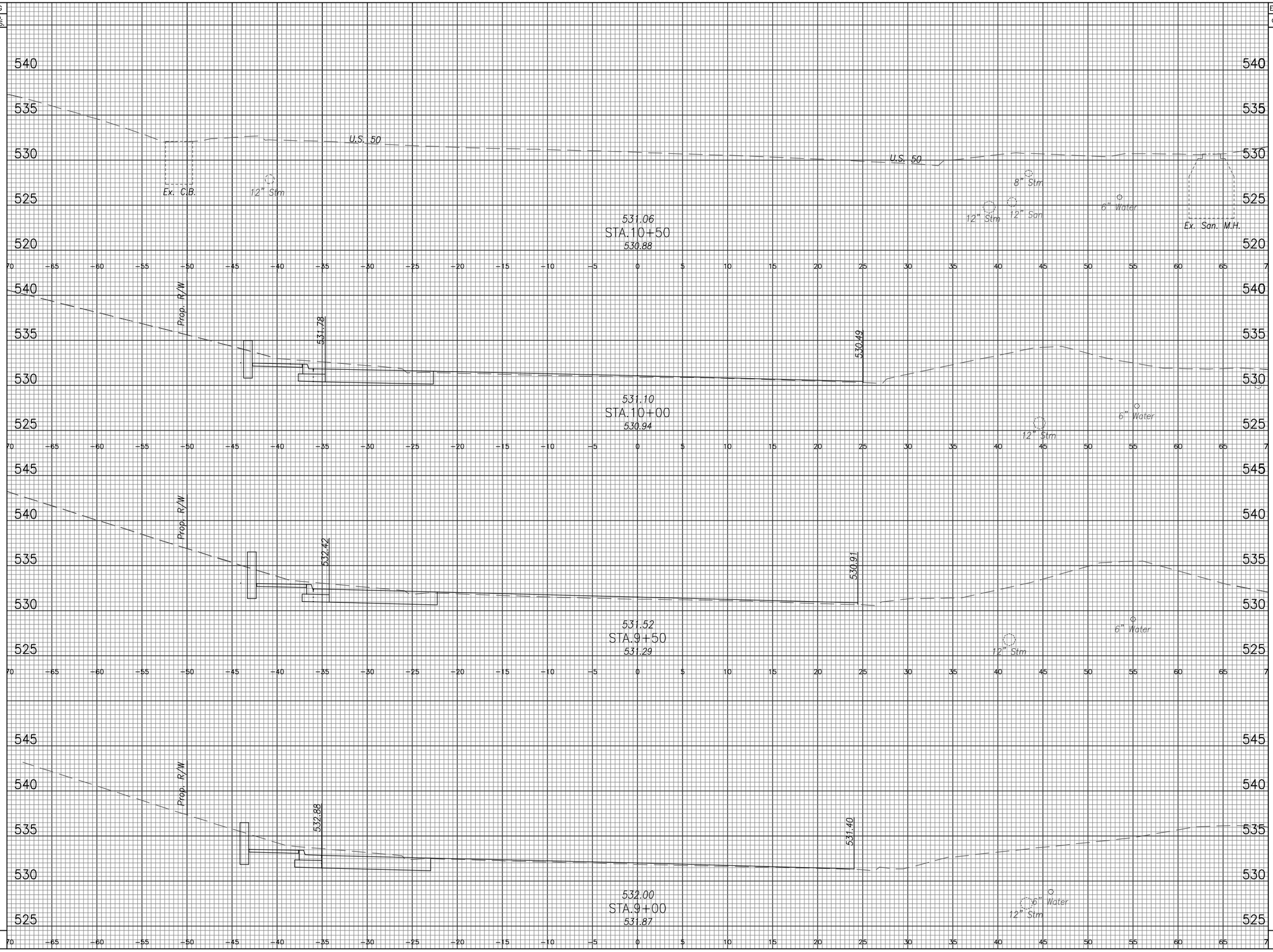
55
132

Plot time: Jun 14, 2012 – 2:24pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 55 XS6+50

SEEDING	
END WIDTH	SQ. YDS.
	0
0	
	0
0	
	0
0	
	0
0	
	0

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0	0	0
36	0	33	0
34	0	65	0
37	0	66	0
		164	0

CALCULATED CPT
CHECKED EMR



CROSS SECTIONS - MILFORD PARKWAY
STA. 9+00 to STA. 10+50

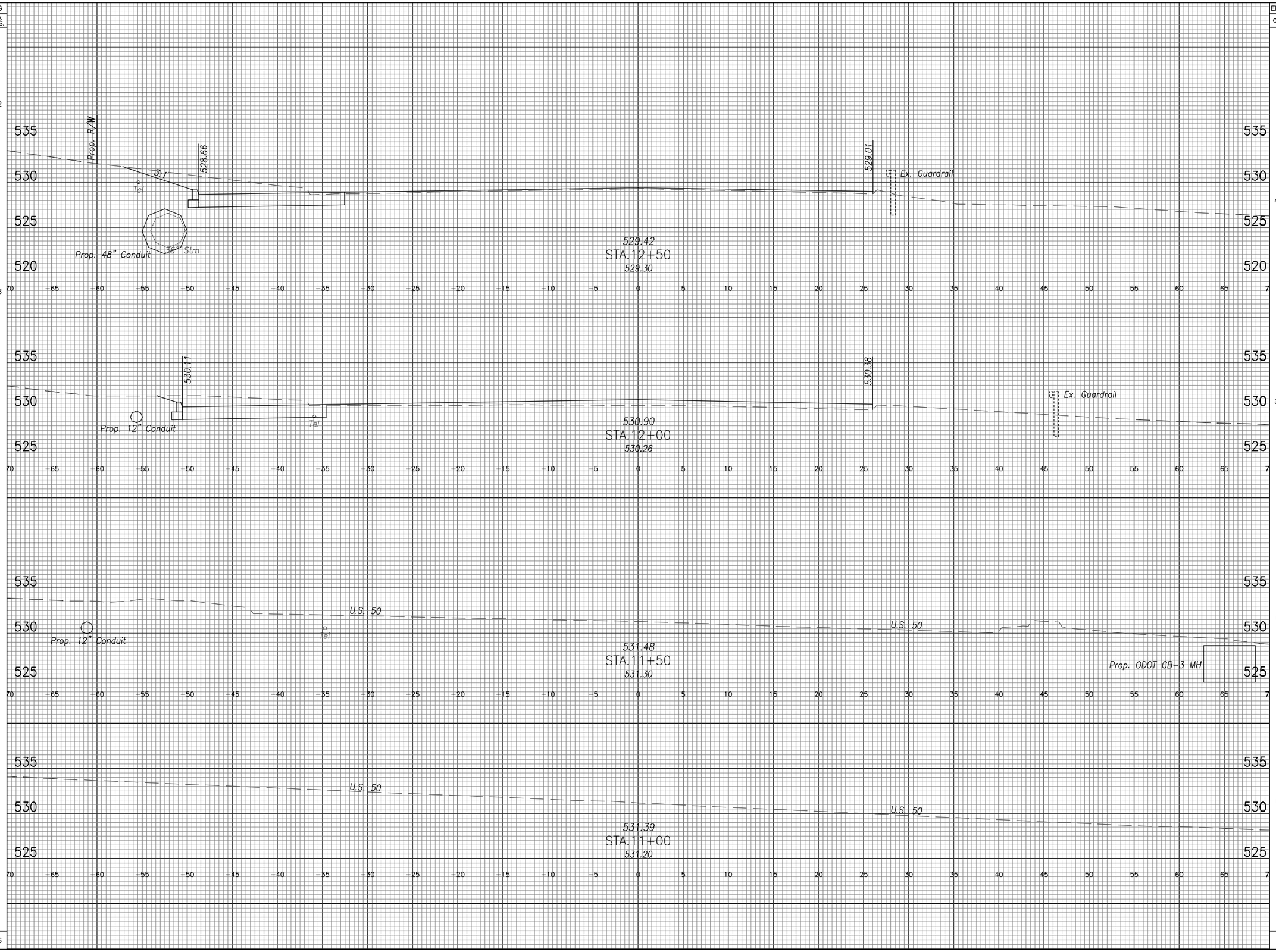
CLE-50-1.48
MILFORD PARKWAY

56
132

Plot time: Jun 14, 2012 - 3:17pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) - Layout Tab: 56 XS9+00

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
	22			62	1
8		46	0		
	28			78	0
2		38	0		
	6			35	0
0		0	0		
	0			0	0
0		0	0		
	56			175	1

CALCULATED CPT
CHECKED EMR



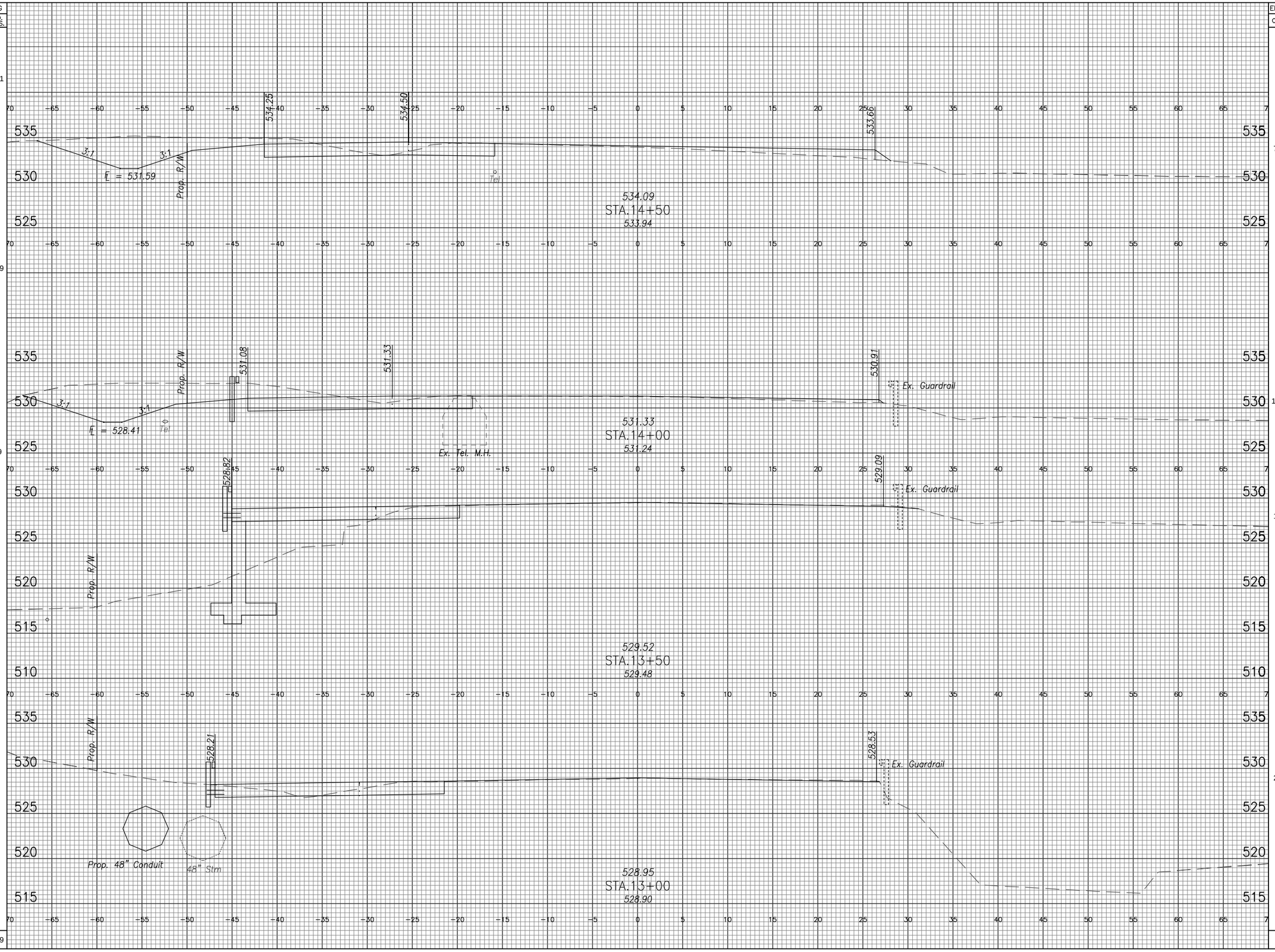
CROSS SECTIONS - S.R. 131
STA. 11+00 to STA. 12+50

CLE-50-1.48
MILFORD PARKWAY

57
132

Plot time: Jun 14, 2012 – 3:32pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 57 XS11+00

SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
	111			84	5	
25		74	1			
	139			167	1	
25		106	0			
	69			107	38	
0		10	41			
	0			29	39	
0		21	1			
	319			387	83	



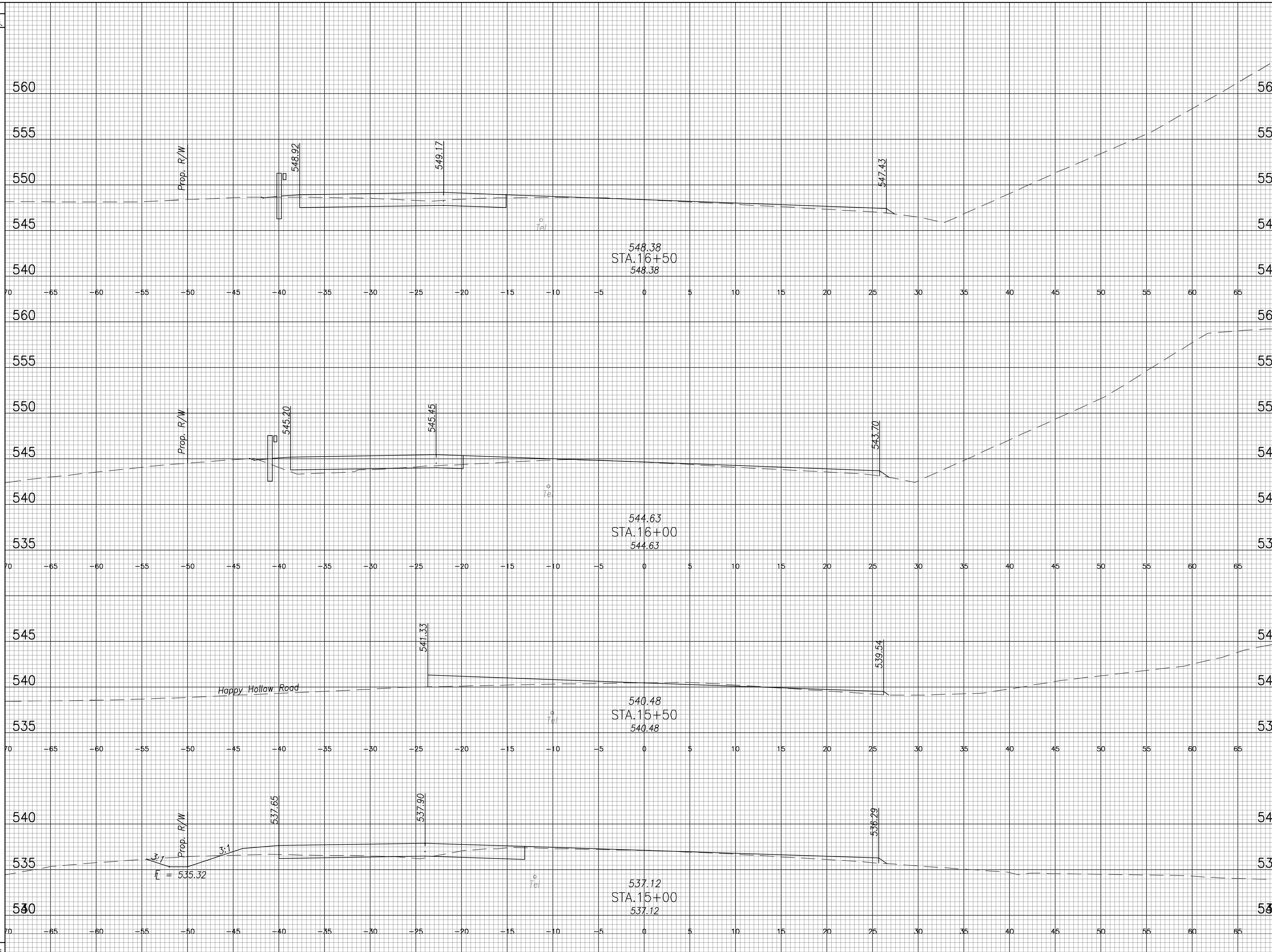
CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - S.R. 131
STA. 13+00 to STA. 14+50

CLE-50-1.48
MILFORD PARKWAY

58
132

Plot time: Jun 14, 2012 – 3:47pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 58 XS13+00



SEEDING END WIDTH	SEEDING SQ. YDS.
	25
4	
	25
5	
	14
0	
	42
15	
	106

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		41	2
19	1		
		19	6
2	6		
		2	6
0	0		
		16	4
17	4		
		78	18

CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - S.R. 131
STA. 15+00 to STA. 16+50

CLE-50-1.48
MILFORD PARKWAY

Plot time: Jun 14, 2012 – 4:30pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) -- Layout Tab: 59 XS15+00

SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
5	28	10	94	20	156	
	44			29	97	
11	44	21	11	43	11	
5		25	1			
	116			92	264	

CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - S.R. 131
STA. 17+00 to STA. 18+00

CLE-50-1.48
MILFORD PARKWAY

60
132

Plot time: Jun 14, 2012 – 5:08pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 60 XS17+00

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
	28				
5		9	63	15	101
	28			19	128
5		12	75		
	56			34	229

CALCULATED CPT
CHECKED EMR

CROSS SECTIONS - S.R. 131
STA. 18+50 to STA. 19+00

CLE-50-1.48
MILFORD PARKWAY

61
132

Plot time: Jun 14, 2012 – 5:15pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 61 XS18+50

SEEDING		END AREA		VOLUME	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
	28				
5		4	52	11	71
	28			10	91
5		7	46		
	56			21	162

CALCULATED CPT
CHECKED EMR

571.12
571.15
Prop. R/W
571.44
STA.20+00
570.98

567.49
567.50
Prop. R/W
567.82
STA.19+50
567.62

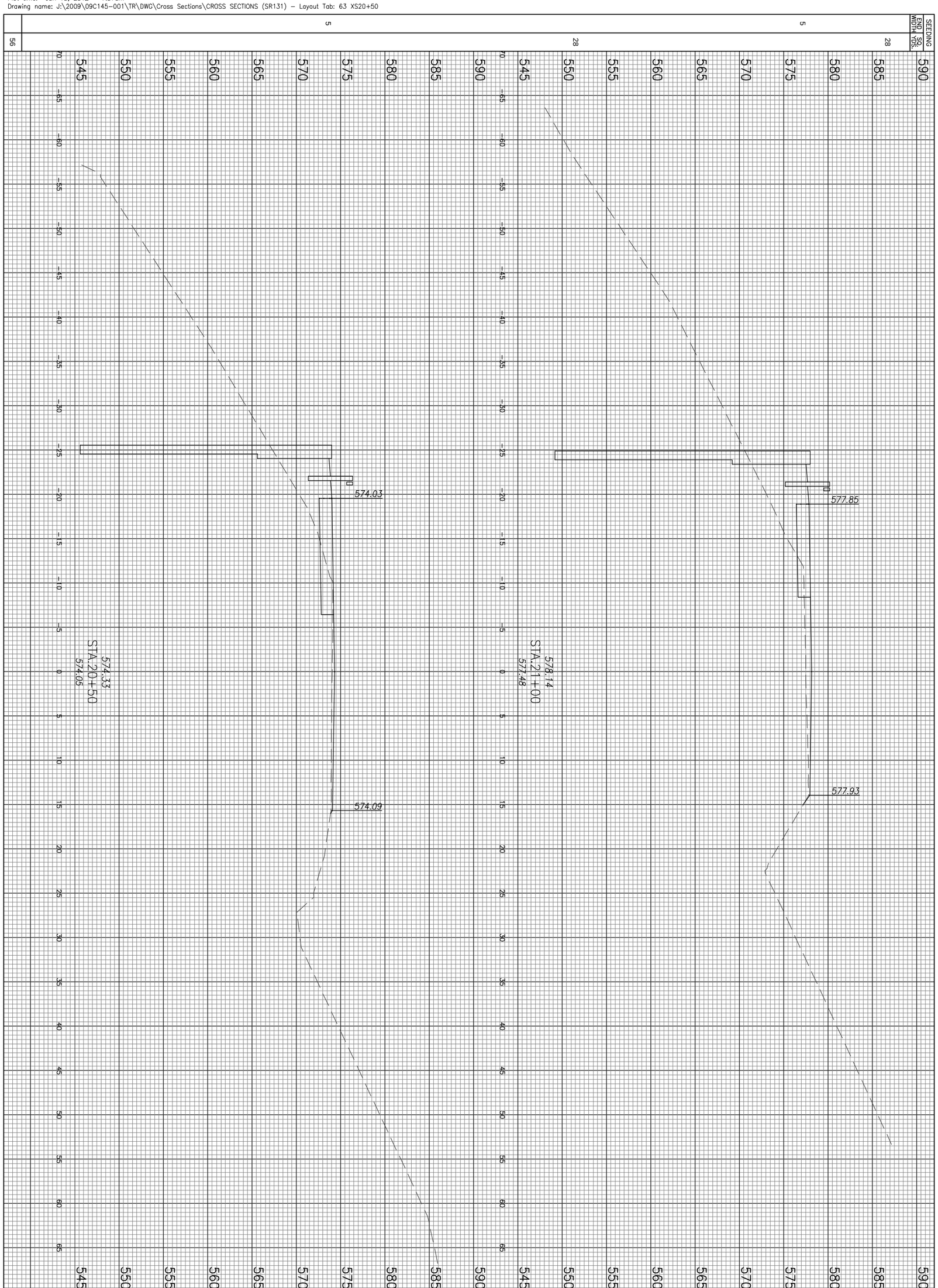
CROSS SECTIONS - S.R. 131
STA. 19+50 to STA. 20+00

CLE-50-1.48
MILFORD PARKWAY

62
132

Plot time: Jun 14, 2012 – 5:19pm
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 62 XS19+50

Plot time: Jun 15, 2012 – 7:57am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 63 XS20+50



SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
56	8	3	16	6
5	25	32	10	39
5	28	28	92	53

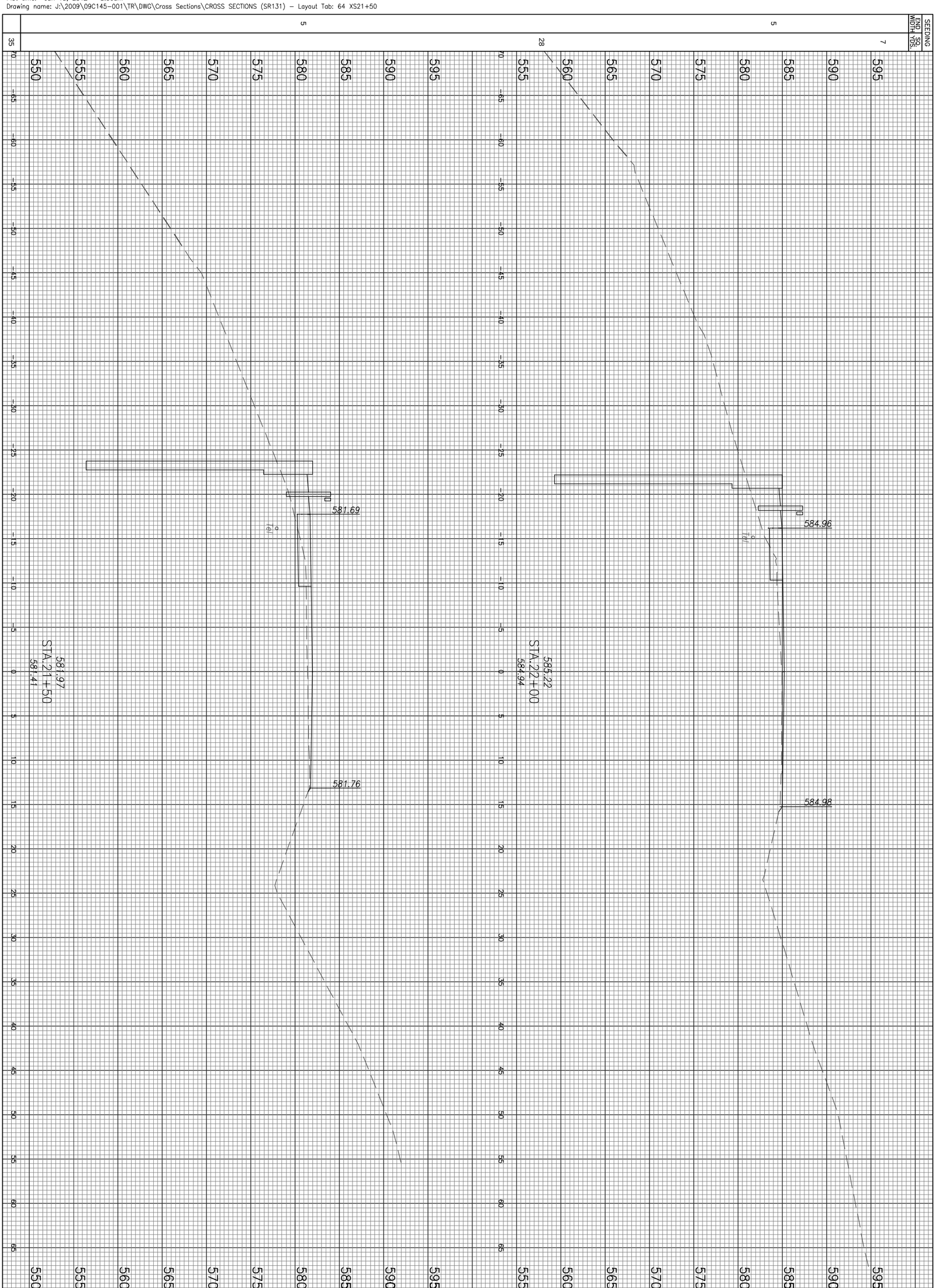
63
132

CLE-50-1.48
MILFORD PARKWAY

CROSS SECTIONS - S.R. 131
STA. 20+50 to STA. 21+00

CALCULATED CPT
CHECKED EMR

Plot time: Jun 15, 2012 – 8:06am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 64 XS21+50

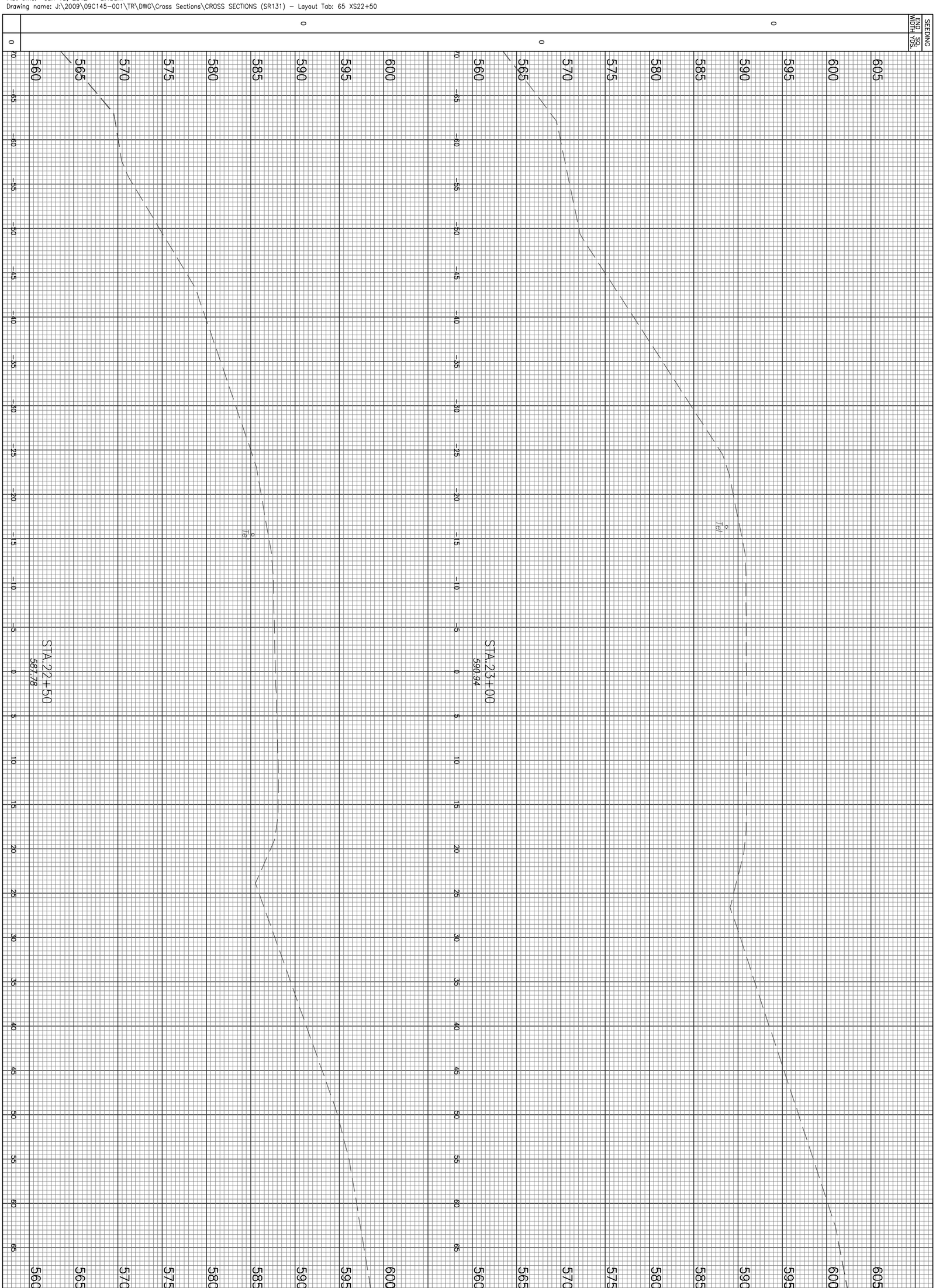


CLE-50-1.48 MILFORD PARKWAY	CROSS SECTIONS - S.R. 131 STA. 21+50 to STA. 22+00

64
132

CALCULATED CPT
CHECKED EMR

Plot time: Jun 15, 2012 – 8:13am
Drawing name: J:\2009\09C145-001\TR\DWG\Cross Sections\CROSS SECTIONS (SR131) – Layout Tab: 65 XS22+50



65
132

CLE-50-1.48
MILFORD PARKWAY

CROSS SECTIONS - S.R. 131
STA. 22+50 to STA. 23+00

CALCULATED
CPT
CHECKED
EMR

MILFORD PARKWAY SUPERELEVATION TABLE

LEFT SIDE				CENTERLINE CONTROL		RIGHT SIDE				REMARKS
PROP. EDGE OF PAVEMENT ELEVATION	*PROP. ELEVATION CORRECTION	PROP. CROSS SLOPE	PROP. WIDTH	STATION	PROP. GRADE	PROP. WIDTH	PROP. CROSS SLOPE	*PROP. ELEVATION CORRECTION	PROP. EDGE OF PAVEMENT ELEVATION	
533.86	0.66	0.0275	23.99	7+68	533.20	24.16	-0.0261	-0.63	532.57	Begin Butt Joint
533.76	0.61	0.0250	24.58	7+75	533.15	24.15	-0.0250	-0.60	532.55	
533.65	0.67	0.0250	26.79	8+00	532.98	24.08	-0.0250	-0.60	532.38	
533.57	0.71	0.0250	28.21	8+18.00	532.86	24.11	-0.0250	-0.60	532.26	End Butt Joint
533.52	0.72	0.0250	28.77	8+25	532.80	24.05	-0.0250	-0.60	532.20	
533.32	0.77	0.0250	30.85	8+50	532.55	23.97	-0.0250	-0.60	531.95	
533.10	0.82	0.0250	32.98	8+75	532.28	24.10	-0.0250	-0.60	531.68	
532.88	0.88	0.0250	35.07	9+00	532.00	24.02	-0.0250	-0.60	531.40	
532.65	0.90	0.0250	35.94	9+25	531.75	24.31	-0.0250	-0.61	531.14	
532.42	0.90	0.0250	36.00	9+50	531.52	24.44	-0.0250	-0.61	530.91	
532.11	0.90	0.0250	35.94	9+75	531.21	24.82	-0.0250	-0.62	530.59	
531.99	0.90	0.0250	35.94	9+85.64	531.09	24.98	-0.0250	-0.62	530.47	End Full Super
531.83	0.75	0.0208	35.94	9+95.65	531.08	24.99	-0.0208	-0.52	530.56	Crown Removal
See Intersection Detail				10+00	531.10	See Intersection Detail				
See Intersection Detail				10+15.64	530.96	See Intersection Detail				P.T.
See Intersection Detail				10+25	530.92	See Intersection Detail				
See Intersection Detail				10+45.64	530.97	See Intersection Detail				
See Intersection Detail				10+50	530.98	See Intersection Detail				
See Intersection Detail				10+75	531.09	See Intersection Detail				
See Intersection Detail				10+94.63	531.27	See Intersection Detail				

S.R. 131 SUPERELEVATION TABLE

LEFT SIDE								CENTERLINE CONTROL		RIGHT SIDE				REMARKS
PROP. EDGE OF PAVEMENT ELEVATION	*PROP. RTL ELEVATION CORRECTION	PROP. RTL CROSS SLOPE	PROP. RTL WIDTH	PROP. GRADE BREAK ELEVATION	*PROP. ELEVATION CORRECTION	PROP. CROSS SLOPE	PROP. WIDTH	STATION	PROP. GRADE	PROP. WIDTH	PROP. CROSS SLOPE	*PROP. ELEVATION CORRECTION	PROP. EDGE OF SHOULDER ELEVATION	
528.99	-0.25	-0.0156	16.00	529.24	-0.45	-0.0156	29.03	13+51.40	529.69	27.29	-0.0156	-0.43	529.26	Normal Crown
529.88	-0.25	-0.0156	16.00	530.12	-0.23	-0.0080	28.17	13+75	530.35	27.13	-0.0156	-0.42	529.93	
531.07	-0.25	-0.0156	16.00	531.32	0.00	0.0000	27.27	13+99.70	531.32	26.77	-0.0156	-0.42	530.90	
531.08	-0.25	-0.0156	16.00	531.33	0.00	0.0000	27.26	14+00	531.33	26.77	-0.0156	-0.42	530.91	
532.58	-0.25	-0.0156	16.00	532.83	0.22	0.0082	26.35	14+25	532.61	26.44	-0.0156	-0.41	532.20	
534.12	-0.25	-0.0156	16.00	534.37	0.40	0.0156	25.51	14+48.00	533.97	26.34	-0.0156	-0.41	533.56	Remove Crown
534.25	-0.25	-0.0156	16.00	534.50	0.41	0.0162	25.43	14+50	534.09	26.27	-0.0162	-0.43	533.66	
535.87	-0.25	-0.0156	16.00	536.12	0.59	0.0240	24.56	14+74.01	535.53	26.20	-0.0240	-0.63	534.90	P.C.
535.93	-0.25	-0.0156	16.00	536.18	0.60	0.0243	24.56	14+75	535.58	26.19	-0.0243	-0.64	534.94	
537.65	-0.25	-0.0156	16.00	537.90	0.78	0.0324	24.01	15+00	537.12	25.66	-0.0324	-0.83	536.29	
538.48	-0.25	-0.0156	16.00	538.73	0.87	0.0360	24.05	15+11.16	537.86	26.04	-0.0360	-0.94	536.92	Full Super
539.38	-0.25	-0.0156	16.00	539.63	0.87	0.0360	24.27	15+25	538.76	26.30	-0.0360	-0.95	537.81	
541.08	-0.25	-0.0156	16.00	541.33	0.85	0.0360	23.72	15+50	540.48	26.20	-0.0360	-0.94	539.54	
543.05	-0.25	-0.0156	16.00	543.30	0.83	0.0360	23.11	15+75	542.47	26.15	-0.0360	-0.94	541.53	
545.20	-0.25	-0.0156	16.00	545.45	0.82	0.0360	22.79	16+00	544.63	25.77	-0.0360	-0.93	543.70	
547.13	-0.25	-0.0156	16.00	547.38	0.81	0.0360	22.42	16+25	546.57	25.84	-0.0360	-0.93	545.64	
548.92	-0.25	-0.0156	16.00	549.17	0.79	0.0360	21.98	16+50	548.38	26.52	-0.0360	-0.95	547.43	
550.66	-0.23	-0.0156	14.85	550.89	0.77	0.0360	21.48	16+75	550.12	26.94	-0.0360	-0.97	549.15	
552.31	-0.13	-0.0156	8.60	552.44	0.75	0.0360	20.92	17+00	551.69	27.72	-0.0360	-1.00	550.69	
554.24	No Right Turn Lane				0.88	0.0360	24.33	17+25	553.36	28.33	-0.0360	-1.02	552.34	
555.86	No Right Turn Lane				0.86	0.0360	23.93	17+50	555.00	28.93	-0.0360	-1.04	553.96	
557.36	No Right Turn Lane				0.85	0.0360	23.49	17+75	556.51	28.83	-0.0360	-1.04	555.47	
557.47	No Right Turn Lane				0.84	0.0360	23.35	17+77.07	556.63	28.79	-0.0360	-1.04	555.59	Full Super
558.63	No Right Turn Lane				0.66	0.0286	22.91	18+00	557.97	28.01	-0.0286	-0.80	557.17	
559.35	No Right Turn Lane				0.54	0.0240	22.58	18+14.22	558.81	27.38	-0.0240	-0.66	558.15	P.T.
559.92	No Right Turn Lane				0.46	0.0205	22.54	18+25	559.46	26.79	-0.0205	-0.55	558.91	
560.73	No Right Turn Lane				0.35	0.0156	22.24	18+40.22	560.38	25.96	-0.0156	-0.40	559.98	
561.27	No Right Turn Lane				0.28	0.0124	22.21	18+50	560.99	25.43	-0.0156	-0.40	560.59	
562.73	No Right Turn Lane				0.10	0.0044	21.88	18+75	562.63	24.18	-0.0156	-0.38	562.25	
563.53	No Right Turn Lane				0.00	0.0000	21.70	18+88.53	563.53	23.51	-0.0156	-0.37	563.16	
564.21	No Right Turn Lane				-0.08	-0.0037	21.55	19+00	564.29	22.93	-0.0156	-0.36	563.93	
565.77	No Right Turn Lane				-0.25	-0.0118	21.22	19+25	566.02	21.73	-0.0156	-0.34	565.68	
566.51	No Right Turn Lane				-0.33	-0.0156	21.06	19+36.83	566.84	21.17	-0.0156	-0.33	566.51	Normal Crown

KMD
CHECKED
EMR

SUPERELEVATION TABLE

CLE-50-1.48
MILFORD PARKWAY

Sta. 12+78, 48' Lt.
ODOT CB-3 MH
T/Gr.=528.33
48"(SW)Inv.=521.74
38"(NE)Inv.=521.74

Prop. E/P

℄ Construction S.R. 131

Prop. E/P

529.16 528.91 529.42 Ex.529.14

529.90 529.65 530.17 Ex.529.76

Sta. 11+41, 62' Lt.
ODOT CB-3
T/Gr.=533.38
12"(NE)Inv.=530.38

530.61 530.36 530.90 Ex.530.31

Sta. 39+62.40, 64' Lt. ℄ U.S. 50
Sta. 11+67.60, 89' Lt. ℄ S.R. 131

Δ = 81°18'18"
R = 37.5'
L = 53.21

Prop. B/C

S.R. 131

Ex. B/C

Sta. 41+04.31, 79' Lt. ℄ U.S. 50
Sta. 11+93.37, 65' Rt. ℄ S.R. 131

Δ = 92°05'19"
R = 38.0'
L = 61.08

531.87 531.28 531.11

532.36 532.91 533.56 534.00 534.55 535.32

530.43 530.71 530.72 530.74 HP 530.53 530.12 529.63 529.14

11.08' 5.6' 4.4'

10' 10' 10' 10' 10' 10' 10' 10' 13.92'

Sta. 41+13, 42' Lt.
ODOT CB-3 MH
T/G=528.23
12"(SE)Inv.=525.07

532.16 531.48 530.60

528.54 Prop. B/C

527.37 Prop. E/P

24' Prop. Depressed Curb

524.69 Depressed

526.19 524.55 524.10 523.52

Sta. 42+99, 36' Lt.
ODOT CB-3 MH
T/G=522.52
12"(NW)Inv.=519.52
12"(SE)Inv.=517.10

522.99

522.25 Prop. E/S

522.04

534.15 532.88 531.98 531.44 530.39 529.30 528.19 527.06 525.96 524.98 524.32 523.81 523.29 522.81 522.42 521.75 521.43

Ex.540.17 Ex. B/C Ex.538.80 Ex.537.57 Ex.536.31

Sta. 40+45.31=Sta. 11+10.66

Ex.539.42 Ex.537.97 Ex.536.59 535.37 534.38 533.36 532.32 531.30 530.37 529.44 528.52 527.49 526.48 525.60 524.81 524.19 523.76 523.36 522.97 522.60 522.22 521.83

℄ Construction U.S. 50

U.S. 50

U.S. 50

Ex.539.02 Ex.537.54 Ex.536.09 534.86 533.88 532.89 531.91 530.92 529.69 528.72 527.70 527.00 526.04 525.19 524.42 523.80 523.33 522.89 522.45 522.03 521.70 521.34 521.61

Prop. E/P

Prop. E/S

Ex.539.32 Ex. B/C Ex.537.89 Ex.536.56 Ex.534.79

Ex.528.14 Ex.527.30 Ex.526.41 Ex.525.52 Ex.524.66 Ex.524.06 Ex.523.43 Ex.522.97

Sta. 42+17, 19' Rt.
Ex. C.B.
T/Gr.=524.48

Sta. 43+07, 22' Rt.
Ex. C.B.
T/Gr.=522.64

Sta. 43+66, 23' Rt.
Ex. C.B.
T/Gr.=521.40

Sta. 10+49, 51' Lt.
Ex. C.B.
T/Gr=534.79

Sta. 10+59, 38' Rt.
Ex. C.B.
T/Gr.=529.10

534.01 533.47 532.93 532.39 531.85 531.69 531.52

10' 10' 10' 10' * 10' 10.18'

530.98 529.90 530.98

Sta. 39+58.84, 81' Rt. ℄ U.S. 50
Sta. 10+24.94, 78' Lt. ℄ S.R. 131

Δ = 87°17'52"
R = 39.5'
L = 60.18

530.92 Ex.530.43

531.10 Ex.530.61

532.07 Prop. E/P

Ex.530.84

532.40

Prop. B/C

531.22

Ex.530.90

533.25

531.52

MILFORD PARKWAY

* Contractor to transition from Type 6 curb to Type 2 curb in 10'

Elevations are to back of curb where curb is proposed or existing to remain, unless otherwise noted.

HORIZONTAL SCALE IN FEET
0 10 20 40

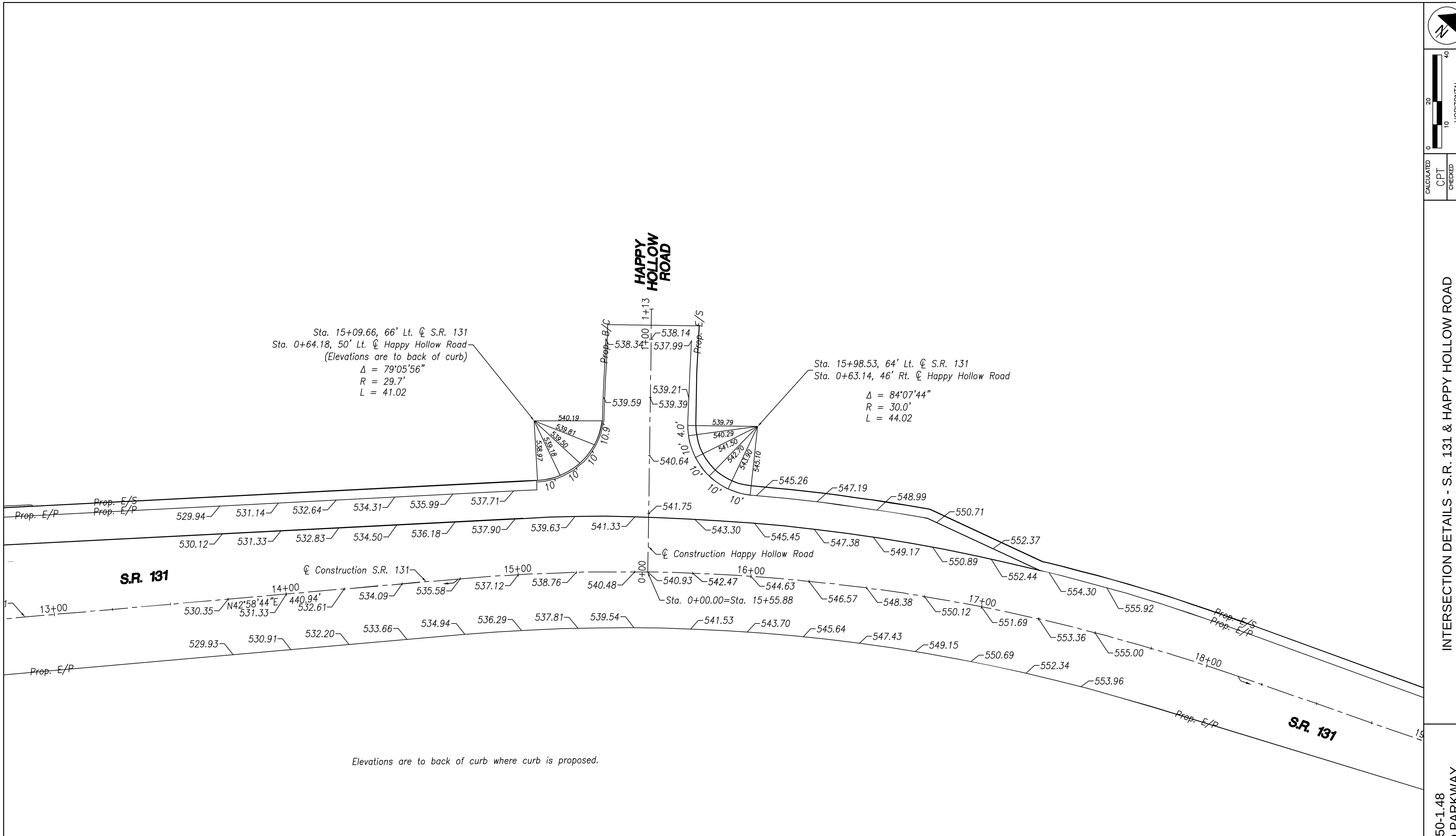
CALCULATED CPT
CHECKED EMR

INTERSECTION DETAILS - U.S. 50 & S.R. 131/MILFORD PARKWAY

CLE-50-1.48
MILFORD PARKWAY

Plot time: Aug 30, 2012 - 8:22am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Int Details - Layout Tab: 67 Int Detail (US50 & SR131)

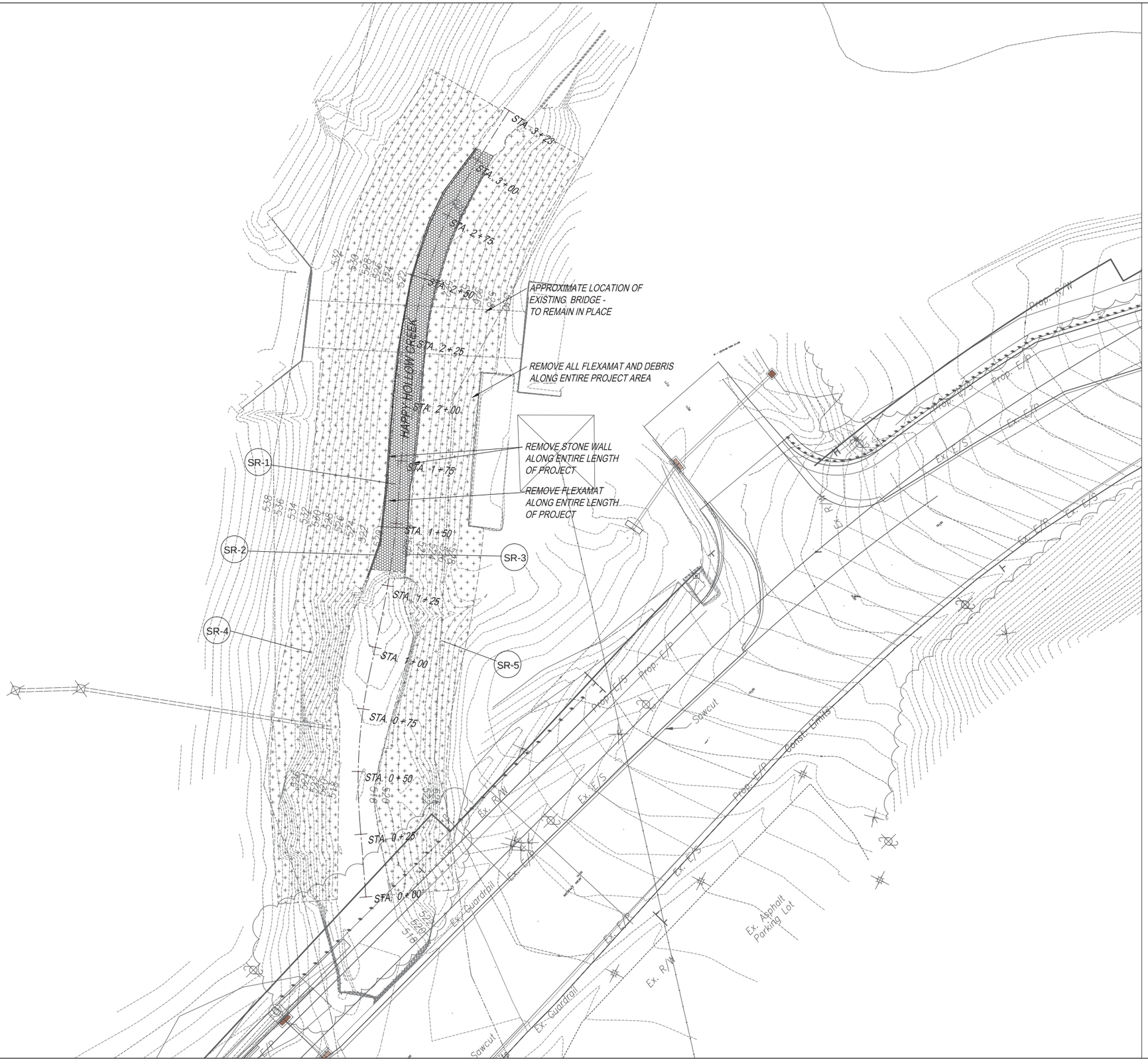
INTERSECTION DETAILS - S.R. 131 & HAPPY HOLLOW ROAD



CALCULATED CPT
CHECKED EMR

CLE-50-1.48
MILFORD PARKWAY

Plot time: Jun 14, 2012 - 10:28am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Int Details - Layout Tab: 68 Int Detail (SR131 & Happy Hollow)



GENERAL NOTES

1. SURVEY PERFORMED BY BAYER BECKER

LEGEND

REMOVE ALL FLEXAMAT AND DEBRIS

REMOVE ALL FLEXAMAT

N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED MAK
CHECKED JT

STREAM RESTORATION - HAPPY HOLLOW CREEK
EXISTING CONDITIONS / DEMOLITION PLAN

CLE-50-1.48
MILFORD PARKWAY

69
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Plot time: Aug 30, 2012 - 3:05pm
Drawing name: R:\Projects\10\1005\1005092_ENTRAN_US50\CAD\Stream Restoration Construction Documents 20120613 - Layout Tab: 01-Existing Conditions

LEGEND

- EXISTING 1 FT CONTOUR
- PROPOSED 1 FT CONTOUR
- NEWBURY RIFFLE
- ROCK TOE

GENERAL NOTES

1. SURVEY PERFORMED BY BAYER BECKER

N

0 10 20 40
HORIZONTAL SCALE IN FEET

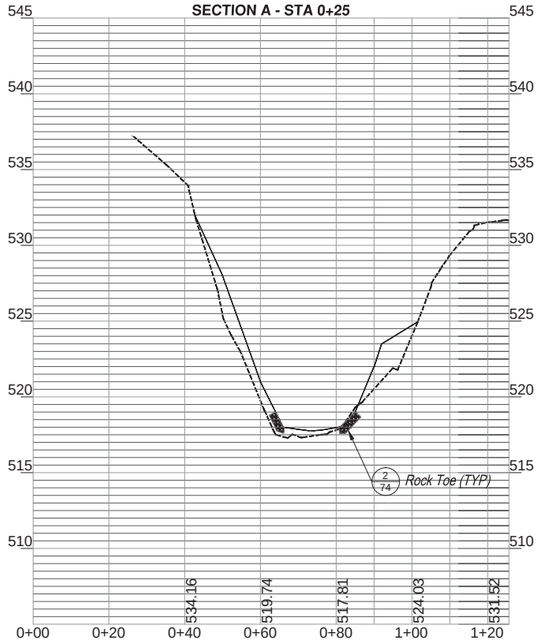
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CHECKED JT

STREAM RESTORATION - HAPPY HOLLOW CREEK
LAYOUT PLAN

CLE-50-1.48
MILFORD PARKWAY

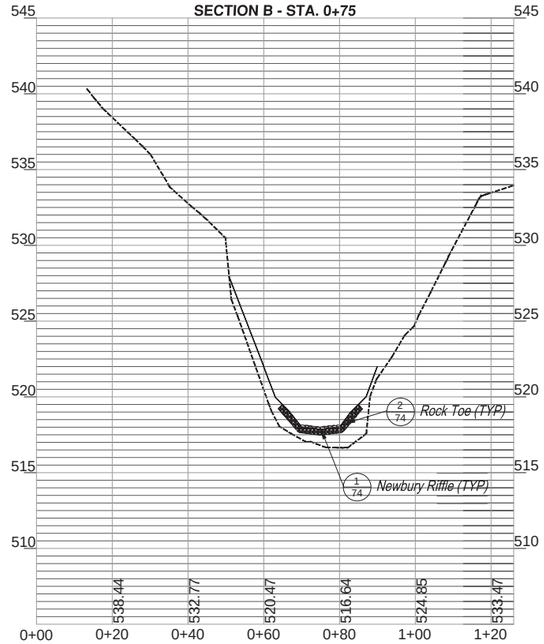
70
132

Plot time: Aug 30, 2012 – 3:05pm
Drawing name: R:\Projects\10\1005\1005092_ENTRAN_US50\CAD\Stream Restoration Construction Documents 20120613 – Layout Tab: 02–Layout Plan



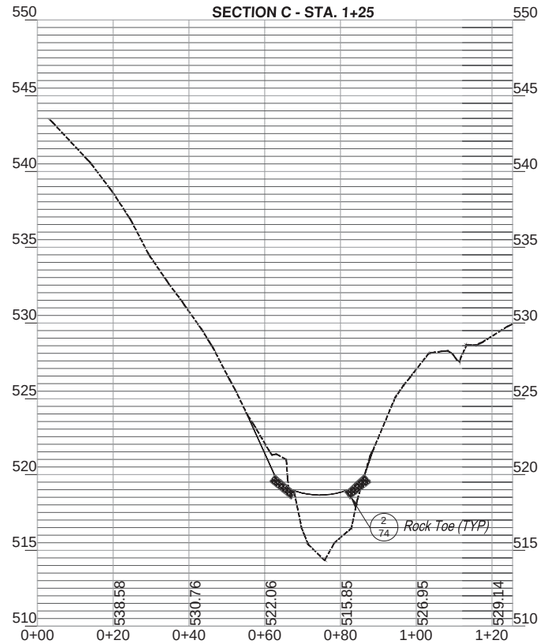
SECTION A

V:1"=5' H:1"=20'



SECTION B

V:1"=5' H:1"=20'



SECTION C

V:1"=5' H:1"=20'

LEGEND

EXISTING GRADE

PROPOSED GRADE

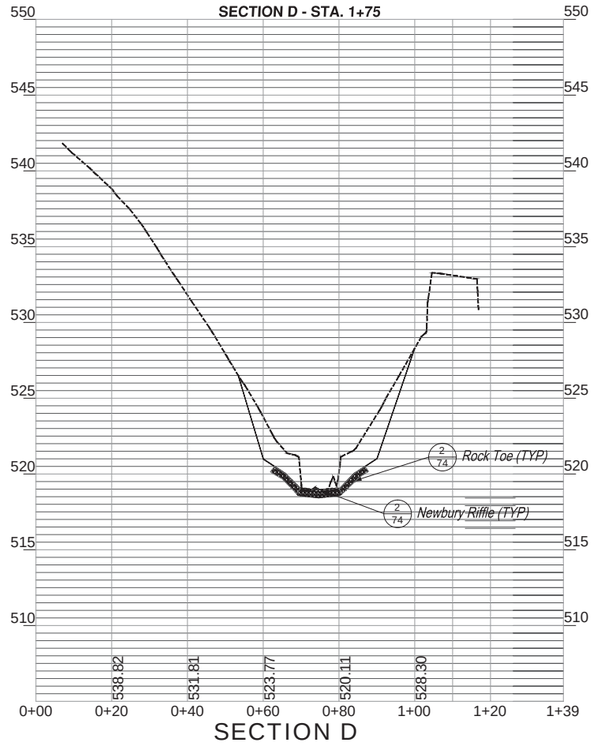
N

0 10 20 40

HORIZONTAL SCALE IN FEET

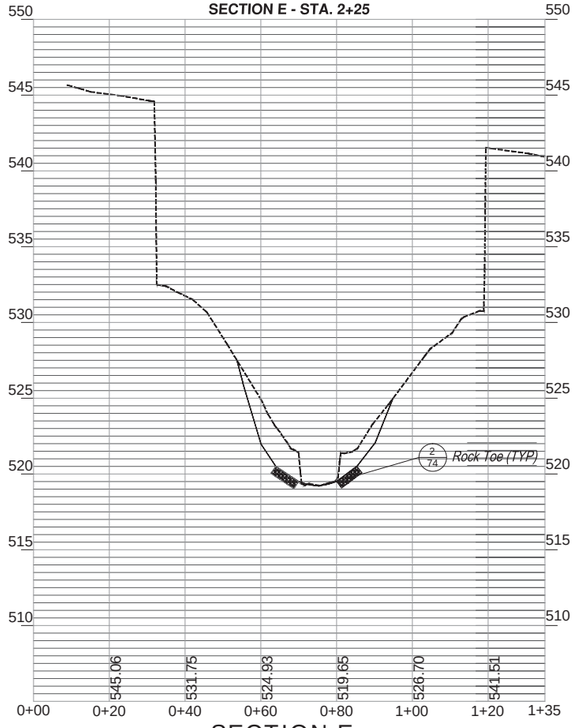
CALCULATED MAK

CHECKED JT



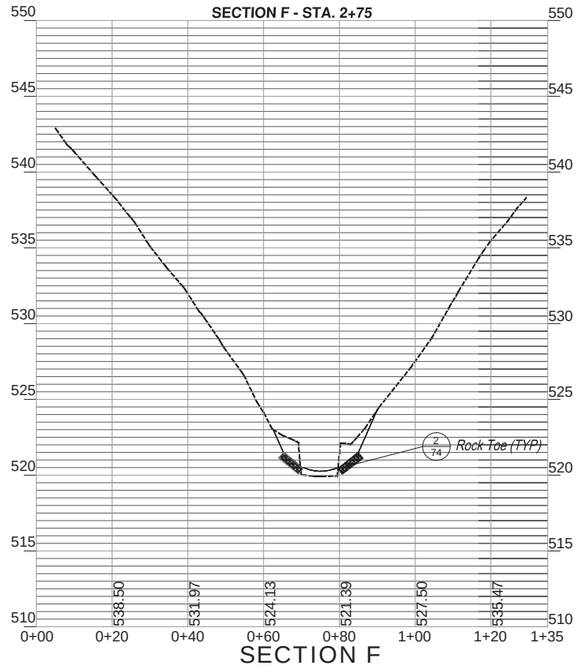
SECTION D

V:1"=5' H:1"=20'



SECTION E

V:1"=5' H:1"=20'



SECTION F

V:1"=5' H:1"=20'

STREAM RESTORATION - HAPPY HOLLOW CREEK

SECTIONS

CLE-50-1.48

MILFORD PARKWAY

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Plot time: Aug 30, 2012 - 3:05pm
Drawing name: R:\Projects\10\1005\1005092_ENTRAN_US50\CAD\Stream Restoration Construction Documents 20120613 - Layout Tab: 03-Sections

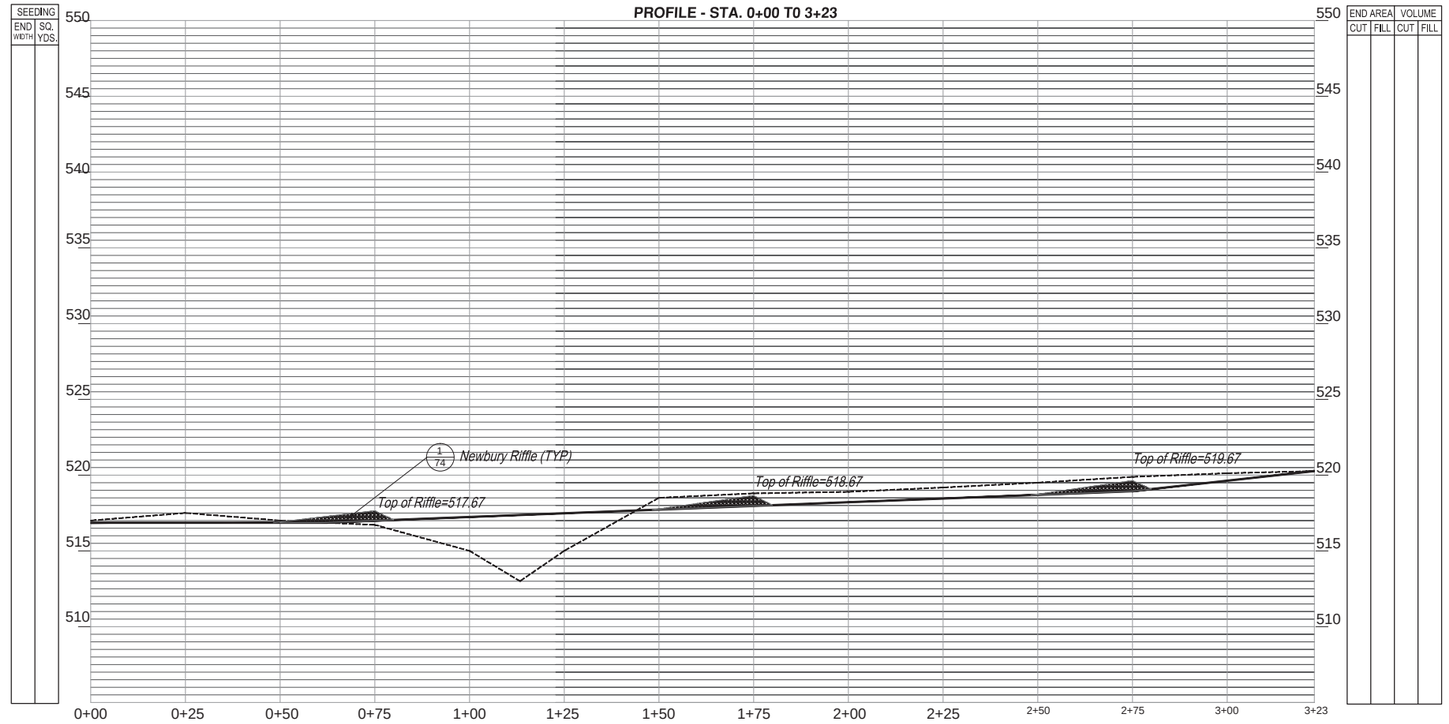
LEGEND

EXISTING GRADE

PROPOSED GRADE

SEEDING	
END WIDTH	SQ. YDS.

PROFILE - STA. 0+00 T0 3+23



END AREA		VOLUME	
CUT	FILL	CUT	FILL

PROFILE

V:1"=5' H:1"=20'

HORIZONTAL SCALE IN FEET

0 10 20 40

CALCULATED MAK

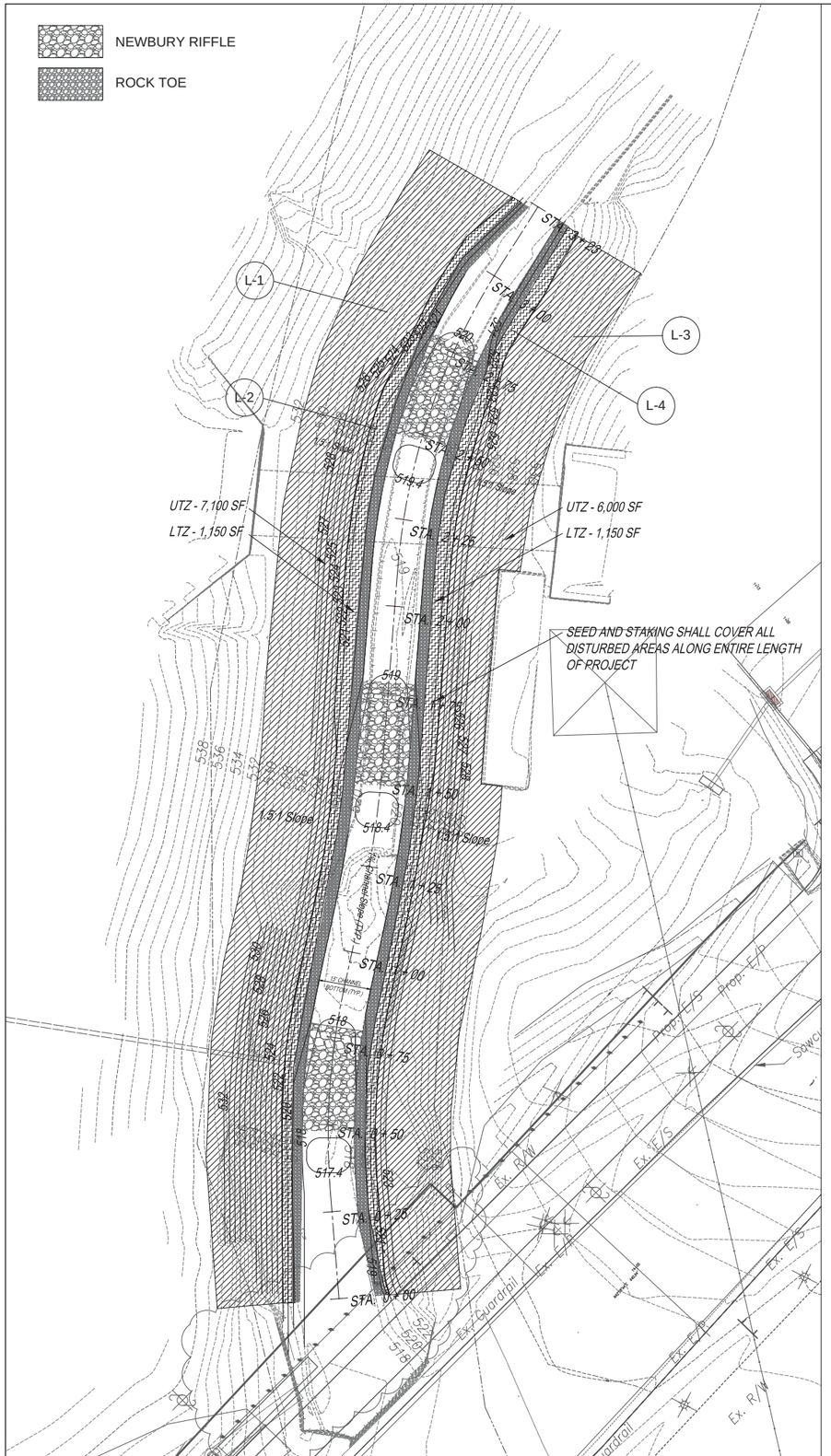
CHECKED JT

STREAM RESTORATION - HAPPY HOLLOW CREEK
SECTIONS

CLE-50-1.48
MILFORD PARKWAY

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132

Plot time: Aug 30, 2012 – 3:05pm
Drawing name: R:\Projects\10\1005\1005092_ENTRAN_US50\CAD\Stream Restoration Construction Documents 20120613 – Layout Tab: 04-Sections



PLANT SCHEDULE

LTZ- Lower Treatment Zone
Area: 2,300 SF

Live Stakes - 2' Length Min. @ 5' O.C.

Botanical Name	Common Name	Quantity
Permanent Grasses:		
Cephalanthus occidentalis	Button Bush	18
Cornus stolonifera	Red Osier Dogwood	12
Ilex verticilata	Winterberry	12
Salix nigra	Black Willow	18
Sambucus canadensis	Elderberry	12
Vibumum dentatum	Arrow Wood	18
	Total	**90**

Wet-to-Mesic Prairie Seed Mix

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses:		
Andropogon gerardii	Big Bluestem	24.00
Calamagrostis canadensis	Bluejoint Grass	1.00
Carex spp.	Prairie Sedge Mix	4.00
Carex lurida	Bottlebrush Sedge	2.00
Elymus virginicus	Virginia Wild Rye	24.00
Panicum virgatum	Switch Grass	2.00
Scirpus pendulus	Red Bulrush	0.25
Sorghastrum nutans	Indian Grass	6.00
Spartina pectinata	Prairie Cord Grass	3.00
	Total	**66.25**
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	**460.00**
Forbs:		
Aster novae-angliae	New England Aster	0.25
Baptisia lactea	White Wild Indigo	0.75
Chamaecrista fasciculata	Partridge Pea	12.00
Coreopsis lanceolata	Sand Coreopsis	3.50
Coreopsis tripteris	Tall Coreopsis	3.00
Desmodium illinoiense	Illinois Tick Trefoil	0.50
Echinacea purpurea	Broad-Leaved Purple Coneflower	3.50
Eryngium yuccifolium	Rattlesnake Master	2.00
Helenium autumnale	Sneezeweed	2.50
Helianthus grosseserratus	Saw-Tooth Sunflower	0.50
Lespedeza capitata	Round-Headed Bush Clover	1.50
Liatris spicata	Marsh Blazing Star	1.00
Lupinus perennis	Wild Lupine	0.25
Monarda fistulosa	Wild Bergamot	1.00
Parthenium integrifolium	Wild Quinine	1.00
Physostegia virginiana	Obedient Plant	0.25
Pycnanthemum virginianum	Common Mountain Mint	1.00
Ratibida pinnata	Yellow Coneflower	5.00
Rudbeckia hirta	Black-Eyed Susan	5.50
Rudbeckia laciniata	Wild Golden Glow	1.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	0.50
Silphium integrifolium	Rosin Weed	1.00
Silphium laciniatum	Compass Plant	2.00
Silphium perfoliatum	Cup Plant	3.00
Silphium terebinthinaceum	Prairie Dock	6.00
Solidago juncea	Early Goldenrod	0.25
Solidago rigida	Stiff Goldenrod	1.00
Solidago rugosa	Rough Goldenrod	0.25
Tradescantia ohioensis	Common Spiderwort	1.25
Vernonia spp.	Ironweed (Various Mix)	3.00
Veronicastrum virginianum	Culver's Root	0.25
Zizia aurea	Golden Alexanders	0.50
	Total	**65.00**

Mix Statistics

Native Component	PLS lbs./Acre	PLS Seeds/Acre
Forbs	4.06	2,163,000
Grasses	4.14	800,481

UTZ- Upper Treatment Zone
Area: 13,100 SF

Live Stakes

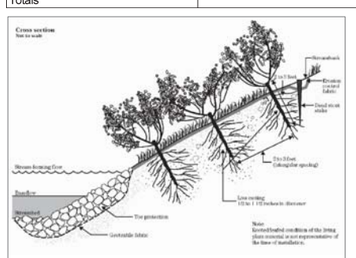
Botanical Name	Common Name	Quantity
Permanent Grasses:		
Cornus stolonifera	Red Osier Dogwood	115
Ilex verticilata	Winterberry	90
Salix nigra	Black Willow	115
Sambucus canadensis	Elderberry	90
Vibumum dentatum	Arrow Wood	115
	Total	**525**

Basic Prairie Seed Mix

Botanical Name	Common Name	PLS Ounces/Acre
Permanent Grasses:		
Andropogon gerardii	Big Bluestem	13.00
Bouteloua curtipendula	Side Oats Grama	14.00
Carex spp.	Prairie Sedge Mix	2.00
Elymus canadensis	Canada Wild Rye	22.00
Panicum virgatum	Switch Grass	2.50
Schizachyrium scoparium	Little Bluestem	28.00
Sorghastrum nutans	Indian Grass	16.00
	Total	**97.50**
Temporary Cover:		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
	Total	**460.00**
Forbs:		
Asclepias tuberosa	Butterfly Weed	1.50
Aster novae-angliae	New England Aster	1.50
Chamaecrista fasciculata	Partridge Pea	10.75
Coreopsis lanceolata	Sand Coreopsis	5.00
Coreopsis tripteris	Tall Coreopsis	1.50
Dalea purpurea	Purple Prairie Clover	2.00
Desmanthus illinoiensis	Illinois Sensitive Plant	1.50
Echinacea purpurea	Broad-Leaved Purple Coneflower	8.00
Eryngium yuccifolium	Rattlesnake Master	1.00
Heliopsis helianthoides	False Sunflower	0.25
Lespedeza capitata	Round-Headed Bush Clover	1.00
Liatris aspera	Rough Blazing Star	1.00
Lupinus perennis	Wild Lupine	0.25
Monarda fistulosa	Wild Bergamot	1.00
Potentilla arguta	Prairie Cinquefoil	0.75
Pycnanthemum virginianum	Common Mountain Mint	0.50
Ratibida pinnata	Yellow Coneflower	4.50
Rudbeckia hirta	Black-Eyed Susan	6.00
Silphium terebintheceum	Prairie Dock	0.75
Solidago nemoralis	Old-Field Goldenrod	0.50
Vernonia spp.	Ironweed (Various Mix)	2.00
	Total	**51.25**

Mix Statistics

Native Component	PLS lbs./Acre	PLS Seeds/Acre
Forbs	3.20	1,690,182
Grasses	6.09	851,760
Total Natives	9.30	2,541,942
Cover	28.75	4,343,800
Totals	38.05	6,885,742



1/05 Live Stake Detail
NOT TO SCALE

GENERAL NOTES

1. SURVEY PERFORMED BY BAYER BECKER.

N

HORIZONTAL SCALE IN FEET
0 10 20 40

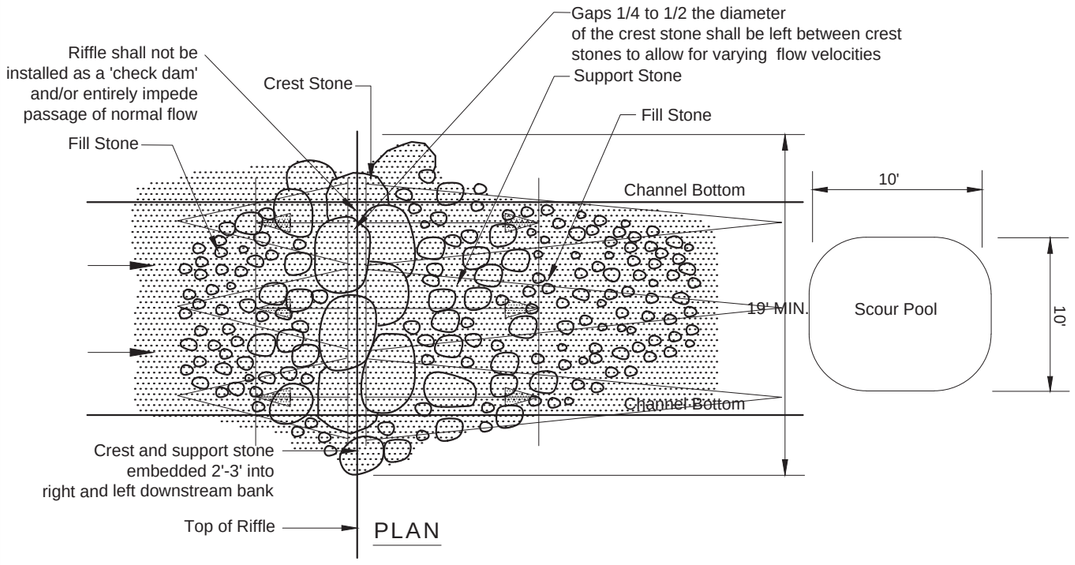
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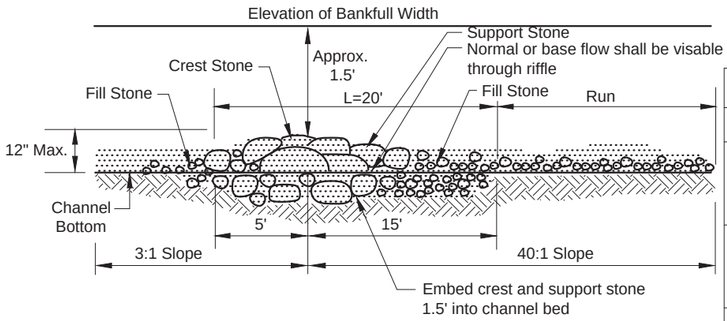
STREAM RESTORATION - HAPPY HOLLOW CREEK
PLANTING PLAN

CLE-50-1.48
MILFORD PARKWAY

73
132

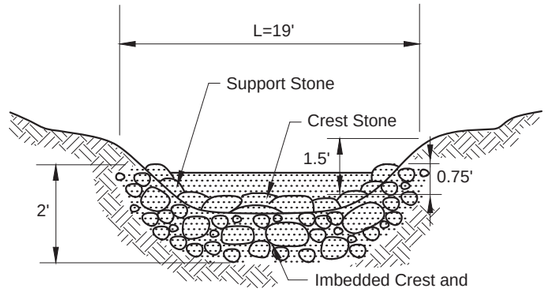
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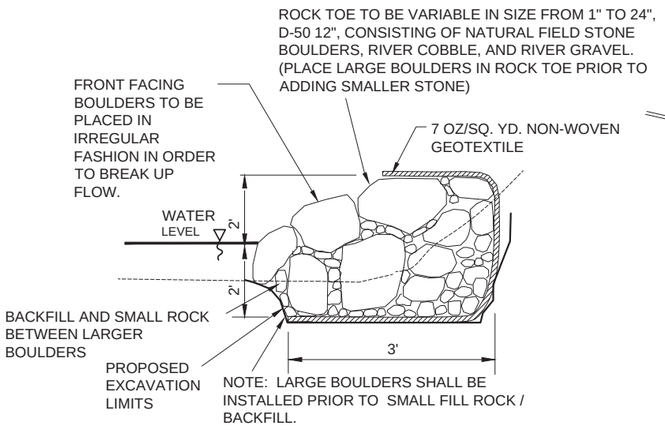
PROFILE

RIFFLE MATERIAL TABLE			
Type	Description	Size	% of Riffle Volume
Crest Stone	Crest stone shall be non-quarried and angular in shape of matching hue and color variations of support and fill stone	18"-24", D-50 12"	20%
Support Stone	Support stone shall be angular or rounded in shape consisting of natural river coble	4-8", D-50 6"	40%
Fill Stone	Fill stone shall be rounded in shape consisting of natural river gravel	1/2" - 3", D-50 2"	40%

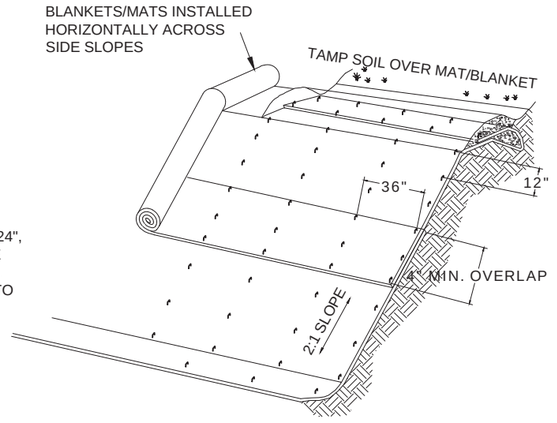


SECTION

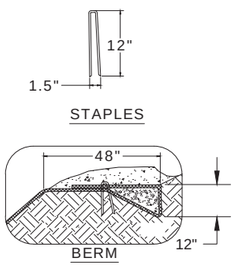
1/74 TYPICAL NEWBURY RIFFLE DETAL
NOT TO SCALE



2/74 ROCK TOE - DETAIL
NOT TO SCALE



3/74 EROSION CONTROL BLANKET DETAILS
NOT TO SCALE



NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.

2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.

3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

4. USE C-125 BN EROSION CONTROL BLANKET.

REF NO.	SHEET NO.	STATION		SIDE	CLEAR & GRUB	FLEXAMAT REMOVAL	STONEWALL REMOVAL	ECAVATION/CUT	FILL	RIFFLES			ROCK TOE		GEOTEXTILE	LTZ SEED / SF	UTZ SEED / SF	EROSION BLANKET	LIVE STAKES
		FROM	TO		SQ FT	SQ FT	LF	CY	CY	CREST STONE CY	SUPPORT STONE CY	FILL STONE CY	FIELD STONE CY	#2 STONE CY	CY	SQ FT	SQ FT	SY	EA.
SR-1	69	1+30	3+04	CT		1,700													
SR-2	69	1+30	3+04	LT			180												
SR-3	69	1+30	3+04	RT			165												
SR-4	69	0+00	3+23	LT	9,500														
SR-5	69	0+00	3+23	RT	8,200														
S-1	70	0+00	3+23	LT									72	50	215				
S-2	70	0+00	3+23	RT									70	50	215				
S-3	70	0+48	0+78	CT						3.5	5.3	4.2							
S-4	70	1+48	1+78	CT						3.5	5.3	4.2							
S-5	70	2+48	2+78	CT						3.5	5.3	4.2							
S-6	70	0+00	3+00	LT				170.03	180.19										
S-7	70	0+00	2+80	RT				145.59	161.01										
S-8	70	0+35	0+45	CT				0.53											
S-9	70	1+35	1+45	CT				6.4											
S-10	70	2+35	2+45	CT				2.33											
S-11	70	1+00	1+30	CT					119.26										
L-1	73	0+00	3+23	LT													7,100	7,100	258
L-2	73	0+00	3+23	LT												1,150		1,150	45
L-3	73	0+00	3+23	RT													6,000	6,000	240
L-4	73	0+00	3+23	RT												1,150		1,150	45

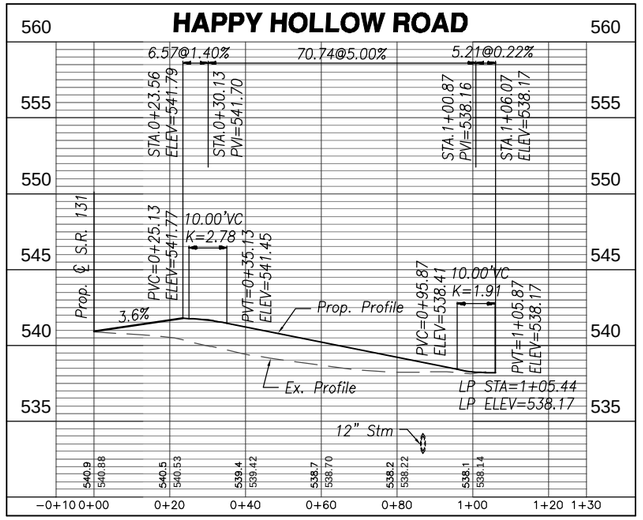
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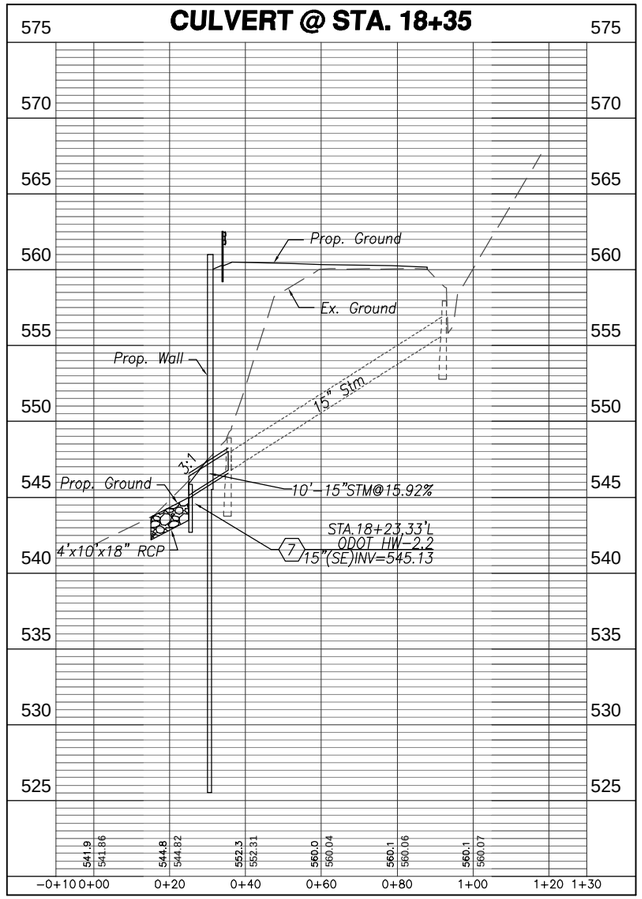
STREAM RESTORATION - HAPPY HOLLOW CREEK
DETAILS

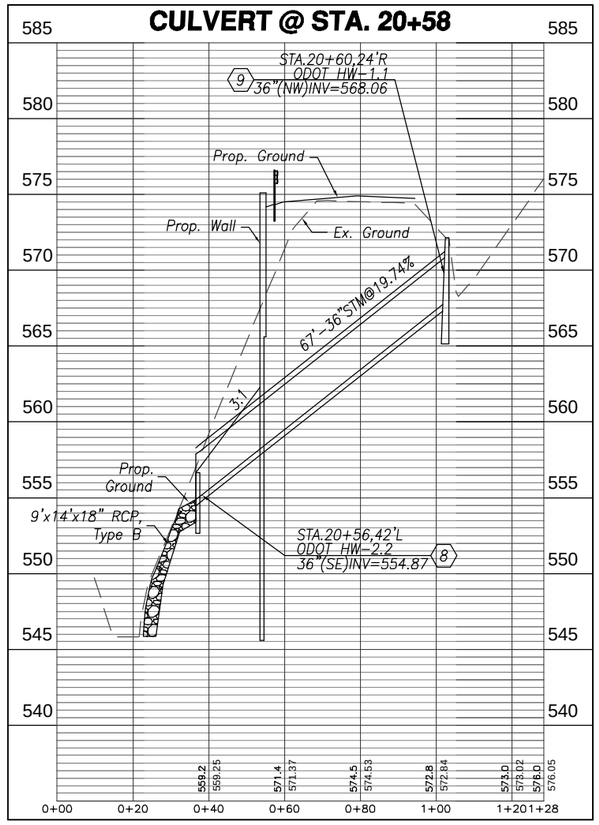
CLE-50-1.48
MILFORD PARKWAY

74/132

Plot time: Aug 30, 2012 - 3:05pm
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0 10 20 40

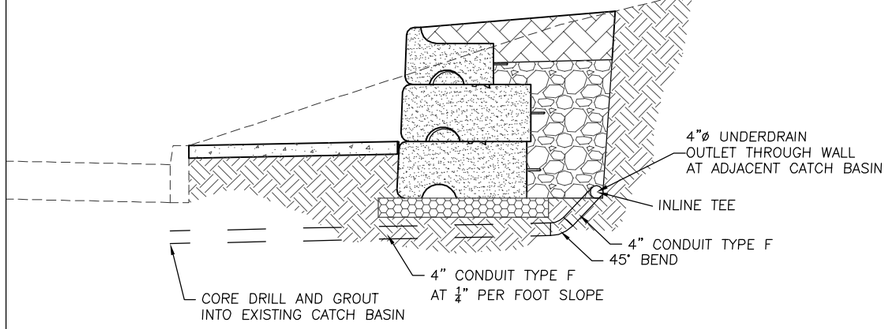
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CHECKED EMR

PROFILE - HAPPY HOLLOW ROAD
CULVERT PROFILES

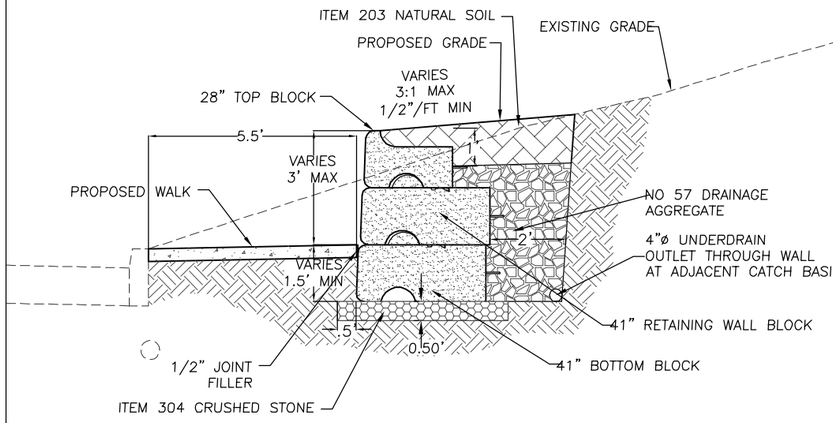
CLE-50-1.48
MILFORD PARKWAY

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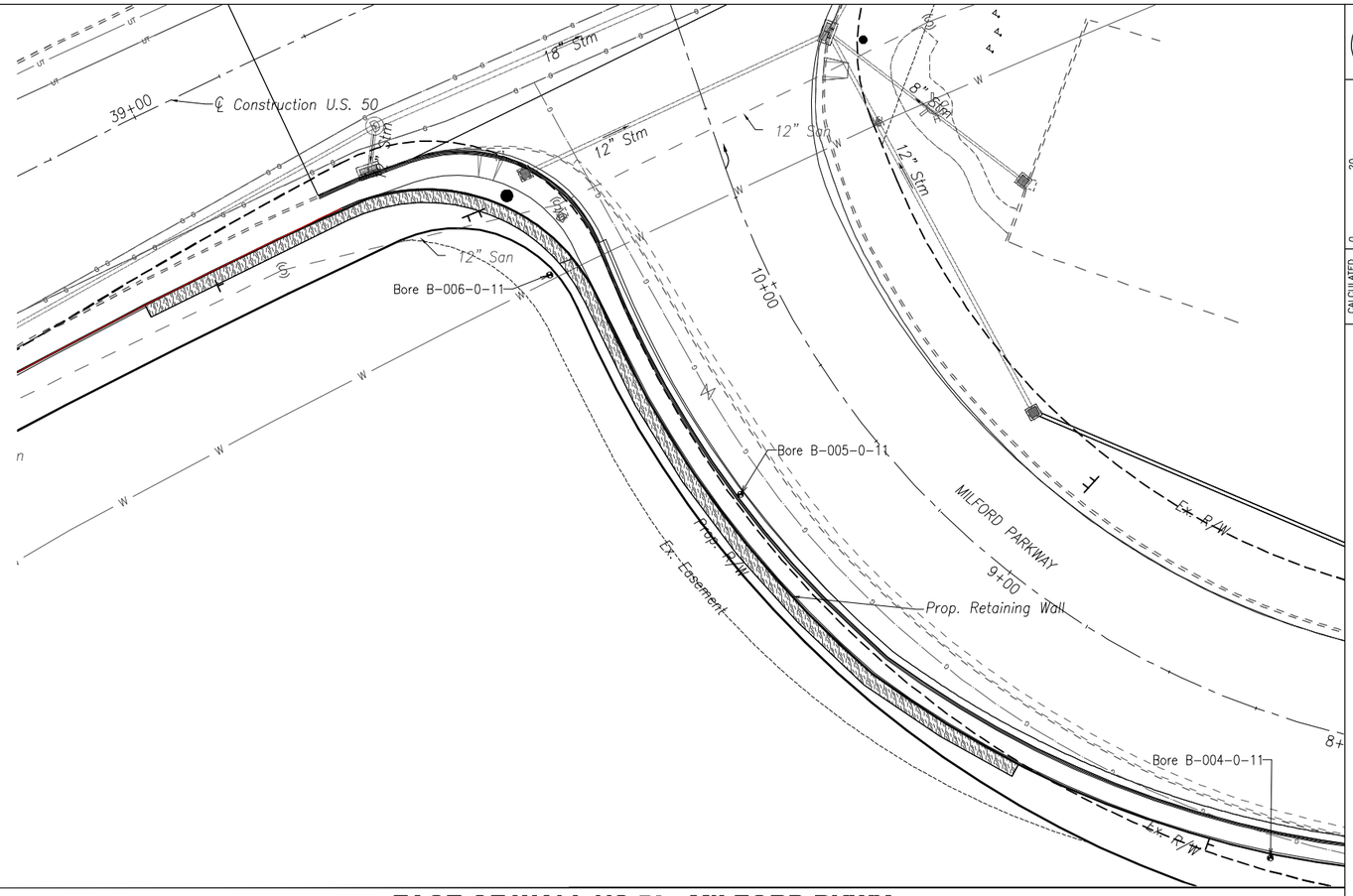
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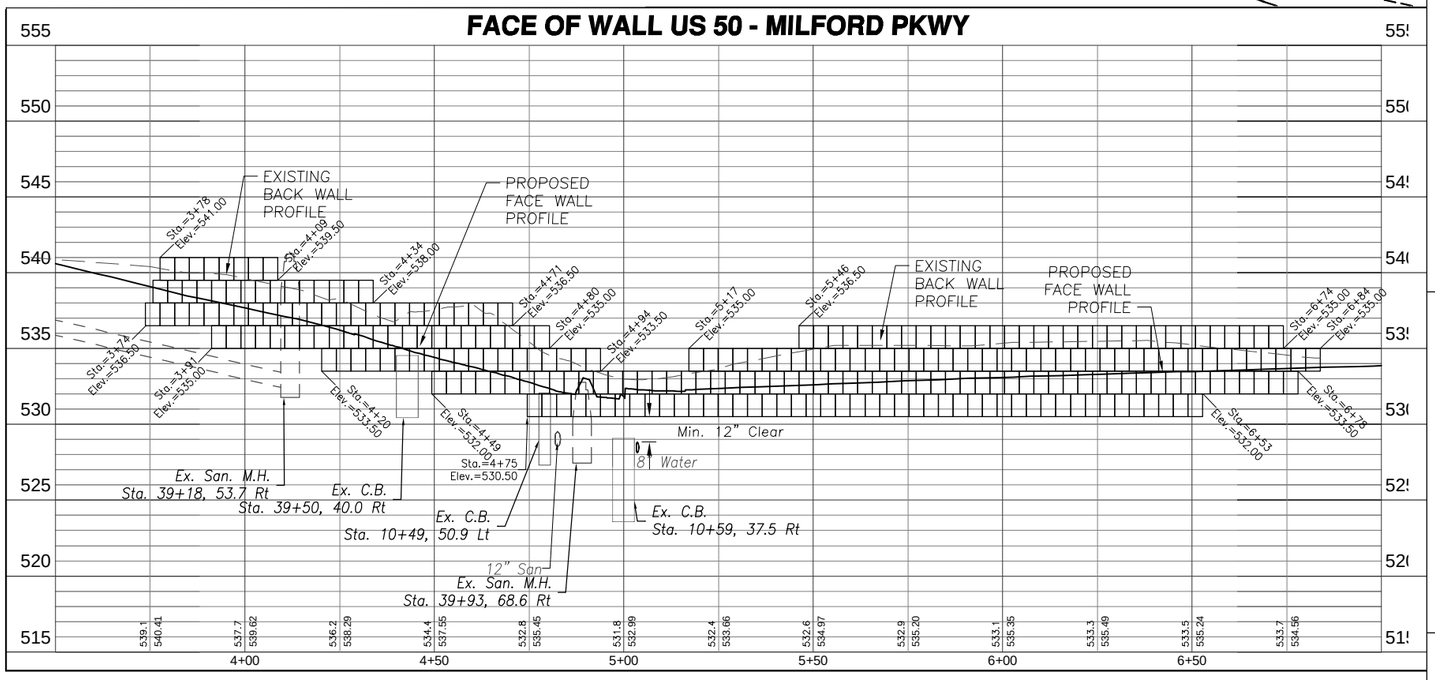


TYPICAL WALL UNDERDRAIN DETAIL



TYPICAL WALL SECTION MODULAR BLOCK





0 10 20 40
HORIZONTAL
SCALE IN FEET

CALCULATED RWB
CHECKED EMR

RETAINING WALL PLAN AND PROFILE - U.S. 50

CLE-50-1.48
MILFORD PARKWAY

Plot time: Oct 01, 2012 - 10:16am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Retaining Wall - Layout Tab: 76 Retaining Wall P&P (US50)

PART 1 GENERAL

SUMMARY

A. Section Includes: Furnishing materials and labor required for the design and construction of a concrete segmental retaining wall.

B. Related Sections:

1. Section 312000 Earth Moving

REFERENCES

A. Concrete Segmental Retaining Wall Units – American Society for Testing and Materials (ASTM)

1. ASTM C–1372 Specification for Segmental Retaining Wall Units (Section 7)
2. ASTM C–94 Standard Specification for Ready Mix Concrete (Table 1 and Section 7)
3. ASTM C–172 Standard Specification for Sampling Freshly Mixed Concrete

B. Drain Pipe – American Society for Testing and Materials (ASTM):

1. ASTM D–3034 Specifications for Polyvinyl Chloride Pipe (PVC)
2. ASTM D–1248 Specifications for Corrugated Plastic Pipe

C. Geo–grid Reinforcements – Geosynthetic Research Institute (GRI) and American Society for Testing and Materials (ASTM):

1. GG1 Geogrid Rib Tensile Strength
2. GG2 Individual Geogrid Junction Strength
3. GG4a Determination of the Long–Term Design Strength of Stiff Geogrids
4. GG4b Determination of the Long–Term Design Strength of Flexible Geogrids
5. ASTM D–4595 Tensile Properties of Geotextiles – Wide Width Strip
6. ASTM D–5262 Unconfined Tension Creep Behavior of Geosynthetics
7. ASTM D–5970 Deterioration of Geotextiles from Outdoor Exposure
8. ASTM D–6706 Measuring Geosynthetic Pullout Resistance in Soil

D. Engineering Design – National Concrete Masonry Association (NCMA):

1. NCMA Design Manual for Segmental Retaining Walls
2. NCMA SRWU–1 Test Method for Determining Connection Strength of SRW
3. NCMA SRWU–2 Test Method for Determining Shear Strength of SRW

E. Soils – American Society for Testing and Materials (ASTM):

1. ASTM D–698 Laboratory Compaction Characteristics of Soil – Standard Effort
2. ASTM D–4318 Liquid Limit, Plastic Limit and Plasticity Index of Soils
3. ASTM D–422 Gradation of Soils
4. ASTM D–424 Atterberg Limits of Soils
5. ASTM D–G51 Soil pH

DEFINITIONS

A. Retaining Wall Unit: Concrete, segmental facing block provided by an authorized manufacturer.

B. Geogrid: A geosynthetic material manufactured of high tensile materials specifically for the purpose of reinforcing and creating a structural soil mass.

C. Drainage Aggregate: Clean, crushed rock located within and immediately behind Retaining Wall Units to facilitate drainage and avoid compaction in close proximity to retaining wall units.

D. Reinforced Backfill: Soil zone extending from the Drainage aggregate zone to the back of the embedded geogrid.

E. Foundation Soil: Soil zone immediately beneath the retaining wall facing units, the wall leveling pad and the reinforced soil zone.

F. Retained Soil: Soil immediately behind retaining wall facing and drainage aggregate or reinforced backfill if present.

G. Construction Drawings: Approved final plan for construction prepared and stamped by the wall design engineer licensed to practice in the state where the retaining wall is located.

SUBMITTALS

A. Contractor shall submit Manufacturer's product data and installation instructions for approval.

B. Contractor shall submit Manufacturer's test reports certifying that the units manufactured at their production facility meet the requirements of this specification and the requirements of the Construction Drawings.

C. Unless provided within these project documents and/or the project drawings, contractor shall submit two sets of the Construction Drawings for all modular retaining walls on the project.

1. The design must be prepared by a Professional Engineer licensed to practice in the state where the retaining wall is located.
2. The design shall be per NCMA Design Guidelines for Segmental Retaining Walls, or the AASHTO Standard Specifications for Highway Bridges, whichever is applicable as determined by the retaining wall design engineer.
3. Construction Drawings shall include:
   a. The retaining wall layout and retaining wall heights.
   b. Proper placement, lengths and types of geogrid reinforcement where necessary.
   c. Typical wall sections.
   d. Types, locations and properties of all drainage materials, appurtenances and special installation requirements not covered in this specification.
   e. Retaining wall elevation views.
   f. Any soils reports or testing conducted in addition to that included within the project drawings and specifications.
   g. Design assumptions.

D. If geogrid reinforcement is required in the final engineered construction drawings, submit manufacturer's product literature, product testing reports and a twelve by twelve inch or larger sample of each type to be used in wall construction.

1. Testing reports shall include:
   a. Connection strength data for each combination of segmental unit and geogrid used as determined by NCMA SRWU–1.
   b. Long–term design strength as determined by GG4–91.
   c. Geogrid soil pullout as determined by ASTM D–6706.

E. Submit gradation reports for aggregates used for the wall leveling pad, unit / drainage fill and for select reinforced fill if required in the final engineered wall design.

F. All submittals must be provided and reviewed prior to the start of retaining wall construction.

DELIVERY, STORAGE, AND HANDLING

A. Contractor shall inspect all products at delivery to determine that the proper materials have been delivered and are useable. Damaged material shall not be incorporated into the work.

B. Retaining wall units shall be stored in a location and manner that protects against excessive weathering and damage.

C. Contractor shall prevent retaining wall units from excessive soiling and coming in contact with substances which may stain or adhere to the finished visual surfaces of the unit.

D. Faces of the retaining wall unit shall be free of excessive chipping, cracking and stains.

QUALITY ASSURANCE

A. Installer Qualifications: Contractor shall have successfully installed at least three projects similar to that of this project within the last two years. Contractor shall maintain at least one mechanic on site at all times that worked on one or more of these previous installations.

B. Owner shall employ the services of an independent geotechnical or materials engineering firm to provide soil testing and quality assurance inspection for wall construction and soils work. Contractor shall provide any quality control testing or inspection not provided by the Owner.

PART 2 PRODUCTS

MANUFACTURERS

A. Only licensed and authorized manufacturers of:

1. ReCon Wall Systems, Inc.
   7600 West 27th St,, #229
   St. Louis Park, MN 55426
   (952) 922–0027 Phone(952) 922–0028 Fax
   www.reconwalls.com
2. Redi–Rock® International
   05481 South US–31,
   Charlevoix, MI 49720
   1–866–222–8400
   www.redi–rock.com
3. London Boulder
   JME of Monticello
   1401 Fallon Avenue
   Monticello, MN 55362
   1–800–450–3122
   http://www.jmecompanies.net/london_boulder.htm
4. Other Approved Equal

MATERIALS

A. Retaining wall units.

1. The block unit shall consist of concrete with average 28–day compressive strength of no less than 4000 PSI.
2. Concrete shall have air entrainment by volume (as measured in the plastic state in accordance with ASTM C172) of:
   a. 5.5 – 8.5 percent, or
   b. In conformity with ASTM C94 (Table 1 and Section 7), latest revision.
3. Minimum exterior dimension at the face shall be 48" by 16" for full and corner unit and 24" by 16" for half unit.
4. Minimum depth of unit should be as per Construction Drawings.
5. Retaining wall units used shall maintain tolerances of:
   a. Height: +/– 3/16"
   b. Width: +/– 1/2" unless field cut for fitting purposes.
   c. Depth: No less than the unit design depth with the textured face portion of the block considered as 4".
6. Special shape units should be obtained and used where indicated on the final engineered construction drawings.

B. Geogrid Reinforcement: Geosynthetic reinforcement shall be high tensile geogrid or geotextile manufactured specifically for soil reinforcement applications.

1. Construction Drawings shall indicate type, strength, locations and lengths of reinforcement used.
2. The geosynthetic manufacturer shall provide all relevant testing to the wall design engineer for incorporation in the wall design and shall be included in the submittal for the Construction Drawings.
3. No substitution of geosynthetic shall be allowed that was not evaluated in the Construction Drawings.

B. Base Leveling Pad: The wall base leveling pad material shall consist of a compacted crushed stone base or non–reinforced concrete as indicated in the Construction Drawings.

C. Drainage Aggregate: Drainage aggregate shall consist of clean 1" minus crushed stone or gravel meeting the requirements of the Construction Drawings.

D. Backfill material: All backfill material, borrow or imported, shall meet all requirements of the Construction Drawings.

E. Drainage Pipe: If required in Construction Drawings, drainage pipe shall be perforated or slotted PVC pipe manufactured in accordance with ASTM D–3034 or corrugated HDPE pipe manufactured in accordance with ASTM D–1248. Drainage pipe may also be covered with a geotextile filter fabric.

F. Unit adhesive: Adhesive shall be a premium, construction grade suitable for concrete and exterior applications.

FINISHES

A. Retaining wall color

1. Finished wall shall be left in natural (as–cast) color.

PART 3 EXECUTION

EXAMINATION

A. Verify locations of utilities and existing structures prior to excavation.

B. Examine the Project site and evaluate conditions where the retaining wall units will be constructed. Notify the proper supervising authority in writing of any conditions that may interfere with the proper construction of the retaining wall or delay completion.

C. Promptly notify the wall design engineer of site conditions which may affect wall performance, soil conditions observed other than those assumed, or other conditions that may require a reevaluation of the wall design.

EXCAVATION

A. Contractor shall excavate to the lines and grades shown on the construction drawings. The contractor shall be careful not to disturb base beyond the lines indicated.

B. Foundation soil shall be excavated as required for footing or base / leveling pad dimensions shown on the construction drawings, or as directed by the wall engineer.

C. Over–excavated areas shall be filled with suitable base or backfill material and compacted to 95% standard proctor.

FOUNDATION SOILS PREPARATION

A. Foundation soil shall be evaluated by a Geotechnical Engineer or Owner's Representative to ensure that the bearing soils meet or exceed the design conditions or assumptions.

B. Compact foundation soil zone to 95% standard proctor prior to installing base / leveling pad.

BASE / LEVELING PAD

A. Base shall be located as indicated on the construction drawings and shall have a minimum thickness of 6 inches. Base materials are to be as specified by the wall engineer (generally crushed stone, ¾" minus, or similar).

B. Width of the base pad must extend a minimum of 6 inches in front and 6 inches in back of the Modular block Base Block footprint.

C. Base material shall be compacted so as to provide a smooth, hard surface on which to place the first course of units.

D. Compact base material to 95% of standard proctor.

E. Base shall be prepared to ensure full contact of the wall unit with base material. Spacing or gaps between units shall not exceed ½".

F. Contractor may elect to substitute a portion of the specified granular base materials with a lean, unreinforced concrete topping.

G. When a reinforced footing is required by the construction drawings, it shall be located below the frost line.

UNIT INSTALLATION

A. First course of units shall be Base Block units and shall be placed in full contact with the base material.

B. Check units for level from side–to–side, front to back, and check to maintain unit batter front–to–back.

C. Place unit faces in contact side to side and avoid any gaps greater than ½".

D. Fill and compact fill to grade in front of embedded units prior to compaction behind the wall units.

E. Fill voids between Modular block units with 3/4" clean crushed rock to a distance of one foot behind the unit depth unless otherwise instructed in the Construction Drawings.

F. Sweep and clean the top of each course before setting additional courses.

G. Lay each successive course making sure that the bottom recess is in full contact with the unit locators of the course below. Pull unit forward as far as possible. Backfill and compact soil behind the units.

H. Check and maintain level and wall batter by use of shims when necessary.

I. Follow the Manufacturer's recommended procedures to maintain acceptable running bond when constructing curved walls and / or corners. Build in accordance with the Construction.

J. Handle units with proper lifting devices that have been certified for the loads associated with the weights of the units. Avoid applying forces to the lifting loops in excess of the normal force associated with the weight of the unit (i.e., avoid applying "shear forces" or "dynamic loads" from bouncing or swinging of a unit). If the unit is to be transported over a significant distance in the field, it is recommended that a CABLE be used, NOT A CHAIN. The cable has some "stretch" in it that will absorb some of the dynamic loads.

GEOGRID INSTALLATION

A. Install geosynthetic reinforcement in accordance with manufacturer's recommendations and the Construction Drawings.

B. Locate geosynthetic reinforcement at elevations and to the lengths shown on the Construction Drawings.

C. Prior to installation of geosynthetic reinforcement, level and compact backfill material to the level of the reinforcement layer.

D. Reinforcement design strength direction must be oriented perpendicular to wall face.

E. Position reinforcement on modular block units over the tongue and groove and to within 2" of the front exposed face. The next course of units shall be placed such that the geogrid is deformed over the tongue and groove. The next course of units must be slid forward such that the back edge of the groove on this unit is up against the back edge of the tongue on the lower unit with the geogrid pinched between the tongue and groove. Hold in place by installing the next course of units.

F. Remove all wrinkles or folds in reinforcement by pulling taut prior to backfill placement. Secure using soil staples, stakes or hand tension until reinforcement is covered with sufficient fill to maintain tensioned position.

G. Reinforcements shall be continuous throughout the embedment length. Splicing along reinforcement strength direction is not allowed.

H. Position reinforcement sections side–by–side to provide 100% coverage along wall face.

I. Where curved wall sections cause overlap areas in reinforcement, maintain at least 3" of soil between layers where overlap occurs.

REINFORCED BACKFILL PLACEMENT

A. Wall fill material shall be placed in lifts no greater than 8" in depth and shall be less if necessary to achieve necessary compaction.

B. Compact backfill material to 95% of standard proctor.

C. Only hand–operated compaction equipment shall be used within 3 feet of the back of the modular block units.

D. Wherever possible, backfill should be placed beginning at the face of the wall. Backfill shall be placed, spread, and compacted in a manner that minimizes the development of wrinkles, folds or movement of the geogrid.

E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over the geogrid reinforcement at slow speeds, (less than 10 MPH). Avoid sudden braking and sharp turning.

G. At the conclusion of each days work, slope backfill at both the crest and bottom of wall away from wall face to prevent surface drainage from scouring or ponding.

H. During wall construction, the General Contractor shall be responsible for coordination of other project site operations so as to avoid adjacent construction site drainage from affecting wall construction area.

I. Upon completion of wall construction work, the General Contractor shall:

1. Ensure finished grading directs normal drainage away from the finished wall.
2. Ensure other trades do not operate heavy equipment or excavate near the wall and reinforced soil zone.

3.8 OTHER CONSTRUCTION DETAILS

SITE TOLERANCES

A. Straight walls

1. Vertical alignment: +/– 1.5" over any 12 ft. distance and no more than +/– 3" over entire length of wall.

B. Horizontal Alignment Control:

1. Corners and radius location: +/– 1 foot to theoretical location indicated on the Grading Plan.
2. Radii: +/– 2 ft. from theoretical lines indicated on the Grading Plan

C. Wall Batter At Completion Of Work: +/– 2 degrees from the design batter and no batter less than 2 degrees.

3. 10 FIELD QUALITY CONTROL

A. Contractor shall be responsible for proper installation and quality control of all modular block wall components and appurtenant materials.

B. Owner shall, at their expense, retain a qualified professional to monitor and perform quality assurance checks of the installer's work.

C. Quality Assurance should include foundation soil inspection, frequent backfill compaction testing, verification of geotechnical design parameters and compliance with Construction Drawings and Project Specifications.

3. 11 CLEANING

A. After completion of wall installation, remove construction debris and restore any adjacent finished areas affected by wall construction to their pre–construction state.

B. Wash wall face to remove soiling and stains. Do not use acid or detergents that may "burn" or discolor face.

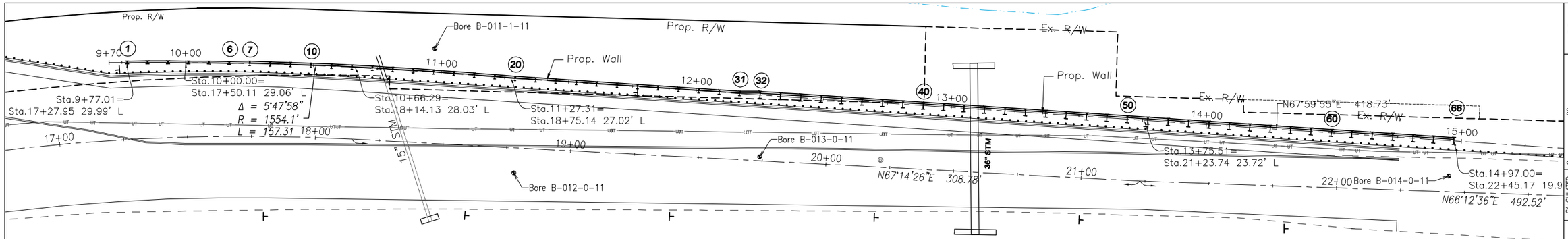
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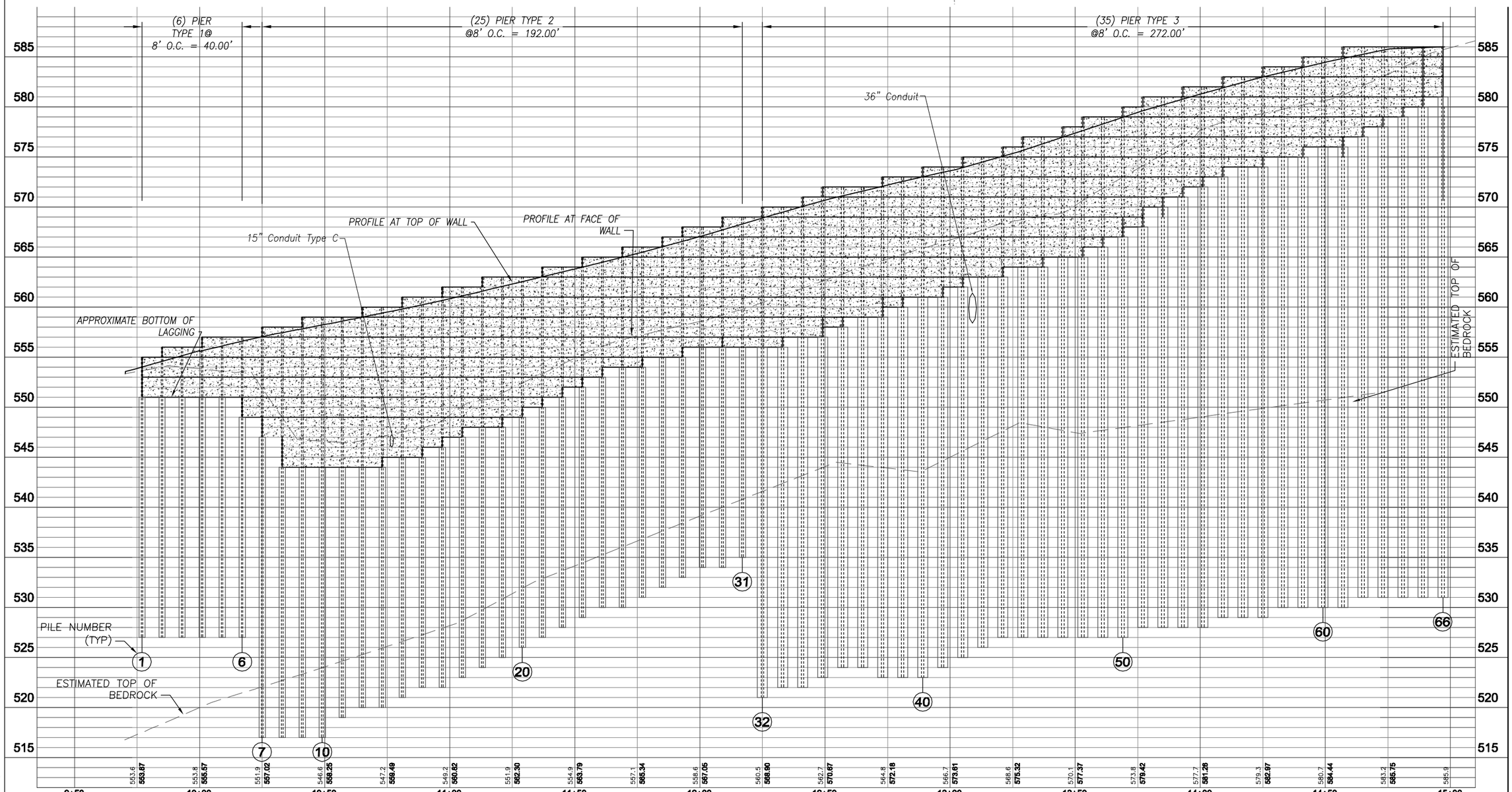
RETAINING WALL DETAILS AND NOTES - U.S. 50

CLE-50-1.48
MILFORD PARKWAY

77
132

Plot time: Oct 01, 2012 – 9:16am
Drawing name: J:\2009\09C145–001\TR\DWG\09C145–001 Retaining Wall – Layout Tab: 77 Retaining Wall Details (US50)





HORIZONTAL SCALE IN FEET
0 10 20 40

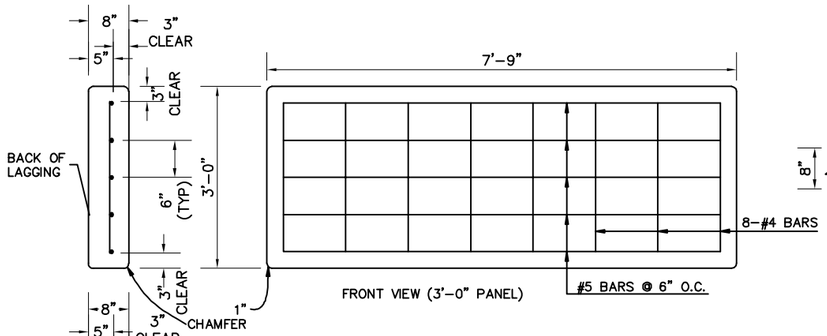
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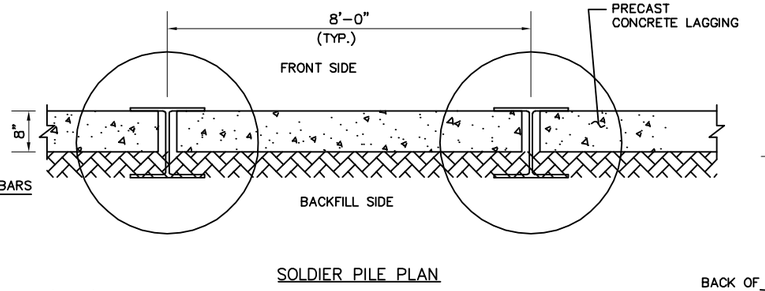
RETAINING WALL PLAN AND PROFILE - S.R. 131

CLE-50-1.48
MILFORD PARKWAY

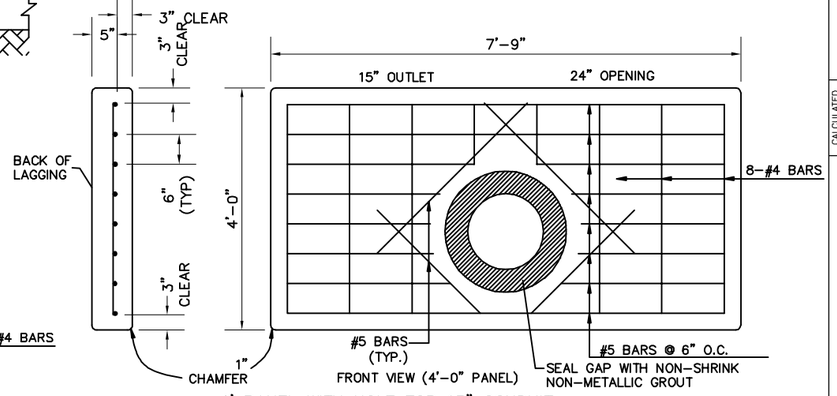
78
132

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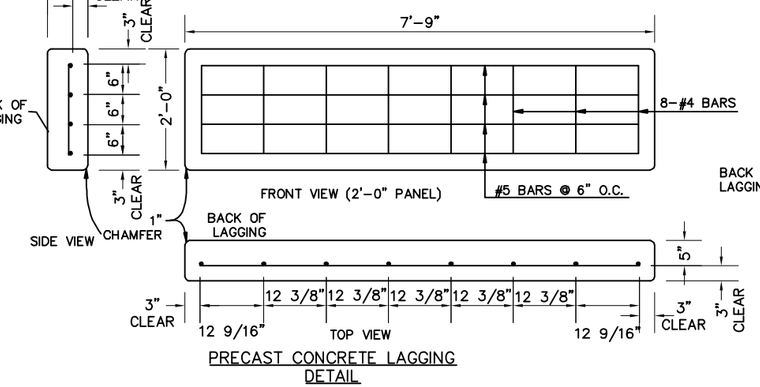




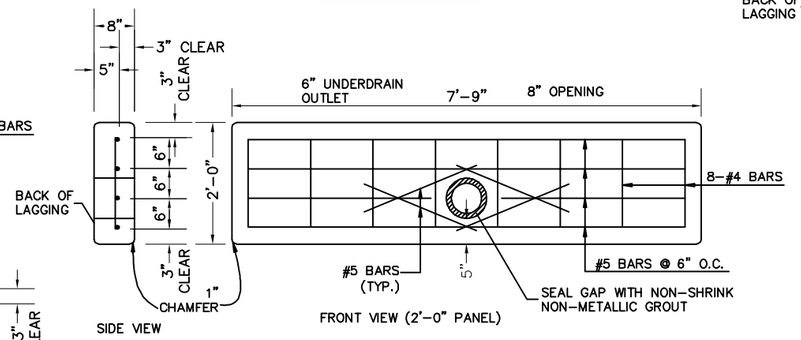
SOLDIER PILE PLAN



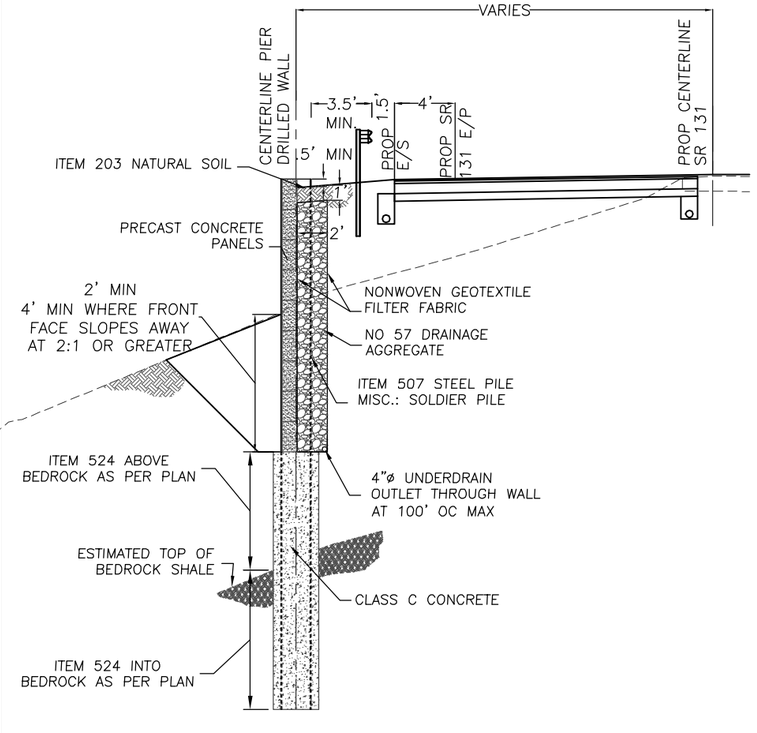
4' PANEL WITH HOLE FOR 15" CONDUIT



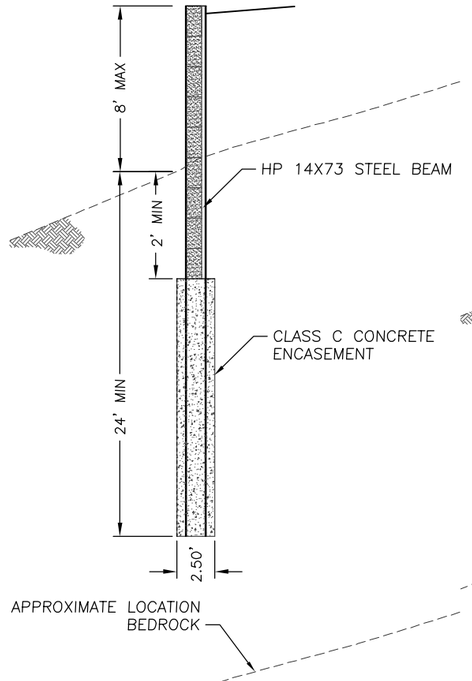
PRECAST CONCRETE LAGGING DETAIL



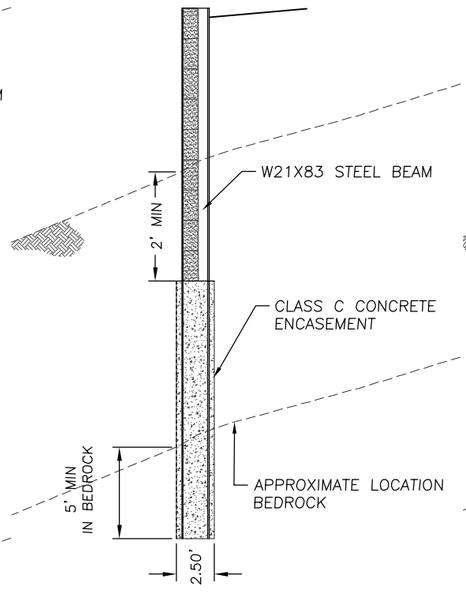
REINFORCING DETAILS FOR PANELS WITH UNDERDRAIN OUTLET OPENING



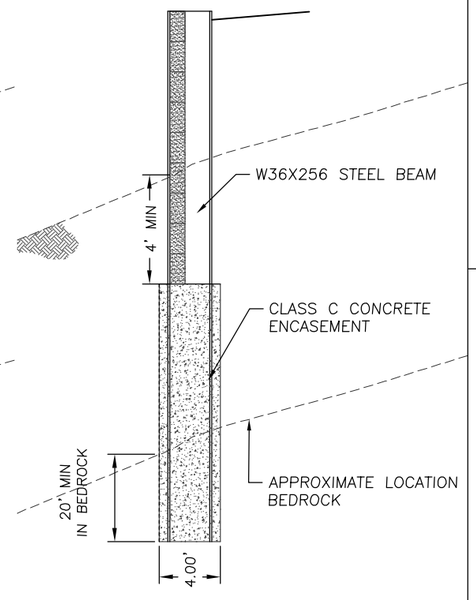
TYPICAL WALL SECTION DETAIL – S.R. 131



PIER TYPE 1



PIER TYPE 2



PIER TYPE 3

RETAINING WALL DETAILS - SR 131

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CLE-50-1.48
MILFORD PARKWAY

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Plot time: Aug 29, 2012 – 11:44am
Drawing name: i:\2009\09C145-001\TR\DWG\09C145-001 Retaining Wall – Layout Tab: 79 Retaining Wall Details 131

PIER NUMBER	SOLDIER PILE TYPE	PILE SIZE	SHAFT DIAMETER	WALL STATION	131 STATION	OFFSET	TOP OF PIER/ TOP OF LAGGING	BOTTOM OF LAGGING/ TOP OF CONCRETE	TOP OF BEDROCK	DESIGN TIP ELEVATION	ESTIMATED DRILLED SHAFT ABOVE BEDROCK	ESTIMATED DRILL SHAFT INTO BEDROCK	SOLDIER PILE LENGTH
			IN			FT	FT	FT	FT	FT	FT	FT	FT
1	1	HP14X73	30.00	9+77.00	17+27.95	−29.99	555.00	551.00	517.51	527.00	28.00	0.00	28.00
2	1	HP14X73	30.00	9+85.00	17+35.66	−29.64	556.00	551.00	518.37	527.00	29.00	0.00	29.00
3	1	HP14X73	30.00	9+93.00	17+43.37	−29.31	556.00	551.00	519.23	527.00	29.00	0.00	29.00
4	1	HP14X73	30.00	10+01.00	17+51.08	−29.03	557.00	551.00	520.10	527.00	30.00	0.00	30.00
5	1	HP14X73	30.00	10+09.00	17+58.80	−28.78	557.00	551.00	520.83	527.00	30.00	0.00	30.00
6	1	HP14X73	30.00	10+17.00	17+66.52	−28.56	557.00	549.00	521.44	527.00	30.00	0.00	30.00
7	2	W21X83	30.00	10+25.00	17+74.25	−28.38	558.00	547.00	522.07	517.00	35.93	5.07	41.00
8	2	W21X83	30.00	10+33.00	17+81.97	−28.24	558.00	544.00	522.70	517.00	35.30	5.70	41.00
9	2	W21X83	30.00	10+41.00	17+89.70	−28.13	559.00	544.00	523.33	517.00	35.67	6.33	42.00
10	2	W21X83	30.00	10+49.00	17+97.43	−28.06	559.00	544.00	523.97	517.00	35.03	6.97	42.00
11	2	W21X83	30.00	10+57.00	18+05.16	−28.03	559.00	544.00	524.62	519.00	34.38	5.62	40.00
12	2	W21X83	30.00	10+65.00	18+12.89	−28.03	560.00	544.00	525.27	520.00	34.73	5.27	40.00
13	2	W21X83	30.00	10+73.00	18+20.85	−28.04	560.00	544.00	525.93	520.00	34.07	5.93	40.00
14	2	W21X83	30.00	10+81.00	18+28.85	−28.00	561.00	545.00	526.59	521.00	34.41	5.59	40.00
15	2	W21X83	30.00	10+89.00	18+36.85	−27.98	561.00	545.00	527.26	522.00	33.74	5.26	39.00
16	2	W21X83	30.00	10+97.00	18+44.84	−27.82	562.00	546.00	527.93	522.00	34.07	5.93	40.00
17	2	W21X83	30.00	11+05.00	18+52.84	−27.66	562.00	547.00	528.67	523.00	33.33	5.67	39.00
18	2	W21X83	30.00	11+13.00	18+60.84	−27.47	563.00	548.00	529.75	524.00	33.25	5.75	39.00
19	2	W21X83	30.00	11+21.00	18+68.84	−27.23	563.00	548.00	530.83	525.00	32.17	5.83	38.00
20	2	W21X83	30.00	11+29.00	18+76.83	−26.99	563.00	549.00	531.90	526.00	31.10	5.90	37.00
21	2	W21X83	30.00	11+37.00	18+84.83	−26.89	564.00	550.00	532.60	527.00	31.40	5.60	37.00
22	2	W21X83	30.00	11+45.00	18+92.83	−26.78	564.00	551.00	533.65	528.00	30.35	5.65	36.00
23	2	W21X83	30.00	11+53.00	19+00.83	−26.68	565.00	552.00	534.45	529.00	30.55	5.45	36.00
24	2	W21X83	30.00	11+61.00	19+08.83	−26.57	565.00	553.00	535.24	530.00	29.76	5.24	35.00
25	2	W21X83	30.00	11+69.00	19+16.83	−26.43	566.00	554.00	536.03	530.00	29.97	6.03	36.00
26	2	W21X83	30.00	11+77.00	19+24.83	−26.36	566.00	554.00	536.83	531.00	29.17	5.83	35.00
27	2	W21X83	30.00	11+85.00	19+32.83	−26.25	567.00	555.00	537.62	532.00	29.38	5.62	35.00
28	2	W21X83	30.00	11+93.00	19+40.83	−26.15	568.00	555.00	538.41	533.00	29.59	5.41	35.00
29	2	W21X83	30.00	12+01.00	19+48.83	−26.04	568.00	556.00	539.21	534.00	28.79	5.21	34.00
30	2	W21X83	30.00	12+09.00	19+56.83	−25.94	569.00	556.00	540.00	534.00	29.00	6.00	35.00
31	2	W21X83	30.00	12+17.00	19+64.83	−25.83	569.00	556.00	540.79	535.00	28.21	5.79	34.00
32	3	W36X256	48.00	12+25.00	19+72.83	−25.72	570.00	556.00	541.59	521.00	28.41	20.59	49.00
33	3	W36X256	48.00	12+33.00	19+80.82	−25.62	570.00	556.00	542.38	522.00	27.62	20.38	48.00
34	3	W36X256	48.00	12+41.00	19+88.82	−25.51	571.00	557.00	543.17	522.00	27.83	21.17	49.00
35	3	W36X256	48.00	12+49.00	19+96.82	−25.41	572.00	557.00	543.97	523.00	28.03	20.97	49.00
36	3	W36X256	48.00	12+57.00	20+04.82	−25.30	572.00	558.00	544.40	524.00	27.60	20.40	48.00
37	3	W36X256	48.00	12+65.00	20+12.82	−25.19	572.00	559.00	544.18	524.00	27.82	20.18	48.00
38	3	W36X256	48.00	12+73.00	20+20.82	−25.09	573.00	559.00	543.96	523.00	29.04	20.96	50.00
39	3	W36X256	48.00	12+81.00	20+28.82	−24.98	573.00	560.00	543.74	523.00	29.26	20.74	50.00
40	3	W36X256	48.00	12+89.00	20+36.82	−24.88	574.00	561.00	543.64	523.00	30.36	20.64	51.00
41	3	W36X256	48.00	12+97.00	20+44.82	−24.77	574.00	561.00	544.63	524.00	29.37	20.63	50.00
42	3	W36X256	48.00	13+05.00	20+52.82	−24.64	575.00	562.00	545.62	525.00	29.38	20.62	50.00
43	3	W36X256	48.00	13+13.00	20+60.82	−24.56	575.00	563.00	546.61	526.00	28.39	20.61	49.00
44	3	W36X256	48.00	13+21.00	20+68.82	−24.45	576.00	563.00	547.59	527.00	28.41	20.59	49.00
45	3	W36X256	48.00	13+29.00	20+76.82	−24.35	577.00	564.00	548.38	527.00	28.62	21.38	50.00
46	3	W36X256	48.00	13+37.00	20+84.82	−24.24	577.00	564.00	548.03	527.00	28.97	21.03	50.00
47	3	W36X256	48.00	13+45.00	20+92.81	−24.14	578.00	565.00	547.68	527.00	30.32	20.68	51.00
48	3	W36X256	48.00	13+53.00	21+00.81	−24.03	579.00	565.00	547.40	527.00	31.60	20.40	52.00
49	3	W36X256	48.00	13+61.00	21+08.81	−23.92	579.00	566.00	547.68	527.00	31.32	20.68	52.00
50	3	W36X256	48.00	13+69.00	21+16.81	−23.82	580.00	567.00	547.95	527.00	32.05	20.95	53.00
51	3	W36X256	48.00	13+77.00	21+25.24	−23.68	581.00	568.00	548.22	528.00	32.78	20.22	53.00
52	3	W36X256	48.00	13+85.00	21+33.23	−23.43	581.00	570.00	548.50	528.00	32.50	20.50	53.00
53	3	W36X256	48.00	13+93.00	21+41.23	−23.18	582.00	571.00	548.77	528.00	33.23	20.77	54.00
54	3	W36X256	48.00	14+01.00	21+49.23	−22.93	582.00	572.00	549.05	528.00	32.95	21.05	54.00
55	3	W36X256	48.00	14+09.00	21+57.22	−22.68	583.00	573.00	549.32	529.00	33.68	20.32	54.00
56	3	W36X256	48.00	14+17.00	21+65.22	−22.43	583.00	574.00	549.59	529.00	33.41	20.59	54.00
57	3	W36X256	48.00	14+25.00	21+73.21	−22.18	584.00	574.00	549.87	529.00	34.13	20.87	55.00
58	3	W36X256	48.00	14+33.00	21+81.21	−21.93	584.00	575.00	550.14	530.00	33.86	20.14	54.00
59	3	W36X256	48.00	14+41.00	21+89.21	−21.68	585.00	575.00	550.42	530.00	34.58	20.42	55.00
60	3	W36X256	48.00	14+49.00	21+97.20	−21.43	585.00	576.00	550.69	530.00	34.31	20.69	55.00
61	3	W36X256	48.00	14+57.00	22+05.20	−21.18	586.00	576.00	550.96	530.00	35.04	20.96	56.00
62	3	W36X256	48.00	14+65.00	22+13.20	−20.93	586.00	577.00	551.24	531.00	34.76	20.24	55.00
63	3	W36X256	48.00	14+73.00	22+21.19	−20.68	586.00	578.00	552.00	531.00	34.00	21.00	55.00
64	3	W36X256	48.00	14+81.00	22+29.19	−20.43	586.00	579.00	552.50	531.00	33.50	21.50	55.00
65	3	W36X256	48.00	14+89.00	22+37.18	−20.18	586.00	580.00	553.00	531.00	33.00	22.00	55.00
66	3	W36X256	48.00	14+97.00	22+45.18	−19.93	586.00	581.00	553.50	531.00	32.50	22.50	55.00

SOLDIER PILE AND LAGGING WALL

Item 507, Steel Piles, Misc.: Soldier Piles

This work consists of furnishing and placing steel soldier piles into drilled holes. Furnish soldier piles consisting of structural steel members that meet the plan requirements and conform to ASTM A572, Grade 50. Galvanize soldier piles as shown on the plans and in accordance with CMS 711.02. Do not field weld or splice steel soldier piles.

Measurement for payment will be limited to the distance between the top of wall elevation and the bottom of the drilled shaft, as determined by the Engineer. The Department will pay for Soldier Piles at the contract unit price per foot for Item 507, Steel Piles, Misc.: Soldier Piles.
Item 524, Drilled Shafts, ___" Diameter, Above Bedrock, As Per Plan
Item 524, Drilled Shafts, __" Diameter, Into Bedrock, As Per Plan

This work consists of furnishing and installing drilled shafts for soldier pile and lagging walls. The drilled shafts are reinforced with soldier piles instead of reinforcing steel cages. The soldier piles extend above the top of the drilled shaft. Furnish and install the drilled shafts in accordance with CMS 524 except as modified and supplemented below.

Excavate the hole for the drilled shaft within 3 inches of the plan location. If field conditions indicate greater depths, notify the Engineer for further evaluation.

Place the soldier pile vertically within the hole. Place the soldier pile so that the flanges are parallel to the centerline of the row of drilled shafts. Support the soldier pile so that it does not move during concrete placement. Do not allow the vertical alignment of the soldier pile to vary by more than ¼ inch per foot of depth. Do not allow the orientation of the flanges to vary by more than 10 degrees.

Use Class C concrete according to CMS 511. Place concrete to the elevation for the bottom of the precast lagging. The Contractor may place concrete using the free fall method provided the depth of water is less than 6 inches and the concrete falls without striking the sides of the hole. Pouring concrete along the web of the soldier pile is acceptable.

Check the position, the vertical alignment and orientation of the soldier pile immediately after concrete placement. Make corrections as necessary to meet the above tolerances. Fill the hole above the bottom of the precast lagging to the existing ground surface with Item 613 Low Strength Mortar Backfill (LSM). Remove concrete and LSM as necessary from around the soldier pile in order to place the precast lagging.

Measurement for payment for Drilled Shafts Above Bedrock, As Per Plan, will be limited to the actual drilled distance between the ground surface and the top of bedrock (or minimum tip), as determined by the Engineer. Measurement for payment for Drilled Shafts Into Bedrock, As Per Plan, will be limited to the distance between the top of bedrock and the bottom of the drilled shaft, as determined by the Engineer.

Payment is full compensation for constructing the drilled shafts, including furnishing and placing concrete and LSM, and removal of concrete or LSM from around the soldier pile in order to place precast lagging.

Item Special – Retaining Wall, Misc.: Precast Lagging

This work consists of furnishing and placing precast reinforced concrete panels between the soldier piles to function as lagging for the retaining wall. Provide precast concrete lagging from a precast concrete manufacturer certified under Supplement 1073. Provide concrete according to CMS 499 except with a 28–day design strength of at least 4000 psi and air entrainment of 4 to 8 percent. Provide epoxy coated reinforcing steel according to CMS 709.00. Permanently mark each panel to indicate which face will be placed against the soil. Place the panel between the flanges of the soldier piles and bearing against the flanges on the exposed side of the wall. Payment includes material supply and installation.

The Department will pay for Precast Lagging at the contract unit price per each for Item Special, Retaining Wall, Misc.: Precast Lagging.

The precast reinforced concrete panels shall be sealed prior to delivery to the site.

CALCULATED RWB
CHECKED EMR

RETAINING WALL NOTES - SR 131

CLE-50-1.48
MILFORD PARKWAY

Plot time: Aug 29, 2012 – 12:54pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Retaining Wall – Layout Tab: 80 Retaining Wall Details PILE

Ex. R/W
Meet Ex. Pavement Markings Sta. 39+35.21
Ex. Milford Sign
LL-1
CL-1
DL-1
SL-1
LA-1
LA-2
CH-1
LA-3
CH-2
CH-3
SL-2
DL-2
Ex. Signs
Relocate To Sta. 10+43, Lt.
From Sta. 10+55, Lt.
Prop. Retaining Wall
Ex. Milford Sign
Ex. Sign
Relocate To Sta. 39+00, Rt.
From Sta. 39+00, Rt.
R-1
Prop. R/W
Ex. Asphalt Parking Lot
Ex. Castrucci Chevrolet Sign
Ex. Sign
W9-1
To Be Removed
Ex. Signs
M1-5 & M6-1
Relocate To Sta. 41+55, Lt.
From Sta. 41+55, Lt.
R-2
R-3
Ex. Sign
R3-H8b
To Be Removed
S-1
Prop. Sign
R3-H8dg
54x30
Sta. 43+45, Lt.
LA-4
LA-5
LA-6
LA-7
LA-8
LA-9
EL-1
EL-2
CH-4
CH-5
CH-6
CH-7
SL-3
SL-4
TL-1
CL-2
U.S. 50
Ex. R/W
Prop. R/W
℄ Construction U.S. 50
Ex. Signs
M1-4 & M3-2
Ex. Sign
Ex. Asphalt Driveway
MATCH LINE STA. 44+40 U.S. 50

LEGEND

CH	CHANNELIZING LINE	DL	DOTTED LINE
CL	CENTERLINE	EL	EDGE LINE
CW	CROSSWALK LINE	IM	ISLAND MARKING
		LA	LANE ARROW
		LL	LANE LINE
		R	REMOVAL OF GROUND MOUNTED SIGN AND POST SUPPORT AND DISPOSAL/REERECTION
		S	SIGN AND GROUND MOUNTED SUPPORT
		SL	STOP LINE
		TL	TRANSVERSE/DIAGONAL LINE

MATCH LINE STA. 44+40 U.S. 50
Ex. Signs
M1-1, M4-5 & M6-1
Ex. Castrucci Chevrolet Sign
Ex. Asphalt Driveway
Meet Ex. Pavement Markings Sta. 47+13.00
Ex. Signs
M1-5, M2-1 & M5-1
Ex. R/W
EL-1
CH-7
CL-3
CL-2
TL-2
EL-2
℄ Construction U.S. 50
End Project Sta. 47+13.00
U.S. 50
Ex. Asphalt Driveway
Ex. Collision Center Sign

LEGEND

- ● RAISED PAVEMENT MARKER, YELLOW/YELLOW
- ■ RAISED PAVEMENT MARKER, WHITE/RED

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED KMD
CHECKED EMR

TRAFFIC CONTROL PLAN - U.S. 50
STA. 38+70 TO STA. 49+10

CLE-50-1.48
MILFORD PARKWAY

81
132

Plot time: Aug 30, 2012 - 9:20am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Control - Layout Tab: 81 Traffic Control (US50)

LEGEND

- ● RAISED PAVEMENT MARKER, YELLOW/YELLOW
- ■ RAISED PAVEMENT MARKER, WHITE/RED

LEGEND

CH	CHANNELIZING LINE
CL	CENTERLINE
CW	CROSSWALK LINE
DL	DOTTED LINE
EL	EDGE LINE
IM	ISLAND MARKING
LA	LANE ARROW
LL	LANE LINE
R	REMOVAL OF GROUND MOUNTED SIGN AND POST SUPPORT AND DISPOSAL/REERECTION
S	SIGN AND GROUND MOUNTED SUPPORT
SL	STOP LINE
TL	TRANSVERSE/DIAGONAL LINE

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

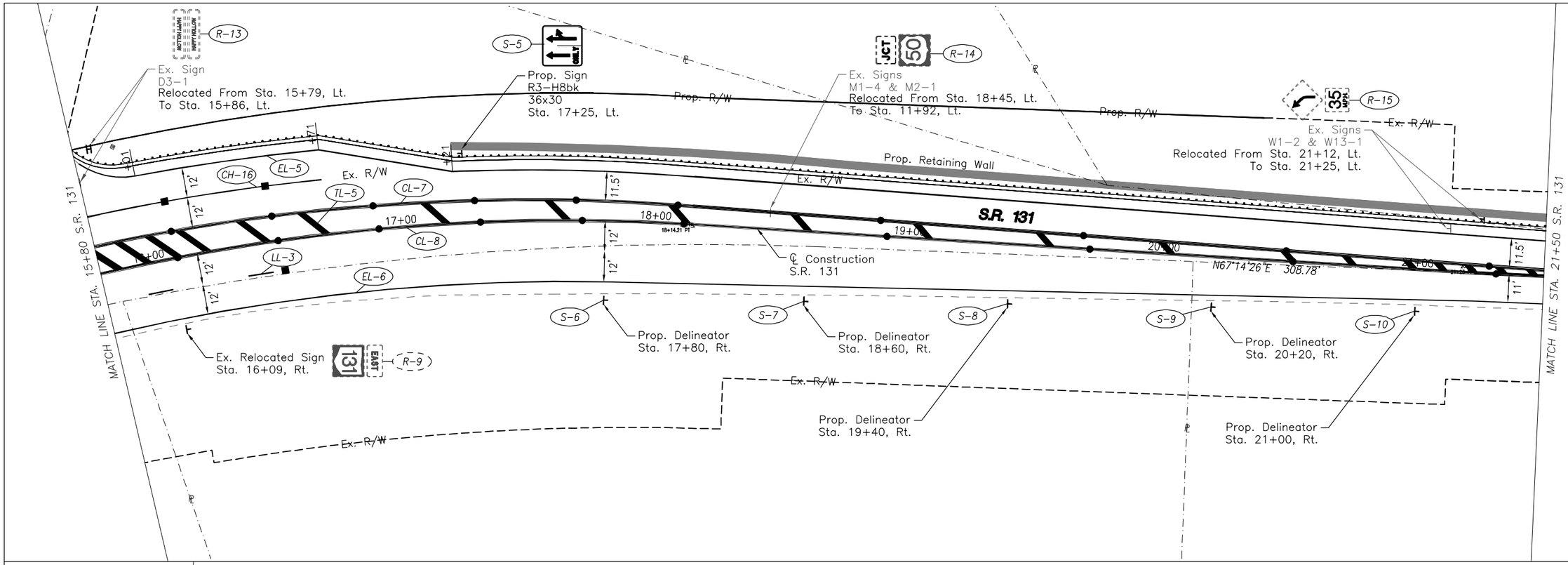
CALCULATED KMD CHECKED EMR

TRAFFIC CONTROL PLAN - MILFORD PARKWAY & S.R. 131
STA. 6+50 TO STA. 15+80

CLE-50-1.48
MILFORD PARKWAY

82
132

Plot time: Jan 21, 2013 - 2:56pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Control - Layout Tab: 82 Traffic Control (MILFORD)



LEGEND

- ● RAISED PAVEMENT MARKER, YELLOW/YELLOW
- ■ RAISED PAVEMENT MARKER, WHITE/RED

CH	CHANNELIZING LINE
CL	CENTERLINE
CW	CROSSWALK LINE
DL	DOTTED LINE
EL	EDGE LINE
IM	ISLAND MARKING
LA	LANE ARROW
LL	LANE LINE
R	REMOVAL OF GROUND MOUNTED SIGN AND POST SUPPORT AND DISPOSAL/REERECTION
S	SIGN AND GROUND MOUNTED SUPPORT
SL	STOP LINE
TL	TRANSVERSE/DIAGONAL LINE

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED KMD
CHECKED EMR

TRAFFIC CONTROL PLAN - S.R. 131
STA. 15+80 TO STA. 25+50

CLE-50-1.48
MILFORD PARKWAY

83
132

Plot time: Jan 21, 2013 - 2:26pm
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Control - Layout Tab: 83 Traffic Control (SR131)

ITEM 614 – MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

The Contractor shall be responsible for maintaining traffic signal installations within the project under the following conditions:

A. Existing signal installations which the plans require the Contractor to adjust, modify, add onto or remove, or which the Contractor actually adjusts, modifies, or otherwise disturbs, the Contractor shall be responsible for the entire installation (at an intersection) from the time his operations first disturb the installation until the installation has been subsequently removed or modified and the work is accepted.

B. New or reused signal installations or devices installed by the Contractor. The Contractor shall be responsible for maintenance of these from the time of installation until the work is accepted.

The Contractor shall correct all outages or malfunctions as quickly as possible. He shall provide the Clermont County Engineer's Office and the Engineer such addresses and phone numbers where his maintenance forces can be contacted. The Contractor shall provide one or more persons to receive all calls and dispatch the necessary maintenance forces to correct outages. Such a person or persons may be used to perform other duties as long as prompt attention is given to these calls and a person is readily available continuously 24 hours a day, 7 days a week. All lamp outages, cable outages, electrical failures, equipment malfunctions and misaligned signal heads shall be corrected to the satisfaction of the Engineer with the signal back in service within four hours after the Contractor has been notified of the outage.

The Contractor shall maintain complete records of malfunctions including:

1. Time of notification of malfunction.
2. Time of work crews arrival to correct the malfunction.
3. Actions taken to correct the malfunction, including a list of parts repaired or replaced.
4. A diagnosis of reason for the malfunction and probability of reoccurrence.
5. Time of completion of the repair and system restored to full service.

A copy of these records shall be provided to the Engineer within three (3) working days following completion of each repair.

In the event new signals are damaged prior to acceptance, all damaged equipment except poles and control equipment shall be replaced by the Contractor to the satisfaction of the Engineer with the signal back in service within 8 hours after the Contractor's notification of the outage. The Contractor shall arrange for full traffic control until the signal is back in operation.

If poles and/or control equipment are damaged and must be replaced, the Contractor shall make temporary repairs as necessary to bring the signal back into full operation within the allowed 8–hour period, and shall make permanent repairs or replacement as soon thereafter as possible.

None of the above shall be construed as collective or consecutive outage time periods at any one location. That is, where more than one outage occurs at any one location, then the allotted time limit shall be for the worst single outage.

Where the outages are a direct result of a vehicle accident, the response of the Contractor shall be as outlined above. The Contractor shall be responsible for the collection of any compensation for this work from those parties responsible for the damage.

Where the Contractor has failed to or cannot respond to an outage or signal equipment malfunction at locations within his responsibility, within periods as specified above, the Engineer may invoke the provisions of Section 105.15 and any subsequent billings to the local maintaining agency for police services and maintenance services by the local forces shall be deducted from monies due to or become due the Contractor in accordance with provisions of Section 105.15.

The Contractor shall provide the maintenance service entirely with his forces or he may choose to enter into a cooperative understanding with the local maintaining agency to provide the maintenance. The Contractor shall inform the Engineer, in writing, of the maintenance method selected.

All costs resulting from the above requirements shall be considered to be included in the lump sum price bid for Item 614, Maintaining Traffic.

GUARANTEE

The Contractor shall guarantee that the traffic control system installed as part of this contract shall operate satisfactorily for a period of 180 days following completion of the 10–day performance test. In the event of unsatisfactory operation, the Contractor shall correct the faulty installations, make repairs, and replace defective parts with new parts of equal or better quality. Equipment, material, and labor costs incurred in correcting an unsatisfactory operation shall be borne by the Contractor.

The guarantee shall cover the following items: controller, system and associated equipment, detector amplifiers, and interconnect cable.

Customary manufacturers guarantees for the foregoing items shall be turned over to the Clermont County Engineer's Office following acceptance of the equipment.

The cost of guaranteeing the traffic control system will be incidental to and included in the contract unit price of the various items making up the system.

ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR

In addition to the requirements of 614 and the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), a uniformed law enforcement officer, and official patrol car with working top mounted emergency flashing lights, shall be provided for controlling traffic for the following tasks:

During the entire advance preparation and closure sequence where complete blockage of traffic is required.

During a traffic signal installation.

Law enforcement officers (LEO's) should not be used where the OMUTCD intends that flaggers be used. The LEO's are considered to be employed by the Contractor and the Contractor shall be responsible for their actions. Although they are employed by the Contractor, the Project Engineer shall have control over their placement. The official patrol car shall be a public safety vehicle as required by the Ohio Revised Code.

Law enforcement officers with patrol car required by the traffic maintenance tasks above shall be paid for on a unit price hourly basis under Item 614 – Law Enforcement Officer with Patrol Car. The following estimated quantities have been carried to the General Summary.

614	Law Enforcement Officer with Patrol Car	100 Hours

The hours paid shall include minimum show–up time required by the law enforcement agency involved.

If the Contractor wishes to utilize LEO's for flagging and traffic control other than for that required in these plans, they may do so at their own expense. Payment for the excess above the contract requirements will be included under Item 614 Maintaining Traffic.

FLOODLIGHTING

Floodlighting of the work site for operations conducted during night time periods shall be accomplished so that the lights do not cause glare to the drivers on the roadway. To ensure the adequacy of the floodlight placement, the Contractor and the Engineer shall drive through the work site each night when the light is in place and operative prior to commencing any work. If glare is detected, the light placement and shielding shall be adjusted to the satisfaction of the Engineer before work proceeds.

Payment for all labor, equipment, and materials shall be included in the lump sum contract price for Maintaining Traffic.

GENERAL

Construction activities which produce noise that may adversely affect residential or commercial properties shall be minimized. Noise activities adjacent to residential properties shall not be conducted between the hours 9:00 PM and 7:00 AM.

UTILITIES – COORDINATION

Electric Service

Arrangements for electric service for the new signal installation shall be made by the Contractor by calling Duke Energy at the beginning of the project. Prior to beginning work, the Contractor is advised to call Duke at 381–2000 and ask for "Electric Service" to arrange the change of electric service. Power supplied shall be 120 volts.

Underground Utilities & Utility Ownership – See General Notes

ITEM 632 – COMBINATION SIGNAL SUPPORT, MISC. TYPE TC–81.21, SPECIAL, WITH MAST ARM, AS PER PLAN

In addition to the requirements of 632, the "As Per Plan" designation for the following items of work:

632 Combination Signal Support, Misc. Type TC–81.21, Special, with Mast Arm, As Per Plan

The signal supports shall include the following modifications:

A. All of the signal supports, as listed above that will be installed as part of this project, shall be painted Sherwin Williams #2724 Black Cherry, or approved equal, (over the galvanizing) by the manufacturer. The color of the supports, arms, and poles shall also be Sherwin Williams #2724 Black Cherry, or approved equal. The color shall match existing poles and be approved by the City of Milford and Clermont County.

B. The TC–81.21 signal supports shall use rigid signal head mounting hardware.

Additionally, the TC–81.21 signal supports shall conform to the following:

In addition to ODOT Item 625.04, 632.14, and 732.11, the Contractor shall furnish and install a tapered signal support with a tapered mast arm of variable length in accordance with ODOT standard construction drawing TC–81.21. The following requirements shall be satisfied as part of this item:

A. Loading shall be based on an isotach wind velocity of 90 mph times a 1.3 gust factor.

B. The pole and mast arm shall be fabricated from coil or plate according to ASTM A595 Grade A with a minimum yield strength of 55 ksi or ASTM A572 with a minimum yield strength of 65 ksi. Anchor bolts shall conform to the requirements of ASTM A687 and shall be in accordance with manufacturer recommendations.

C. In addition to Item 625.04, as per CMS 501.05B, a Professional Engineer with his/her signature and registration or PE seal shall prepare the calculations for the support design and detailed drawings. A second Professional Engineer with his/her signature and registration or PE seal shall check the calculations and drawings. The preparer and checker shall be two different Engineers.

D. The ultimate design of the signal support shall assume polycarbonate vehicular signal heads with backplates are installed on the mast arm.

E. The base plate of all TC–81.21 signal supports shall be compatible with an ODOT Design TC–21.20 foundation.

F. Mast arm design shall accommodate the maximum arm length and loading shown on the plans.

All other signal support items required by Item 632 shall be included as part of this item. All costs resulting from the above requirements shall be considered to be included in the price bid for each of the signal supports.

Payment shall be made at the contract unit bid price per each of the Item 632 – Combination Signal Support, Misc. Type TC–81.21, Special, with Mast Arm, As Per Plan, completed and in place.

ITEM 632 – SIGNAL SUPPORT FOUNDATION, AS PER PLAN

In addition to the requirements of CMS 632, as per CMS 501.05B, a Professional Engineer with his/her signature and registration or PE seal shall prepare the calculations for the support foundation design and detailed drawings. A second Professional Engineer with his/her signature and registration or PE seal shall check the calculations and drawings. The preparer and checker shall be two different Engineers.

Payment shall be made at the contract unit bid price per each of the Item 632 – Signal Support Foundation, As Per Plan, completed and in place.

ITEM 632 – VEHICULAR SIGNAL HEAD, (LED), YELLOW, –SECTION, 12" LENS, 1–WAY, WITH BACKPLATE, AS PER PLAN

In addition to the requirements of CMS 632 and 732, the following requirements shall also apply:

Glass lenses shall be used for any lenses not using an LED lamp.

Signal Sections:

1. Signal heads and visors shall be constructed of polycarbonate plastic and meet ITE specifications.

2. Pipe, spacers, and fittings constructed of polycarbonate plastic may be used in lieu of galvanized steel or aluminum.

3. Proper exterior colors shall be obtained by use of colored plastic material rather than painting.

Mounting Hardware:

1. All signal heads shall be rigidly mounted to the mast arm with the red lens located in front of the mast arm.

2. All upper signal support hardware and piping up to and including the wire inlet fitting shall be ferrous metal for signal displays of two or more sections.

3. The entrance fitting shall be of the tri-stud design with serrated rings in order to achieve positive locking.

The County will measure Item 632 – "Vehicular Signal Head (LED), Yellow, 3 Section, 12" Lens, 1-Way, with Backplate, As Per Plan" by the number of complete units furnished and installed, and will include all support and mounting hardware, disconnect hangers, closure caps, dimmers, and lamps as specified.

ITEM 632 – POWER SERVICE, AS PER PLAN

Disconnect switch enclosures furnished in accordance with CMS Item 632, Power Service, As Per Plan, shall include a padlock equal to Master No. 4BKA or Wilson Bohannon 660, with lock body of bronze or brass and keying shall be to the County master.

The Contractor will be responsible for requesting and scheduling any inspections the power company may require for the power service hook up. The Contractor shall be responsible to contact the power company for the electrical service connection. Under no circumstances shall the Contractor splice power cable into the power company's circuits. The voltage supplied shall be nominally 120 volts. The Contractor is responsible for obtaining any necessary permits and the paying of all fees. The Contractor shall pay all power charges until the signal is accepted by the Clermont County Engineer's Office.

SIGNAL SUPPORT PAINTING

The painting of signal supports shall be a five-part process consisting of a two-part surface preparation followed by a three-coat paint system.

The Contractor shall take all necessary precautions to comply with pollution laws, rules, or regulations of federal, state, or local agencies. The materials and work specified can be hazardous to the health of the applicator if the manufacturer's instructions are not followed. The Contractor shall follow the data sheet and the label on the paint containers. These precautions shall include the use of respirators and eye and skin protection as specified. The Contractor shall also insure that his operations and locations will not endanger or adversely affect the public in general. The Engineer shall be notified 24 hours prior to any cleaning or coating operations so that inspection services can be provided.

The proposed cleaning and coating operations shall be performed only when the ambient temperature is 50 degrees Fahrenheit (10 degrees Centigrade) or above. The two-part surface preparation system shall consist of a solvent cleaning followed by an abrasive blast cleaning.

Surface preparation shall be done under the conditions of temperature and humidity specified by the manufacturer of the epoxy-prime coat material to be applied immediately after the preparation operations.

Existing, weathered, galvanized steel shall be prepared for coating by a solvent cleaning conforming to Specification SP-1 published by the Steel Structures Painting Council (SSPC) followed by a commercial blast cleaning (SSPC-SP6).

New, unweathered galvanized steel shall be prepared for coating by a solvent cleaning (SSPC-SP1) followed by a brush-off blast cleaning (SSPC-SP7).

The prime coat shall be applied before the prepared surface degrades from the prescribed standards. In every case, the surface shall be coated with epoxy prime coat on the same day as the surface preparation.

The three-coat paint system shall consist of an epoxy prime coat, an epoxy intermediate coat and a urethane top coat, with each coat being a different color.

Paint shall not be applied when the relative humidity is greater than 85 percent. Paint shall not be applied when the steel surface temperature is less than 5 degrees Fahrenheit (3 degrees Centigrade) above the dew point. Paint shall not be applied to wet, damp, frosted, or ice-coated surfaces, nor shall it be applied during rain, fog, or mist.

Before each coating is applied, it shall be mixed with an approved power mechanical mixer to a uniform consistency which shall be maintained during its application. Thinning of paint is strictly prohibited. Paint not capable of being applied as specified shall not be used.

Each coat shall be applied in a workmanlike manner as a continuous film of uniform thickness which is free of holidays, pores, runs, or sags. All coats shall be applied by brush. The coating shall penetrate all joints and connections.

The prime coat shall consist of the application of one coat of an epoxy primer. The total dry film thickness of this coat shall be between 1.5 to 2.0 mils (38 to 50 micrometers). If more than one pass is necessary to obtain the required thickness, the cost shall be borne by the Contractor. The color of this coat shall be noticeably different from the base material and other proposed coats.

The epoxy prime coat shall in all cases be applied over surfaces that were prepared earlier that same day.

The intermediate coat shall consist of the application of one coat of epoxy. The total dry film thickness of this coat shall not be less than 6 mils (150 micrometers). If more than one pass is necessary to obtain the required thickness, that cost shall be borne by the Contractor. The color of this coat shall be light green.

At least twenty-four hours, but no more than three days, shall elapse after the application of the epoxy prime coat and before the application of the epoxy intermediate coat. Surfaces shall in all cases be clean before the intermediate coat is applied.

The top coat shall consist of the application of one coat of urethane to support sections. The total dry film thickness of this coat shall not be less than 1.5 mils (38 micrometers). If more than one pass is necessary to obtain the required thickness, that cost shall be borne by the Contractor. The color of this coat shall be dark green.

At least twenty-four hours, but no more than three days, shall elapse after the application of the epoxy intermediate coat and before the application of the urethane top coat. Surfaces shall in all cases be clean before the top coat is applied.

Painted items shall be carefully handled and stored to prevent any scraping, marring, or other damage to the painted surfaces. The coating materials used shall be those listed from one of the following manufacturers or equal as approved by the Engineer:

Company	Prime Coat	Intermediate Coat	Top Coat
Ameron 210 North Berry Street Brea, CA 92621	Amercoat 71	Amerlock 400	Amercoat 450 HS
The Glidden Company 16651 Sprague Road Strongsville, OH 44136	Glid-Guard Corrosion Resistant HS	Glid-Guard Corrosion Resistant HS	Glid-Thane II Polyurethane 6200 Series
Porter Paint Company 400 South Thirteenth St. Louisville, KY 40201	Porter Paints MCR 4300	Porter Paints MCR 4300	Porter Paints Hythane
Poly-Carb, Inc. 33095 Bainbridge Road Cleveland, OH 44139	Mark-60 Ultrapox	Mark-60 Ultrapox	Mark-73 Ultrakote
Sherwin Williams Co. 761 Beta Drive Mayfield Village, OH 44143	Tile-Clad II Hi-Build Primer	Hi-Solids Catalyzed Epoxy	Hi-Build Aliphatic Polyurethane Enamel

All three coats of the system shall be manufactured by the same company to insure compatibility among coats.

Prior to use, the Contractor shall submit to the Clermont County Engineer's Office copies of the manufacturer's certified test data showing that the material complies with the requirements of this specification. The test data shall include the brand name of the paint, name of the manufacturer, number of the lot tested, and date of manufacture. The County reserves the right to sample and test delivered lots for compliance.

Payment for signal support painting shall be included in the price of Item 632, Combination Signal Support, Misc. Type TC-81.21, Special, with Mast Arm, As per plan.

UNDERDRAINS FOR PULL BOXES

Reference is made to the standard construction drawings for details of draining pull boxes. Underdrains for Pull Boxes shall be used as directed by the Engineer and shall be provided where the length required for a satisfactory outlet does not exceed approximately 20 ft. Payment shall be incidental to Pull Box Installation.

ITEM 632 – PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, TYPE D2, AS PER PLAN

In addition to the requirements of CMS 632 and 732, the following requirements shall also apply:

1. Signal heads and visors shall be constructed of polycarbonate plastic and meet ITE specifications.

2. Pipe, spacers, and fittings constructed of polycarbonate plastic may be used in lieu of galvanized steel or aluminum.

3. Proper exterior colors shall be obtained by use of colored plastic material rather than painting.

The County will measure Item 632 – "Pedestrian Signal Head, LED, Countdown, Type D2, As Per Plan" by the number of complete units furnished and installed, and will include all support and mounting hardware, closure caps, and lamps as specified.

GROUNDING AND BONDING

The requirements of the Construction and Material Specifications (CMS) and the TC series of Standard Construction Drawings are modified as follows:

1. All metallic parts containing electrical conductors shall be permanently joined to form an effective ground fault current path back to the grounded conductor in the power service disconnect switch.

   A. Provide an equipment grounding conductor in metallic conduits (725.04) in addition to the conductors specified and bond the conduit to this grounding conductor.

   B. When an equipment grounding conductor is required in plastic conduit (725.05), the installation shall include a separate equipment grounding conductor in addition to the conductors specified.

   C. Metallic conduit carrying the loop wires from in the pavement to the pull box splice location will only be bonded at the pull box end, and will not contain an equipment grounding conductor.

   D. If multiple conduit runs begin and end at the same points, only one equipment grounding conductor is required.

   E. If an equipment grounding conductor is needed in conduit between signalized intersections for underground interconnect cable, the grounding system for each signalized intersection will be separated about midway between the intersections.

   F. The messenger wire at signalized intersections will be used as the conductive path from corner to corner if conduit is not provided under the roadway. When conduit connects the corners of an intersection, an equipment grounding conductor shall be used in the conduit.

2. Conduits.

   A. The 725.04 conduit shall have grounding bushings installed at all termination points. The bushing material shall be compatible with galvanized steel conduit and the grounding lug material shall be compatible for use with copper wire. Threaded or compression type bushings may be used.

   B. The 725.05 conduit shall have the inside and outside diameters of the conduit deburred at all termination points.

   C. Both ends of metallic conduit shall be bonded to the equipment grounding conductor.

   D. Metallic conduit may be bonded to metallic boxes through the use of conduit fittings UL approved for this type of connection, with the box bonded to the equipment grounding conductor.

3. Wire for Grounding and Bonding.

   A. Use insulated, copper wire for the equipment grounding conductor. Bonding jumpers in boxes and enclosures may be bare or insulated copper wire. Wire sizes shall be as follows:

      I. Use 4 AWG between the power service and supports, poles, pedestals, controller, or flasher cabinets.

      II. Use a minimum 8 AWG between loop detector pull boxes and the first conduit that requires a larger size as specified in 3.A.I. above.

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TRAFFIC SIGNAL GENERAL NOTES

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MILFORD PARKWAY

III. Use a minimum 8 AWG between the "Prepare To Stop When Flashing" installation (including support) and the first conduit that requires a larger size as specified in 3.A.I. above.

IV. The insulation shall be green or green with yellow stripe(s). For 4 AWG or larger, insulation may also be black with green tape/labels installed at all access points.

B. In a highway lighting system, the equipment grounding conductor shall be the same wire size as the duct cable or distribution cable circuit conductors, with the minimum conductor size of 4 AWG. Bonding jumpers will be minimum size 4 AWG.

4. Ground Rod.

A. A 3/4 inch schedule 40 PVC conduit will be used in foundations and concrete walls for the grounding conductor (ground wire) raceway to the ground rod. Should metallic conduit be used, both ends of the conduit shall be bonded to the grounding conductor.

B. The typical grounding conductor (ground wire) shall be 4 AWG insulated, copper.

5. The green conductor in signal cables (conductor #4) shall not be used to supply power to a signal indication. It will be connected to the signal body as an equipment ground in aluminum heads and it will be unused in plastic heads. Unused conductors shall be grounded in the cabinet. Typical use of conductors is as follows:

Cond. No.	Color	Vehicle Signal	Pedestrian Signal
1	Black	Green Ball	#1 Walk
2	White	AC Neutral	AC Neutral
3	Red	Red Ball	#1 DW/FDW
4	Green	Equipment Ground	Equipment Ground
5	Orange	Yellow Ball	#2 DW/FDW
6	Blue	Green Arrow	#2 Walk
7	White/Black Stripe	Yellow Arrow	Not Used

6. Power Service and Disconnect Switch.

A. At the power service location, the grounding conductor (ground wire) from the disconnect switch neutral (AC−) bar to the ground rod shall be a continuous, unspliced conductor. If spliced, it shall be an exothermic weld butt splice.

B. The service neutral (AC−) shall only be connected to ground at the primary power service disconnect switch.

I. NEMA Controller Cabinets: If a power service disconnect switch is located before the controller cabinet, the neutral (AC−) and the grounding bars in the controller cabinet shall not be connected together as shown in NEMA TS−2, Figure 5−4.

II. If secondary disconnect switches are connected after the primary disconnect switch, the neutral (AC−) shall only be grounded at the primary switch. Equipment grounding conductors shall be brought to the primary switch, but shall be grounded at both secondary and primary switches.

7. Payment − All materials and work required to complete the effective ground fault current path system are incidental to the conductors installed by contract.

INITIAL SIGNAL OPERATION

The Contractor shall have a representative of the Engineer's Traffic Department on site at the time the signal is placed into operation. The Contractor shall contact Mr. Doug Royer at (513) 732−9885 two (2) working days prior to placing the signal(s) into operation. In the event of unsatisfactory operation of the signal, the Contractor shall correct faulty installations, make necessary repairs, and/or replace defective parts with new parts of equal or better quality. The Contractor shall bear the costs of any and all equipment, material, and labor that are necessary to correct an unsatisfactory operation.

TEN DAY TEST REQUIREMENTS

In addition to the requirements of CMS 632.28, a ten (10) day test period shall begin after the signal installation is one hundred (100) percent complete, including the establishing of data communication, if applicable. No partial tests will be conducted. Clermont County will monitor the tests and will have sole discretion to accept the signal installation. If less than one hundred (100) percent completion is detected during the test period, the ten (10) day test period shall be completely restarted after repairs/modifications/corrections have been completed.

TEST REQUIREMENTS

The Contractor shall have an electronic shop and shall test all equipment prior to installation. The Engineer shall be notified 24 hours in advance of the tests to have a representative available for observation. Testing of the conflict monitor, coordination module, and TBC/coordination panel shall be done by the Contractor before installing these items of equipment in the intersection control cabinets. Software and firmware shall be loaded on the controller and checked for correct operation of timing plans, phasing schemes, pre−empts, and interconnected operation. Note that the signal timing for the subject intersection will be provided to the Contractor at the time of construction by the Engineer.

Testing of components by the Contractor for proper operation shall include the following minimum requirements:

1. Terminal screws tightened.
2. Correct terminal jumpers.
3. Fan and thermostat operation.
4. Door closer switch operation.
5. Conflict monitor test.
6. Force hardwire conflicts for all phase combinations to verify stop timing and conflict indication.
7. GFI receptacle test.
8. Police panel operation.
9. Maintenance panel operation.
10. Detectors.
11. Test for phase operation, sequence, and interval length on min. recall, max. recall, and no call.
12. Shelves, mounting.
13. All panels, mounting.
14. ATSI conflict monitor test to document the conflict monitor operation. The test results are to be logged and furnished to the Engineer.
15. Proper flash sequence.
16. Auxiliary equipment operation.
17. Cabinet lamp.
18. Signal output are to be tested while connected to a min. 60 watt load on each signal indication.
19. Pre−emption.
20. Controller and cabinet diagnostic tests using furnished software and equipment.

Repairs/corrections, if required, shall be made by the Contractor and recorded before installation. The Engineer shall also be notified of any problems. The controller is to operate without the appearance of problems on minimum recall of all minor phases for 48 hours with full load on each output. (Note that testing also requires operation with detectors in a no call and call to maximum configuration).

A written report stating the cabinet intersection number, date, and time of test, signed off by the technician who performed the tests, shall be submitted to the Engineer upon successful completion of the above tests. The successful testing shall be demonstrated to the Engineer prior to installation if requested.

Clermont County Engineer's Office may test components at any time.

The controller and all related components shall be in perfect working order and ready for installation/operation at the specified intersection as a result of the work described in this item.

ITEM 633 − CABINET WITHOUT CONTROLLER, AS PER PLAN

Cabinet, Model 336:

Model 336 cabinets shall meet the specifications "Traffic Signal Control Equipment Specifications," California Department of Transportation, January 1989, or latest edition. The manufacturer of 336 cabinets shall currently be on the Caltrans "Qualified Products list" (QPL) for 332 cabinets.

The Caltrans Specification for model 336 cabinets shall be modified so that the cabinets provided for this item are the stretch type that provides an additional 10 inches (250 mm) cabinet height.

Cabinets shall be constructed of aluminum and shall be supplied unpainted. Anodic coating is not required. Cabinets shall be fully equipped with conflict monitor, flashers, AC isolators, DC isolators, and flash transfer relays. The appropriate number of switch packs and Model 222 loop detector sensor units shall be supplied to operate the intersection as shown in the plans. All components shall meet Caltrans Specifications and shall be on the QPL as applicable.

For pole mounted cabinets, mounting brackets and bottom plates shall be supplied and installed. Unless otherwise shown in the plans, the mounting bracket and door hinge shall be on the same side. For base mounted cabinets, galvanized anchor bolts with nuts and washers shall be supplied. Anchor bolts shall be 3/4" (19 mm) diam. by 16" (406 mm) minimum length with an "L" bend on the unthreaded end.

Cabinets shall be fitted with a PDA−2 power distribution assembly. Cabinets shall be equipped with an EDCA SHA12−10, or approved equal, surge protector in lieu of the Caltrans specified surge protection. The SHA12−10 unit shall be installed in an enclosure within the cabinet.

The front of the input and output files shall be labeled using a writable tape. In the case of the output file, the tape shall clearly designate the purpose of the corresponding switch pack. An example of switch pack labeling is "Phase 2" or "Phase 2 Ped." In the case of the input file, the tape shall clearly designate the purpose of the corresponding detector unit. Every used channel of the 222 detector shall be labeled. An example of detector unit labeling is "Phase 2 C" or "Phase 2 EC" or "Phase 2 EXT" where:
C is a call input only during red.
EC is extend and call during red, yellow, and green.
EXT is an extension only during green.

Cabinet wiring shall comply with the following:

1. Output files shall be "hardwired." No printed circuit wiring shall be used in the output file except for the red monitor board.

2. Cabinets shall have red monitor cabling installed. A program board shall be installed to enable/disable red monitoring. Cabinets shall be shipped with the red monitor jumpers set in the 'enable' position.

3. Pedestrian yellow loadswitch outputs shall not be connected to the conflict monitor card−edge connector.

4. Field wiring for loop detector lead−in cables and pedestrian detectors shall be terminated on a lower loop input panel. EDCO model SRA−6LCA, SRA−6LCB, or SRA−6LC surrestors shall be provided on the lower input panel for protection against incoming electrical surges and lightning. Field wiring terminals on the lower input panel shall be labeled by a permanent screening process to identify the input file (I or J), the input file slot number (1−14), and the channel terminal (D, E, J, or K). An example is "I4−K" standing for input file "I;" slot 4; channel terminal "K." All terminals on these detector panels shall be easily accessible without removing equipment from the mounting rack. Tagging of wires shall not be considered acceptable to satisfying terminal labeling.

5. For cabinets that are to be included in a hardwire (twisted pair) interconnected signal system, incoming interconnect cable shall be terminated on an appropriate terminal base that is mounted on the side of the cabinet. Protection from incoming electrical surges/lightning on interconnect pairs shall be provided by installation of EDCO PC642 surge arrestors on the terminal base. The protected outputs from the terminal base shall then be routed through to the controller.

6. On the output file, pin number 11 of each switchpack shall be wired to AC−, so that the output indicators on dual indicator switchpacks will display properly. Switchpacks shall have both input and output indicators for each switch.

The following auxiliary items shall be supplied:

1. Cabinets shall have two (2) fluorescent lights (front and rear) with door switches.

2. A rack mounted detector test panel shall be furnished with separate test switches for all possible vehicle and pedestrian phases. The switches shall be three (3) position "on/off/momentary on" switches.

3. Each cabinet shall be provided with a police panel which will include a pushbutton with cord and three (3) switches labeled auto/flash, signals on/off, and auto/manual. The pushbutton cord shall not be wired through an AC isolator, but shall be connected to the controller harness wiring. When placed in the manual position, manual control enable shall be applied to the controller and "recall" shall be applied to all phases. Activation of the pushbutton shall "advance" the controller except that manual advancement will be prohibited in the minimum green, yellow, and red intervals.

4. An aluminum shelf with integral storage compartment shall be provided in the rack below the controller. The storage compartment will have telescoping drawing guides for full extension. The compartment top shall have a non-slip plastic laminate attached.

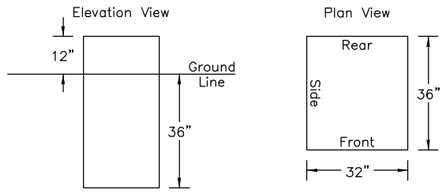
Two (2) sets of cabinet wiring diagrams, service manuals, programming, and maintenance instructions shall be furnished for each cabinet and equipment item. The cabinet wiring diagrams shall be supplied in a clear plastic pouch fastened to the inside of the controller cabinet.

All connections must be hand tightened before powering up by the contractor.

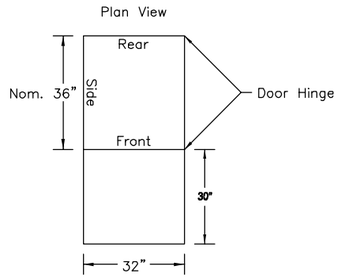
Cabinet Riser:

An aluminum riser shall be provided with each base mounted cabinet which will raise the cabinet approximately 8" (203 mm) above the concrete foundation. The bottom of the riser shall bolt to the standard cabinet foundation anchor bolts and the top of the riser shall bolt to the bottom of the cabinet. All necessary bolts, washers, and nuts shall be supplied.

ITEM 633 – CABINET FOUNDATION (WHEN GROUND MOUNTING SPECIFIED)



ITEM 633 – CONTROLLER WORK PAD



ITEM 633 – ADVANCE/DILEMMA ZONE DETECTION SYSTEM

This item of work shall consist of furnishing and installing an Advance/Dilemma Zone Detection unit capable of intersection advance detection control utilizing above ground Digital Wave Radar techniques. The unit shall be non-intrusive and shall detect vehicles from 50 feet up to 600 feet from the unit. The unit shall provide up to 8 detection zones simultaneously for intersection control. One unit shall be provided per approach, where specified in the plans, covering multiple lanes where advance detection is required. The detection unit shall include the following list of features and capabilities:

- The unit shall provide accurate presence-detection of both stopped and moving vehicles. The unit shall be mounted in a forward-fire, looking at either approaching or departing traffic and shall only detect vehicles in one direction of travel.

- The unit shall be tested to meet NEMA TS2 environmental standards and maintain accurate performance in the following operations:
  - Rain up to 4 inches per hour.
  - Freezing rain.
  - Snow.
  - Wind.
  - Dust.
  - Fog.
  - Changing temperature.
  - Changing lighting.

- The radar design for each unit shall conform to the following:
  - Operating frequency: 10.5-10.55 GHz (X-band).
  - Matrix of a minimum of 16 radars.
  - No manual tuning circuitry.
  - Transmits modulated signals generated digitally.
  - No temperature-based compensation necessary.
  - Bandwidth stable within 1%.
  - Printed circuit board antennas.
  - Antenna vertical 6dB beam width (two-way pattern): 80 Degrees.
  - Antenna horizontal 6 dB beam width (two-way pattern): 10.5 Degrees.
    Antenna two-way sidelobes: -40 dB.
    Transmit bandwidth: 45 MHz.
    Un-windowed resolution: 11 feet.
    RF channels: 4.

- The unit shall include a simple setup routine that shall automatically configure and calibrate the unit for proper operation during installation. The unit shall also be capable of being programmed and updated from a laptop computer or other portable programming device, such as a Pocket PC, via a local or remote ethernet connection, using vendor supplied software. The software shall support TCP/IP connectivity, unit configuration back-up and restore, and virtual sensor connections. The graphical user interface shall operate on a Windows platform.

- The unit shall have one full-duplex RS2-232 and one half-duplex RS-485 communication ports and shall have the ability to upgrade firmware over any communication port.

- The unit shall be mounted directly to a pole or mast arm, as recommended by the manufacturer. Cable(s) shall be provided as required and recommended by the manufacturer.

- Surge protection devices, as recommended by the manufacturer, shall be included both at the pole where the unit is located to protect the unit and in the traffic cabinet to protect the cabinet electronics.

- Power shall be provided from the traffic cabinet. The unit shall consume less than 10 watts and operate from a DC input between 9 VDC and 28 VDC. Complete and automatic recovery from a power failure shall be within 15 seconds after resumption of normal power.

- All required input cards shall be included in the traffic cabinet and shall be compatible with CalTrans, NEMA TS1 and NEMA TS2 detector racks. The cards shall provide true presence detector calls or contact closure to the traffic controller.

- The manufacturer's representative shall be onsite during installation and testing and shall provide onsite training on the setup, operation, and maintenance of the unit.

- The unit shall come with a 2-year manufacturer supplied warranty.

Payment for Item 633 Advance/Dilemma Zone Detection System shall be made at the contract unit price for each unit, complete and in place including all required cabinet hardware, mounting brackets, cables, conduit, connections tested and accepted, and any other necessary hardware to establish a fully functional detection system.

FRONT VIEW OF TOP INPUT FILE I

	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6	Slot 7	Slot 8	Slot 9	Slot 10	Slot 11	Slot 12	Slot 13	Slot 14
Channel #1	1EC	2EC	2EC	4EC	5EC	6EC	7EC	8EC	PED. INHIB	EV-A	EV-B	2PPB	6PPB	FLSH
Field Term.	I1-D,E	I2-D,E	I3-D,E	I4-D,E	I5-D,E	I6-D,E	I7-D,E	I8-D,E	I9-D,E	I10-D,E	I11-D,E	I12-D,E	I13-D,E	I14-D,E
Channel #2	2C	2EC	4C	4EC	6C	6EC	8C	8EC	RR	EV-C	EV-D	4PPB	8PPB	STOP TIME
Field Term.	I1-J,K	I2-J,K	I3-J,K	I4-J,K	I5-J,K	I6-J,K	I7-J,K	I8-J,K	I9-J,K	I10-J,K	I11-J,K	I12-J,K	I13-J,K	I14-J,K

FRONT VIEW OF BOTTOM INPUT FILE J

INPUT FILE TERMINAL ASSIGNMENT

Term.	Pin	Function
1	SP	Spare
2	F	Channel 1 Output
3	W	Channel 2 Output
4	D	Channel 1 Input
5	E	Channel 1 Input
6	J	Channel 2 Input
7	K	Channel 2 Input
8	L	Equipment Ground

() – Jumpered to Upper Channel
C – Input Only During Red
EC – Extend and Call (Red, Yellow, Green)
EXT – Input Only During Green

Termination of field wiring shall conform to the above chart. The Contractor shall duplicate the input assignment chart and include it in the cabinet documentation. The chart shall clearly indicate which input file slots and channel terminals are used in the cabinet. A red pen shall be used to circle slot numbers and channel terminals that are used.

ITEM 816 – VIDEO DETECTION SYSTEM, AS PER PLAN

This item shall consist of furnishing and installing video detection equipment complete and ready for service.

The video detection system shall comply with ODOT Supplemental Specification 816 and 907.

The video detection system shall consist of power supply, hard-wired video cameras, all necessary video and power cabling with end connectors, mounting brackets, lightning protection as recommended by the manufacturer, video detection processors/extension modules capable of processing the number of camera and phase combination video sources shown on the plans. Provide sufficient number of cameras to process vehicle presence, passage, and system detection zones as shown on the plans.

Perform functional tests and ten 10 performance test according to CMS 632.28.

Run coaxial cable serving the cameras unspliced between the camera and controller cabinet, with ten (10) feet of slack provided in the controller cabinet.

Furnish two (2) days of training in the operation, setup, and maintenance of the video detection system installed as part of the contract. Furnish all handouts, manuals, and product information. For the training, use the same models of equipment furnished for the project. The maintaining agency shall furnish the facilities in which the training will take place. Furnish all media and test equipment needed to present the training.

Training instructor(s) shall be manufacturer-certified, experienced in the skill of training others and have conducted a minimum of three two day trainings on video detection systems.

Coordinate video detection training with the Engineer a minimum of thirty days in advance of the proposed date of training.

In addition to the requirements of SS 816, the following requirements apply:

1. It shall be the responsibility of the supplier/Contractor to provide all necessary video processors and extension modules to perform the required detection using the standard 170 detector I/A. Reprogramming detector assignments will not be acceptable.

2. Cameras shall be set up for vehicle detection, traffic counts for each individual lane of approaching traffic and all other possible camera functions.

3. Vehicle count information shall be stored in the traffic controller.

4. The Contractor shall notify the County 48 hours prior to the setup of the cameras by the manufacturer.

The County will measure Item 816 "Video Detection System, As Per Plan" by the number of each intersection shown on the plans, in place, complete and ready for service and will include all materials, testing, labor, and software.

GUARANTEE

The Contractor shall provide a 60-month warranty or the manufacturer's standard warranty, whichever is greater, for the following video detection equipment:

1. Camera Heads
2. Combined Camera Head/Processor Units
3. Processors
4. Rack Mount Cards
5. Hubs

Ensure that the warranty period begins on the date of shipment to the project. Ensure that the system has a permanent label or stamp indicating the date of shipment.

The warranty shall include technical support from the supplier, at no cost, via telephone within four (4) hours of the time a call is made, from factory-certified personnel or factory-certified installers.

The warranty shall include updates to video detection processor and application software from the manufacturer, at no cost.

The cost of guaranteeing the video detection system will be incidental to and included in the contract unit price of the Item 816 – Video Detection System, as per plan.

SIGNAL EQUIPMENT TO BE REUSED

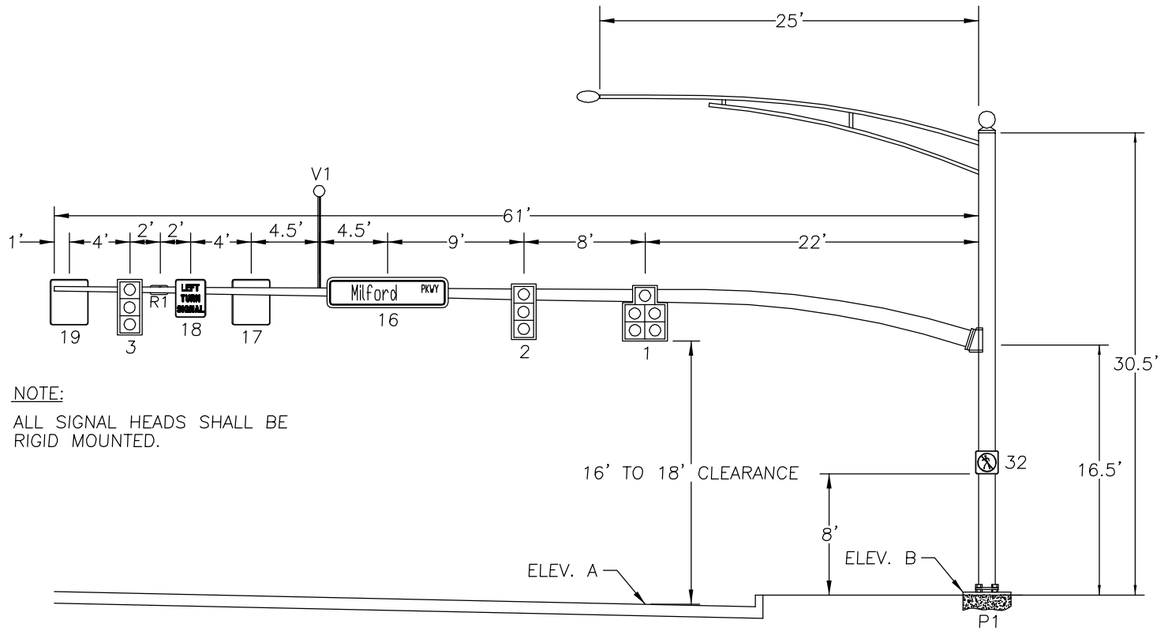
The following signal equipment is to be reused:

- Uninterruptible Power Supply
- Controller Unit, Type T2/A2
- Broadband Router
- Cat5 Patch Cord
- 10/100 Ethernet Switch

The following estimated quantities have been included in the General Summary (1 Each):

633 Controller Item, Misc.: Reuse Uninterruptible Power Supply
633 Controller Item, Misc.: Reuse Controller Unit, Type T2/A2
633 Controller Item, Misc.: Reuse Broadband Router
633 Controller Item, Misc.: Reuse Cat5 Patch Cord
633 Controller Item, Misc.: Reuse 10/100 Ethernet Switch

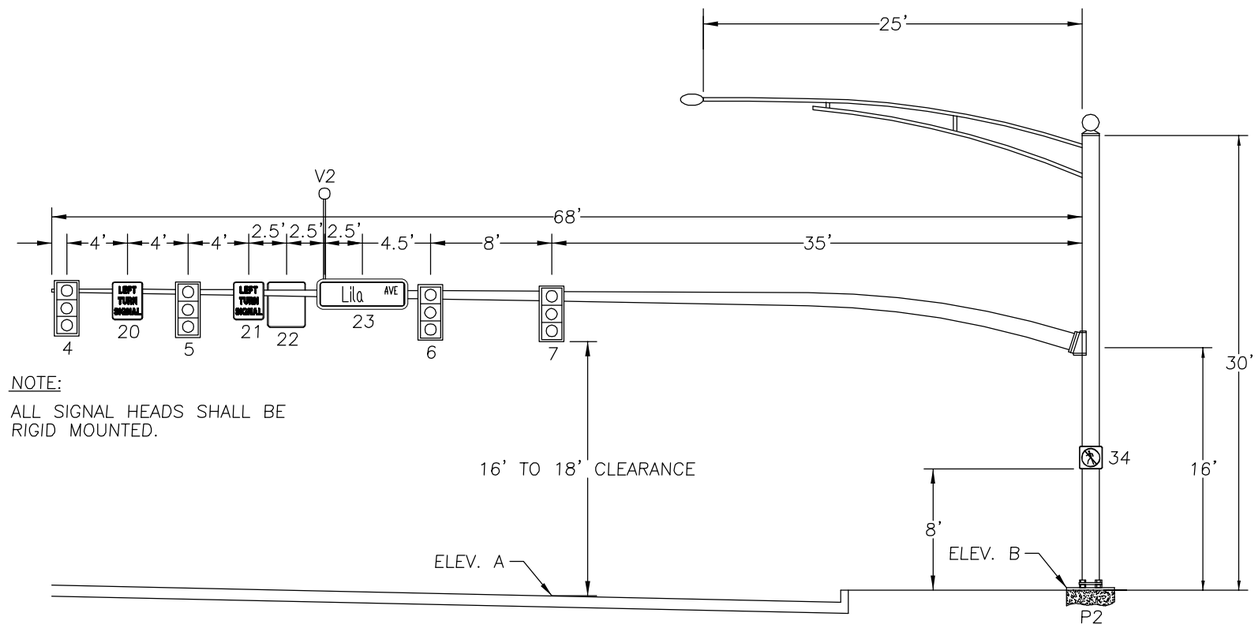
Item 633, Controller Item, Misc.: Reuse Controller Unit, Type T2/A2 shall include a temporary controller unit so that continuous traffic signal operation is provided during construction and installation of new signal equipment and existing signal equipment to be reused.



NOTE:

ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.

WEST ELEVATION DETAIL – SUPPORT P1 (61' MAST ARM)



NOTE:

ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.

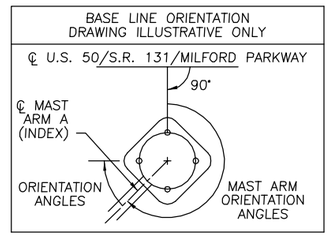
NORTH ELEVATION DETAIL – SUPPORT P2 (68' MAST ARM)

TRAFFIC SIGNAL SUPPORTS

SUPPORT NO.	SIGNAL SUPPORT											ELEVATION	
	DESIGN NO.	POLE HEIGHT	L	L1	L2	L3	L4	L5	L6	L7	L8	A	B
P1	SPECIAL	30.5'	61'	22'	30'	39'	48'	52'	56'	60'	–	533.87	533.68
P2	SPECIAL	30'	68'	35'	43'	47.5'	52.5'	55'	59'	63'	67'	530.77	529.72
P3	SPECIAL	30'	47'	16'	24'	29.25'	35'	35'	38'	43'	46'	528.58	529.59
P4	SPECIAL	30'	50'	26'	31.5'	37'	43'	49'	–	–	–	531.91	535.09
P5	PEDESTAL	8'	–	–	–	–	–	–	–	–	–	–	530.75

DESIGN OF P1–P4 IS TO BE PROVIDED BY POLE MANUFACTURER.

SUPPORT NO.	MAST ARM A ANGLE	ORIENTATION ANGLE FROM MAST ARM A							
		MAST ARM B	PEDESTRIAN SIGNAL	PEDESTRIAN BUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE 12" FROM TOP
P1	3°	–	–	–	180°	180°	0°	180°	180°
P2	0°	–	–	–	–	–	0°	180°	180°
P3	357°	–	–	–	–	–	0°	180°	180°
P4	0°	–	–	–	–	–	0°	180°	180°
P5	–	–	270°	90°	–	–	–	–	–
P6	–	–	90°	270°	–	–	–	–	–



NOTES:

1. ALL ANGLES MEASURED IN CLOCKWISE DIRECTION.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF THE SUPPORT HAS TWO ARMS.

TRAFFIC SIGNAL DETECTOR CHART

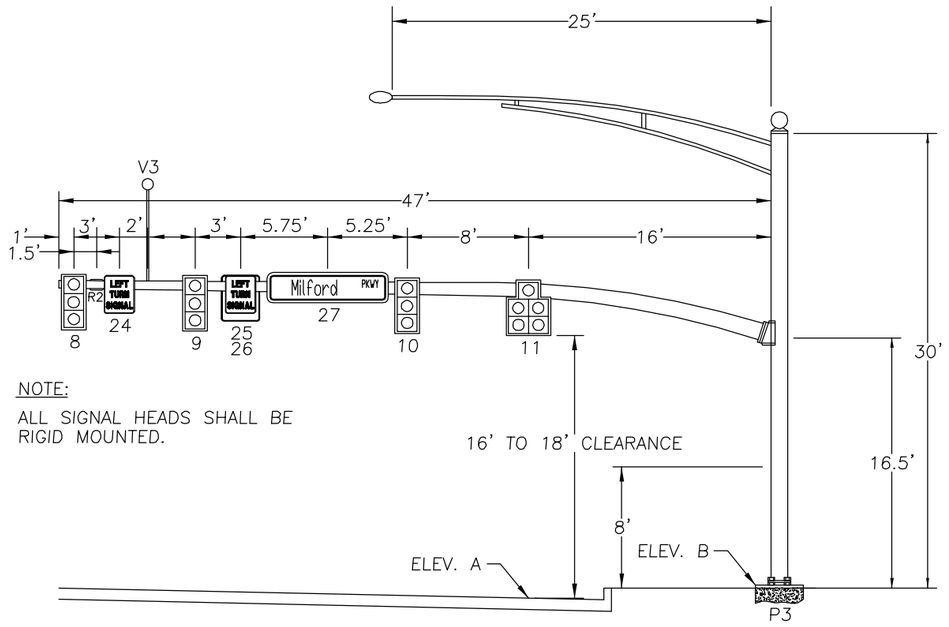
LOOP DESIGNATION	LOOP CONFIGURATION	SIZE	PULSE OR PRESENCE	DELAY (SEC.)	EXTENSION (SEC.)	OVERRIDE PHASE	CONNECT TO DETECTOR UNIT (UNIT–CHANNEL)	ASSOCIATED CONTROLLER PHASE	TERMINAL NO.
D1	RECTANGULAR	6'X30'	PRESENCE	3	–		1	5	
D2	RECTANGULAR	6'X30'	PRESENCE	3	–		2	5	
D3	RECTANGULAR	6'X30'	PRESENCE	10	–		3	4	
D4	RECTANGULAR	6'X30'	PRESENCE	3	–		4	4	
D5	RECTANGULAR	6'X30'	PRESENCE	3	–		5	7	
D6	RECTANGULAR	6'X30'	PRESENCE	3	–		6	1	
D7	RECTANGULAR	6'X30'	PRESENCE	3	–		7	3	
D8	RECTANGULAR	6'X30'	PRESENCE	3	–		8	3	
D9	RECTANGULAR	6'X30'	PRESENCE	3	–		9	8	
D10	RECTANGULAR	6'X30'	PRESENCE	3	–		10	8	
D11	RECTANGULAR	6'X30'	PULSE	–	3		11	2	
D12	RECTANGULAR	6'X30'	PULSE	–	3		12	6	
D13	RECTANGULAR	6'X30'	RADAR	–	3		13	2	
D14	RECTANGULAR	6'X30'	RADAR	–	3		14	6	
D15	RECTANGULAR	6'X30'	RADAR	–	3		15	6	

CALCULATED KMD
CHECKED EMR

TRAFFIC SIGNAL DETAILS

CLE-50-1.48
MILFORD PARKWAY

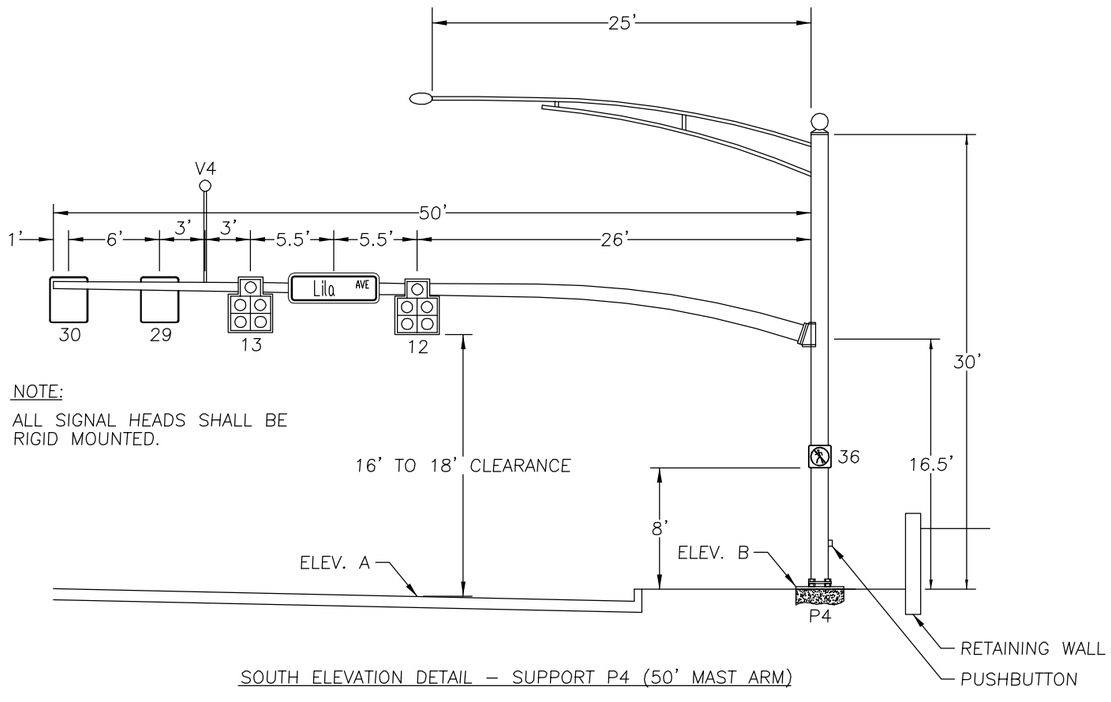
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Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Signal – Layout Tab: 89 Signal Details



NOTE:

ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.

EAST ELEVATION DETAIL – SUPPORT P3 (47' MAST ARM)



NOTE:

ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.

SOUTH ELEVATION DETAIL – SUPPORT P4 (50' MAST ARM)

TRAFFIC SIGNAL CONTROLLER TIMING CHART

U.S. 50 @ S.R. 131/MILFORD PARKWAY								
START UP START IN: O Y/R FLASH OR O ALL RED TIME FOR FLASH OR ALL RED: ____ FIRST PHASE(S): * ____ & * ____ COLOR DISPLAYED O GREEN; O YELLOW			DUAL ENTRY O REST IN RED: RING 1 O RING 2 O					
			OVERLAP PHASES	A		B	C	D
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.					
INTERSECTION MOVEMENT			1	2	3	4	5	6	7	8
MINIMUM GREEN (INITIAL) *(SEC./ACTUATION)										
ADDED INITIAL (SEC.)										
MAXIMUM INITIAL (SEC.)										
PASSAGE TIME (PRESET GAP) (SEC.)										
TIME BEFORE REDUCTION *(SEC.)										
MINIMUM GAP *(SEC.)										
TIME TO REDUCE *(SEC.)										
MAXIMUM GREEN I (SEC.)										
MAXIMUM GREEN II (SEC.)										
YELLOW CHANGE (SEC.)										
ALL RED CLEARANCE (SEC.)										
WALK (SEC.)										
PEDESTRIAN CLEARANCE (SEC.)										
RECALL	MAXIMUM	(ON/OFF)								
	MINIMUM	(ON/OFF)								
	PEDESTRIAN	(ON/OFF)								
MEMORY										
CALL TO NON ACTUATED		NO. 1								
		NO. 2								

* VOLUME DENSITY CONTROLS

COORDINATION TIMING CHART

	TIMING PROGRAM (CYCLE NO.)						
	1	2	3	4	5	6	7
DESCRIPTION							
TIME PERIOD IN EFFECT							
CYCLE LENGTH (SEC.)							
OFFSET (RESET) NO. 1 (SEC.)							
OFFSET NO. 2 (SEC.)							
OFFSET NO. 3 (SEC.)							
FORCE-OFF							
FORCE-OFF							
FORCE-OFF							
LENGTH OF HOLD-RELEASE OR YIELD (PERMISSIVE) (SEC.)							

NOTE: SIGNAL TIMING FOR THE INTERSECTION OF U.S. 50/S.R. 131/MILFORD PARKWAY WILL BE PROVIDED TO THE CONTRACTOR AT THE TIME OF CONSTRUCTION BY THE ENGINEER.

FIELD WIRING HOOK-UP CHART

SIGNAL HEAD #	INDICIATION	FIELD TERMINAL	FLASH	SIGNAL HEAD #	INDICIATION	FIELD TERMINAL	FLASH
1 (WBRT)	R	06 R	R	10 (EB)	R	02 R	R
	Y	06 Y			Y	02 Y	
	G	06 G			G	02 G	
	~~Y~~	07 Y		11 (EBRT)	R	02 R	R
	~~G~~	07 G			Y	02 Y	
2 (WB)	R	06 R	R		G	02 G	
	Y	06 Y			~~Y~~	03 Y	
	G	06 G			~~G~~	03 G	
3 (WBLT)	R	01 R	R	12 (SBRT)	R	04 R	R
	~~Y~~	01 Y			Y	04 Y	
	~~G~~	01 G			G	04 G	
4,5 (NBLT)	R	03 R	R		~~Y~~	01 Y	
	~~Y~~	03 Y			~~G~~	01 G	
	~~G~~	03 G		13 (SBLT)	R	04 R	R
6,7 (NB)	R	08 R	R		Y	04 Y	
	Y	08 Y			G	04 G	
	G	08 G			~~Y~~	07 Y	
8,9 (EBLT)	R	05 R	R		~~G~~	07 G	
	~~Y~~	05 Y		14,15 (SOUTH)	W	02 G	OUT
	~~G~~	05 G			D	02 R	

CALCULATED KMD CHECKED EMR

TRAFFIC SIGNAL DETAILS

CLE-50-1.48
MILFORD PARKWAY

90
132

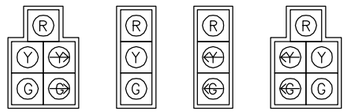
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Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Signal – Layout Tab: 90 Signal Details

LEGEND

1–13	VEHICULAR SIGNAL HEAD
14–15	PEDESTRIAN SIGNAL HEAD
16–30	OVERHEAD SIGN
31–36	POLE MOUNTED SIGN
P1–P4	SIGNAL POLE
P5	PEDESTRIAN SIGNAL PEDESTAL
PPB1–PPB2	PEDESTRIAN PUSHBUTTON
PB1–PB14	18" PULLBOX
	CONTROLLER CABINET AND WORKPAD
V1–V4	VIDEO DETECTION CAMERA
R1–R2	RADAR DETECTOR
D1–D12	LOOP DETECTION ZONE
D13–D15	RADAR DETECTION ZONE
2"C–3"C	2" AND 3" CONDUIT

VEHICULAR SIGNAL HEADS

POLYCARBONATE 12" LENS WITH BACKPLATES



1 11–12 | 2 6–7 10 | 3–5 8–9 | 13

PEDESTRIAN SIGNAL HEADS

WITH COUNTDOWN



14–15

OVERHEAD SIGNS



D–3 6'x24" 16&27



D–3 5'x24" 23&28



R3–5 30"x36"

17,19,22 26,29&30



R10–10 24"x30"

18,20,21 24&25

POLE MOUNTED SIGNS



R10–3e 9"x15"

MOUNT ABOVE PPB1&PPB2



R9–3a 18"x18"

31–36

PHASE DIAGRAM

LEGEND

9C	9 CONDUCTOR, NO. 14 AWG SIGNAL CABLE
7C	7 CONDUCTOR, NO. 14 AWG SIGNAL CABLE
V	VIDEO DETECTION CABLE
R	RADAR DETECTION CABLE

WIRING DIAGRAM

HORIZONTAL SCALE IN FEET

0 10 20 40

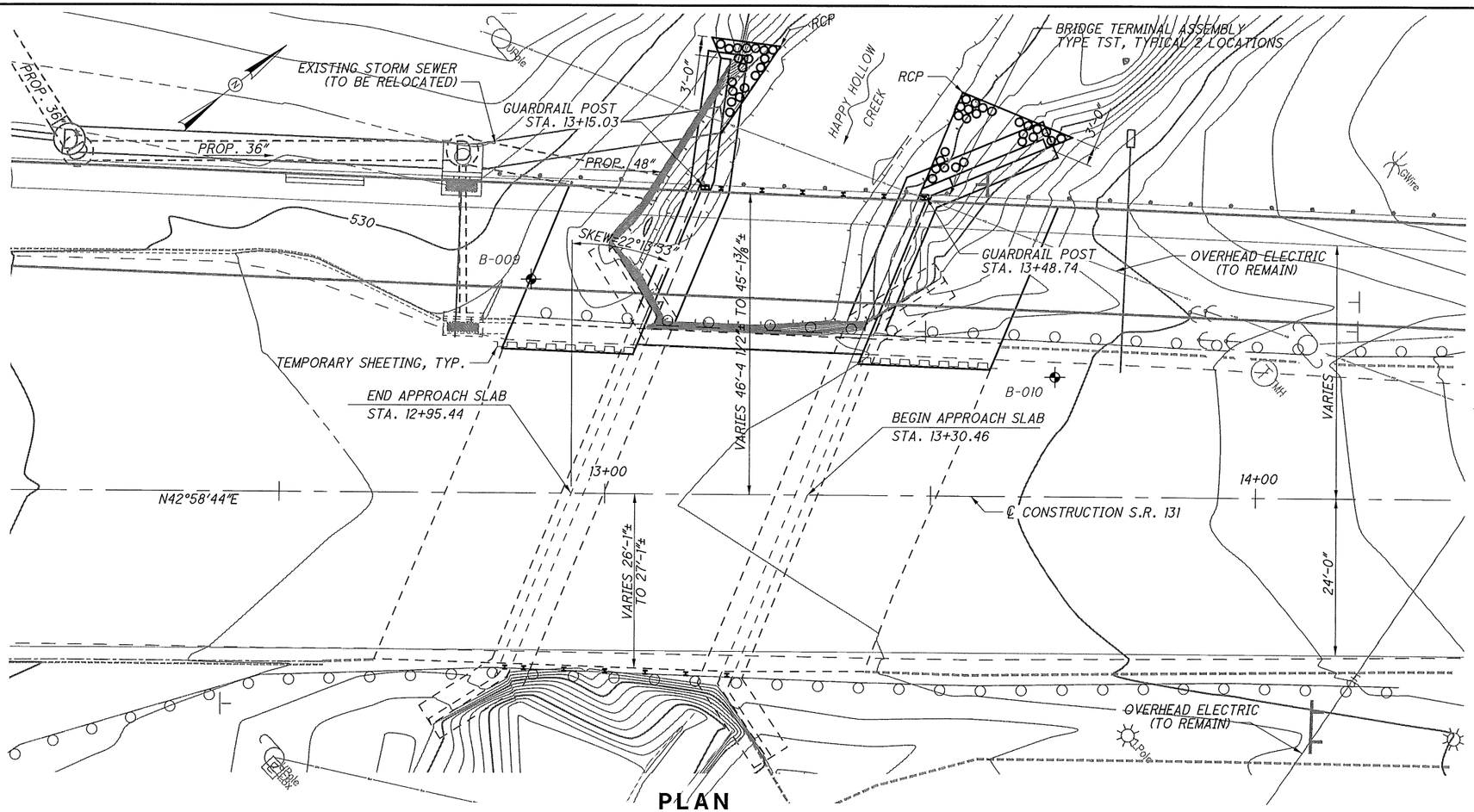
CALCULATED KMD CHECKED EMR

TRAFFIC SIGNAL PLAN - U.S. 50/S.R. 131/MILFORD PARKWAY

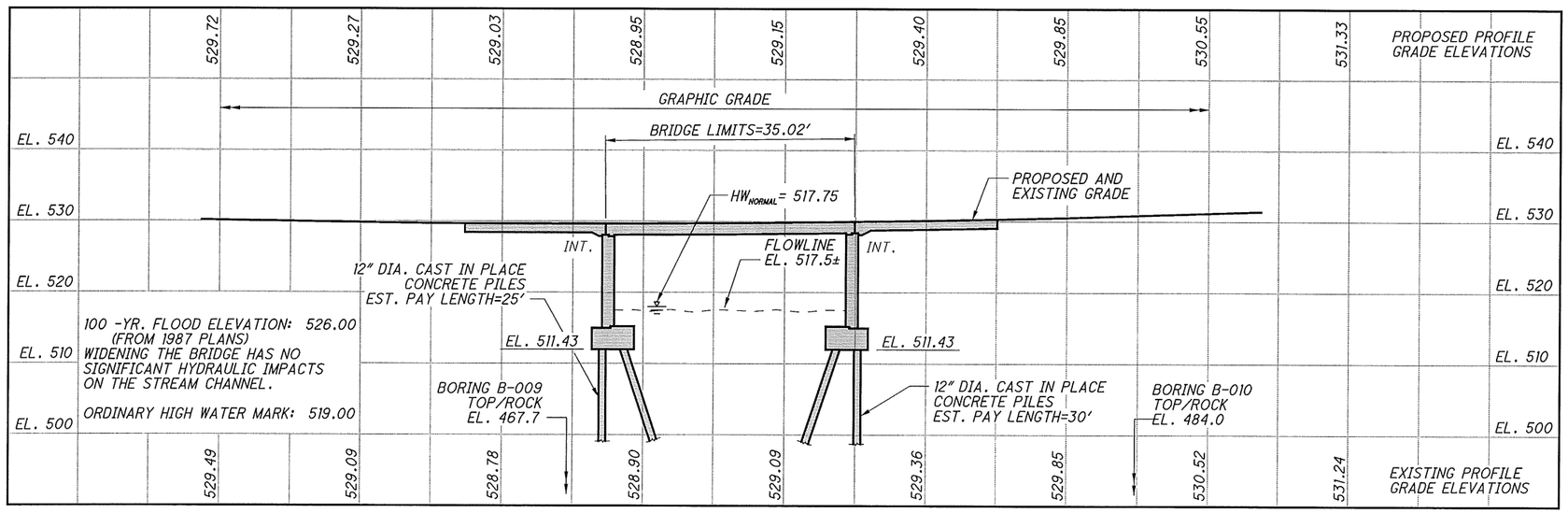
CLE-50-1.48
MILFORD PARKWAY

91
132

Plot time: Jan 22, 2013 - 7:28am
Drawing name: J:\2009\09C145-001\TR\DWG\09C145-001 Traffic Signal - Layout Tab: 91 Signal Plan



PLAN



SECTION THRU WIDENING

BENCHMARK DATA

BM #1 STA. 11+90.35	,	ELEV. 541.52	,	OFFSET 135.01,	LT.
BM #2 STA.	,	ELEV.	,	OFFSET	,
BM #3 STA.	,	ELEV.	,	OFFSET	,
BM #4 STA.	,	ELEV.	,	OFFSET	,

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET ⊖

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

DESIGN TRAFFIC:
2013 ADT = 16,300 2013 ADTT = 652
2033 ADT = 19,060 2033 ADTT = 762
DIRECTIONAL DISTRIBUTION = 71%

LEGEND

⊕ BORING LOCATION

RCP - ROCK CHANNEL PROTECTION WITH FILTER, TYPE A 3'-0" THICK

EXISTING STRUCTURE

TYPE: SIMPLE SPAN CONCRETE SLAB BRIDGE WITH REINFORCED CONCRETE SUBSTRUCTURE ON PILES
WEARING SURFACE: CONCRETE
SPAN: 32'-0"± (F/F ABUTMENTS)
ROADWAY: 52'-0"± (F/F GUARDRAIL)
LOADING: HS 20-44
SKEW: 22° 13' 33" ± LF
APPROACH SLABS: AS-1-81 (20'-0" LONG)
ALIGNMENT: TANGENT
CROWN: .0156 FT/FT
STRUCTURAL FILE NUMBER: 1302515
DATE BUILT: 1989
DISPOSITION: TO BE WIDENED

PROPOSED STRUCTURE

TYPE: WIDENED SIMPLE SPAN CONCRETE SLAB BRIDGE WITH EXTENDED REINFORCED CONCRETE SUBSTRUCTURE ON PILES
WEARING SURFACE: 1" MONOLITHIC CONCRETE
SPANS: 32'-0"± (F/F ABUTMENTS)
ROADWAY: VARIES 72'-5 1/2" TO 75'-1 3/4" (F/F GUARDRAIL)
LOADING: HS20 AND ALTERNATE MILITARY
SKEW: 22°13' 33" LF
APPROACH SLABS: 20'-0"± LONG (AS-1-81)
ALIGNMENT: TANGENT
CROWN: .0156 FT/FT
COORDINATES: LATITUDE 39° 10.4'
LONGITUDE 84°16.4'

DESIGN AGENCY
Stantec Consulting Services Inc.
1348 Summit Road
Cincinnati, Ohio 45237
(513) 761-7700
Stantec

DESIGNED	DRAWN	REVIEWED	DATE
EDA	ALH	JRC	5/2012
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

CLERMONT COUNTY
STA 12+95.44
STA 13+30.46

SITE PLAN
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

1 / 12

92
132

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PROPOSED WORK:

1. REMOVE EXISTING SLAB AND ABUTMENTS TO LIMITS SHOWN.
2. CONSTRUCT SLAB AND ABUTMENT WIDENING.
3. RETROFIT EXISTING GUARDRAIL ON RIGHT SIDE OF BRIDGE.
4. SEAL CONCRETE SURFACES AS SHOWN.

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWING(S):

AS-1-81	REVISED	07-19-02
DBR-3-11	DATED	07-15-11
DS-1-92	REVISED	07-18-03
TST-1-99	REVISED	04-18-08

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002 AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING

LIVE LOAD: HS20 AND THE ALTERNATE MILITARY LOADING.

FUTURE WEARING SURFACE (FWS) OF 30 POUNDS PER SQUARE FOOT.

DESIGN DATA

CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615 OR A996, GRADE 60, MINIMUM YIELD STRENGTH 60,000 PSI

DECK PROTECTION METHOD FOR WIDENED PORTION

EPOXY COATED REINFORCING STEEL

2-1/2" CONCRETE COVER

STEEL DRIP STRIP

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT, EXCEPT FOR WEARING COURSE REMOVAL. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

EXISTING PILING BELOW THE PROPOSED FORWARD ABUTMENT FOOTING SHALL BE REMOVED TO A MINIMUM OF 1'-0" BELOW THE PROPOSED BOTTOM OF FOOTING ELEVATION.

THE CONTRACTOR MUST REVIEW THE STRUCTURE WHEN PREPARING HIS BID. THE CONTRACTOR WILL REVIEW THE CONDITION OF THE STRUCTURE TO DETERMINE WHAT DEBRIS WILL FALL FROM THE STRUCTURE DURING REMOVAL. THE CONTRACTOR WILL DETERMINE THE CORRESPONDING COST TO CLEAN-UP ANY AND ALL DEBRIS WHICH FALLS FROM THE STRUCTURE DURING ANY REMOVAL OPERATION. THE COST TO CLEAR AND CLEAN-UP ALL DEBRIS DURING REMOVAL SHALL BE INCLUDED WITH THE BID FOR THIS ITEM OF WORK. NO ADDITIONAL COST WILL BE RECOGNIZED TO CLEAN DEBRIS RESULTING FROM THE STRUCTURE REMOVAL OPERATION.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL: REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

MEASUREMENT & PAYMENT: THE DEPARTMENT WILL MEASURE THE QUANTITY OF REMOVALS ON A LUMP SUM BASIS. THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES OF REMOVALS AT THE CONTRACT PRICE FOR ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

ITEM 202, APPROACH SLAB REMOVED, AS PER PLAN

THE EXISTING APPROACH SLABS SHALL BE REMOVED TO THE LIMITS SHOWN IN THE PLANS. THE TRANSVERSE BARS IN THE APPROACH SLAB AND THE ANCHOR BARS FROM THE ABUTMENTS SHALL REMAIN AND CARE SHALL BE TAKEN NOT TO DAMAGE THE BARS.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

THE ULTIMATE BEARING VALUE IS 95 TONS PER PILE FOR THE ABUTMENT PILES.

ABUTMENT PILES:
16 PILES 30 FEET LONG, ORDER LENGTH
14 PILES 35 FEET LONG, ORDER LENGTH
1 DYNAMIC LOAD TESTING ITEMS

BATTERED PILES

THE BLOW COUNT FOR BATTERED PILES SHALL BE THE BLOW COUNT DETERMINED FOR VERTICAL PILES OF THE SAME ULTIMATE BEARING VALUE DIVIDED AN EFFICIENCY FACTOR (D). COMPUTE THE EFFICIENCY FACTOR (D) AS FOLLOWS:

$$D = \frac{1-UG}{\sqrt{1+G^2}}$$

U = COEFFICIENT OF FRICTION, WHICH IS ESTIMATED AT 0.05 FOR DOUBLE-ACTING AIR OPERATED OR DIESEL HAMMERS; 0.1 FOR SINGLE-ACTING AIR OPERATED OR DIESEL HAMMERS; AND 0.2 FOR DROP HAMMERS.

G = RATE OF BATTER (1/3, 1/4, ETC.)

EXISTING STRUCTURE VERIFICATION

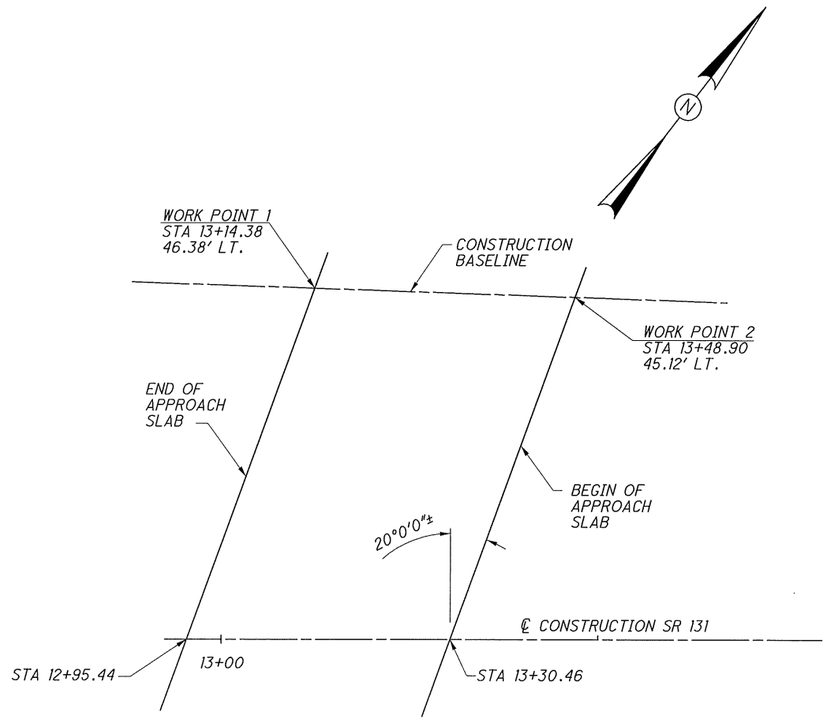
DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.



LAYOUT

DESIGN AGENCY
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DESIGNED	DRAWN	REVIEWED	DATE
MRS	MRS	JRC	5/2012
CHECKED	REVISED	STRUCTURE FILE NUMBER	
EDA		1302515	

GENERAL NOTES & LAYOUT
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

2 / 12

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ESTIMATED QUANTITIES								
ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER.	GEN.	SHEET #
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN			LUMP	2/12
202	22901	18	SQ YD	APPROACH SLAB REMOVED, AS PER PLAN			18	2/12
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING			LUMP	
503	21300	LUMP		UNCLASSIFIED EXCAVATION	LUMP			
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION			LUMP	
507	00500	720	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN	720			
507	00550	720	FT	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED	720			
509	10000	17,360	POUND	EPOXY COATED REINFORCING STEEL	8692	8668		
509	20001	100	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN			100	2/12
510	10000	16	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	16			
511	33400	49	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE		47		
511	44100	71	CU YD	CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING	70			
511	46500	60	CU YD	CLASS C CONCRETE, FOOTING	60			
512	10100	52	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	44	8		
512	10300	8	SQ YD	SEALING CONCRETE BRIDGE DECKS WITH HMWM RESIN		8		
512	33000	77	SQ YD	TYPE 2 WATERPROOFING	77			
516	13600	6	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	6			
517	70000	39	FT	RAILING (TWIN STEEL TUBE)		39		
517	72710	38	FT	RAILING (DEEP BEAM BRIDGE RETROFIT RAILING)		38		
SPECIAL	51822300	42	FT	STEEL DRIP STRIP		42		
523	20000	1	EACH	DYNAMIC LOAD TESTING	1			
526	15000	42	SQ YD	REINFORCED CONCRETE APPROACH SLABS (T=13")			42	
601	32000	22	CU YD	ROCK CHANNEL PROTECTION, TYPE A WITH FILTER			22	

NOTE:
THE ESTIMATED QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY

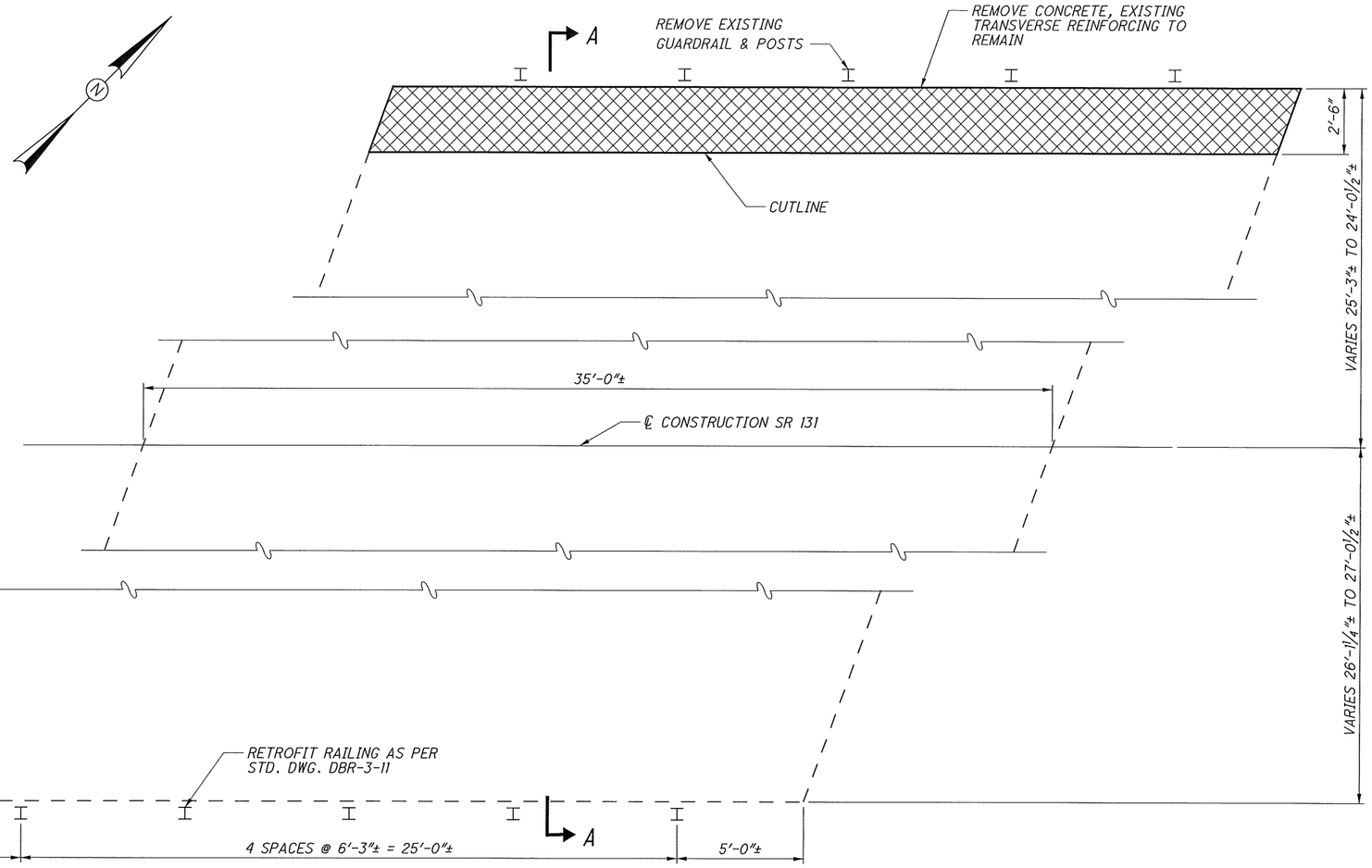
DESIGN AGENCY
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DESIGNED MRS | DRAWN MRS | REVIEWED JRC | DATE 5/2012
CHECKED EDA | REVISED | STRUCTURE FILE NUMBER 1302515

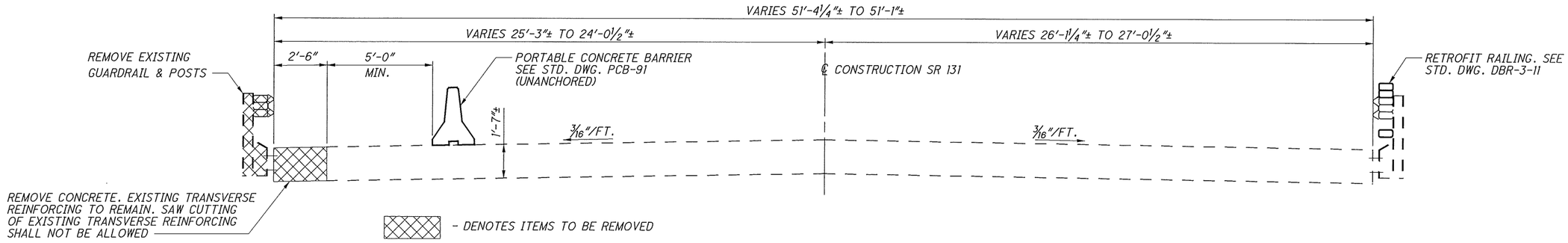
ESTIMATED QUANTITIES
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

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EXISTING SLAB PLAN



SECTION A-A

DESIGN AGENCY
Stantec Consulting Services Inc.
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Cincinnati, Ohio 45237
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Stantec

DESIGNED	DRAWN	REVIEWED	DATE
EDA	ALH	JRC	5/2012
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

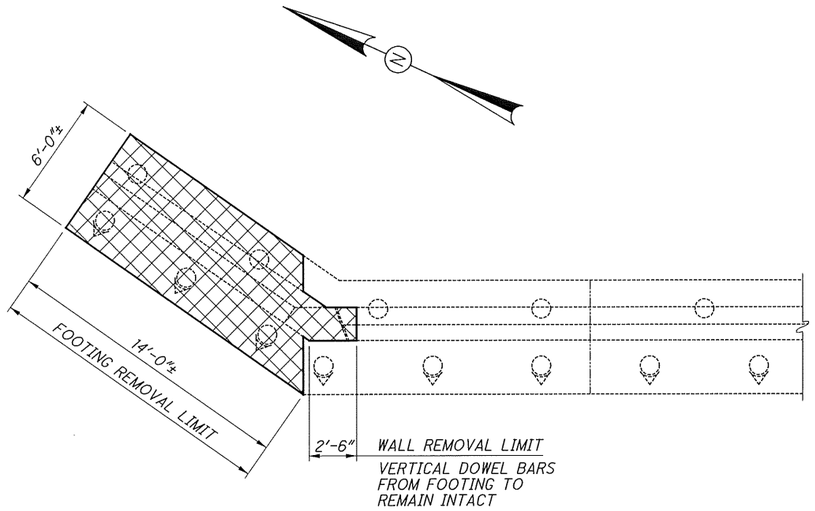
SLAB REMOVAL DETAILS
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

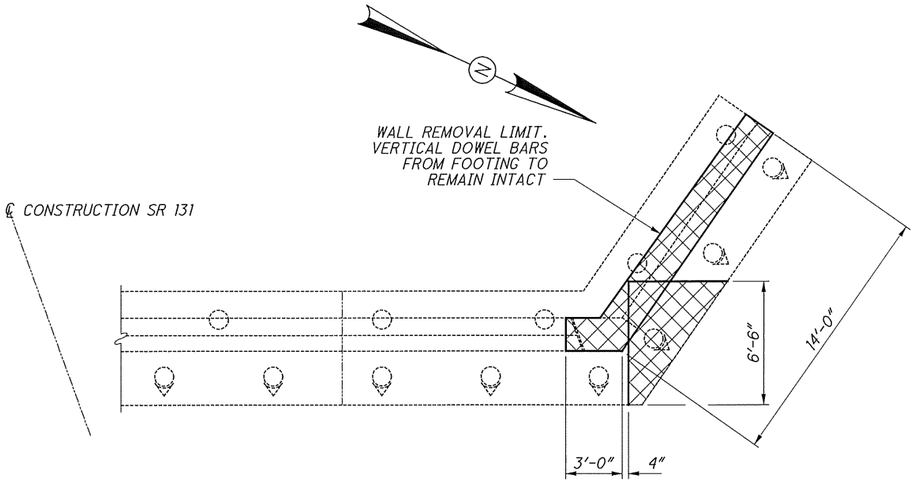
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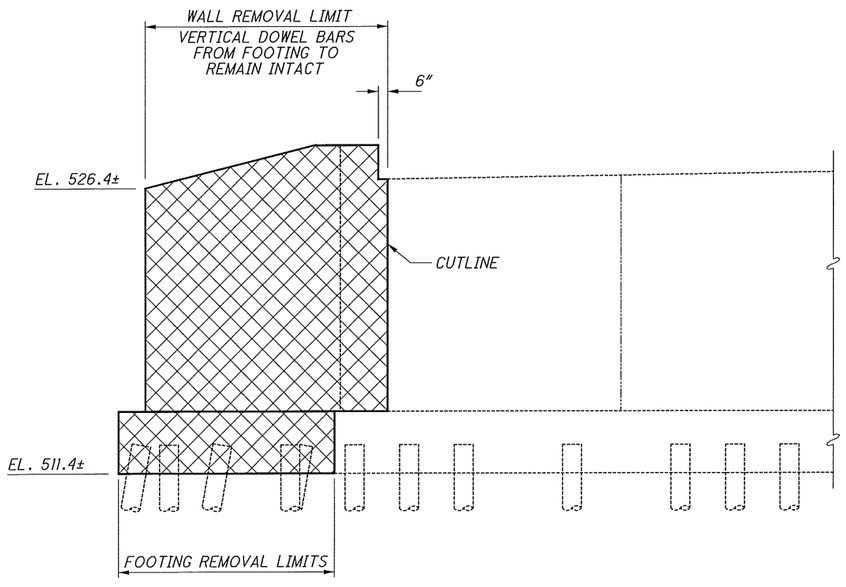
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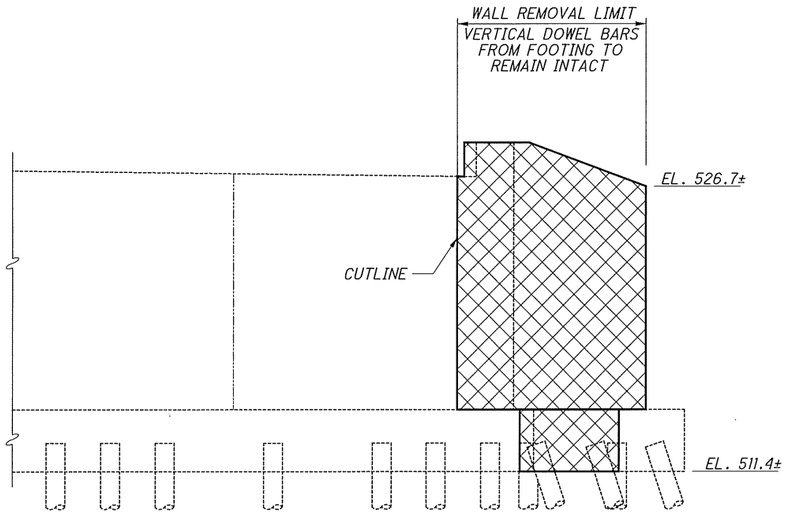
PLAN
FORWARD ABUTMENT



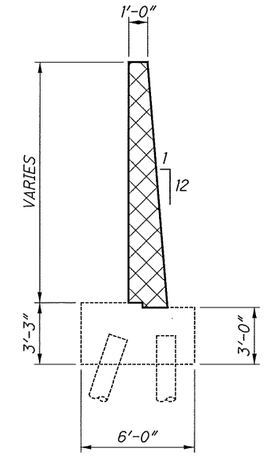
PLAN
REAR ABUTMENT



ELEVATION
FORWARD ABUTMENT



ELEVATION
REAR ABUTMENT



WINGWALL SECTION

DENOTES PORTION OF STRUCTURE TO BE REMOVED. UNLESS NOTED OTHERWISE, REINFORCING STEEL AND CONCRETE TO BE REMOVED WITHIN THESE AREAS.

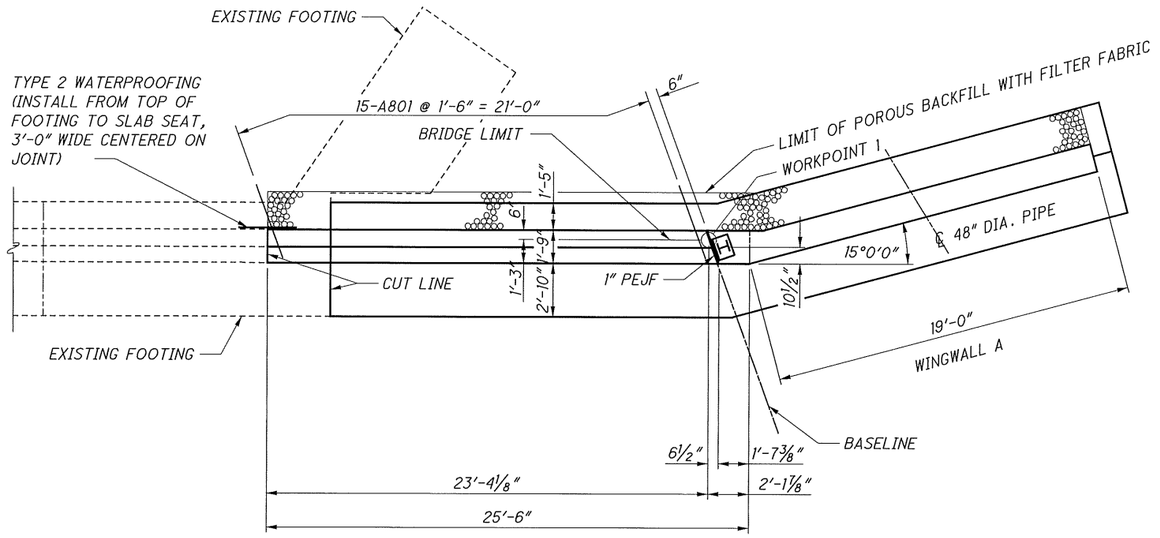
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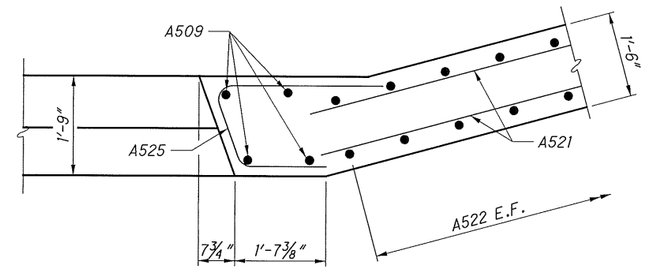
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MRS		1302515	

ABUTMENT REMOVAL DETAILS
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

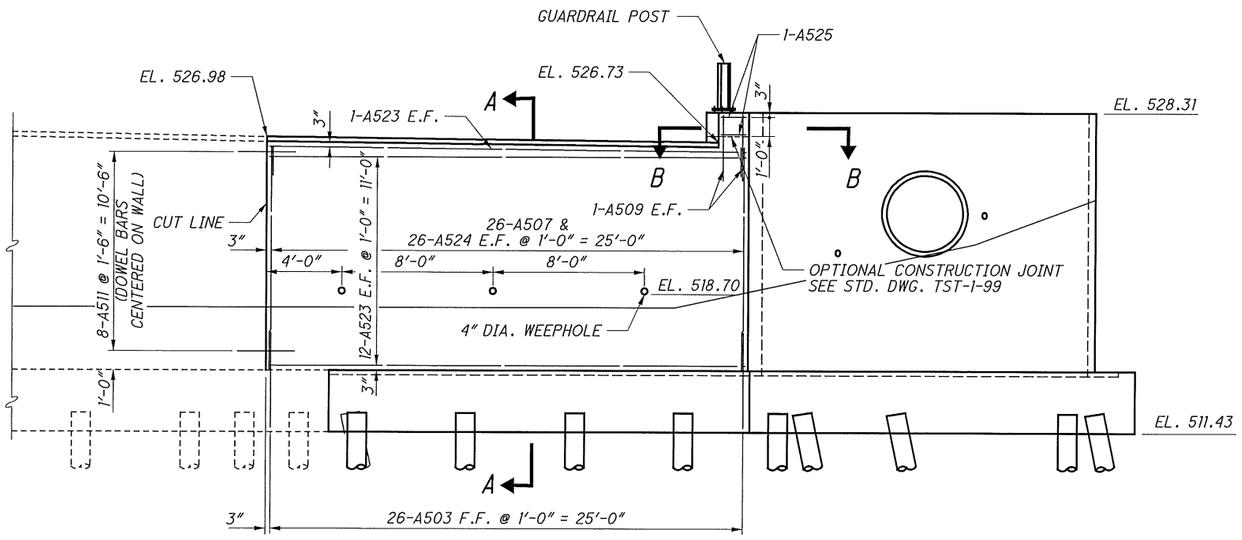
CLE-50-1.48
MILFORD PARKWAY



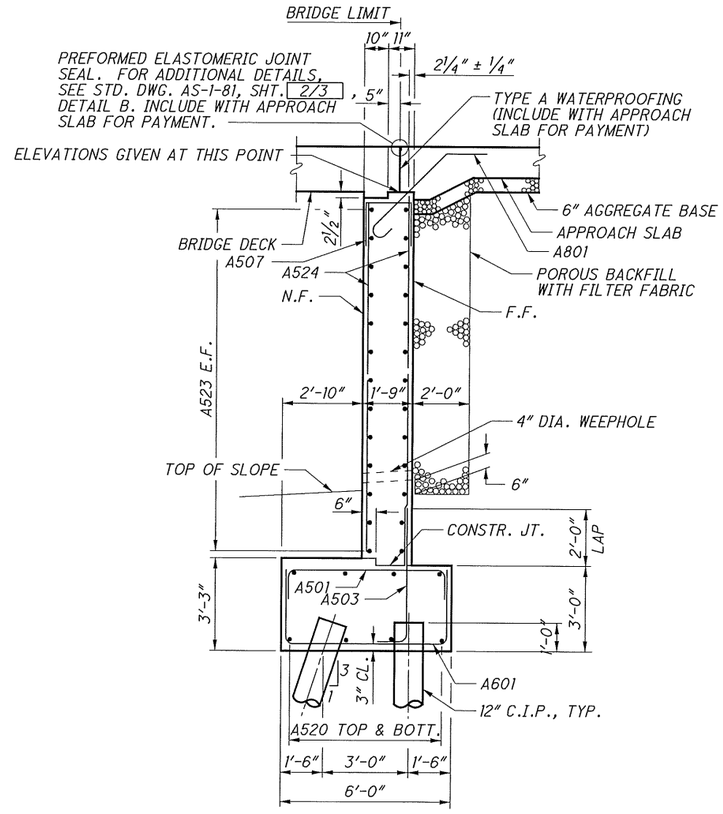
PLAN



SECTION B-B



ELEVATION



SECTION A-A

NOTES:

1. FOR PILE LAYOUT AND FOOTING PLAN, SEE SHEET 7/12 .
2. POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS. PLACE TWO CUBIC FEET OF BAGGED NO. 3 AGGREGATE AT EACH WEEPHOLE. THE DEPARTMENT WILL INCLUDE BAGGED AGGREGATE WITH POROUS BACKFILL FOR PAYMENT.
3. FOR WINGWALL DETAILS, SEE SHEET 7/12 .
4. PEJF = PREFORMED EXPANSION JOINT FILLER
   N.F. = NEAR FACE
   F.F. = FAR FACE
   E.F. = EACH FACE

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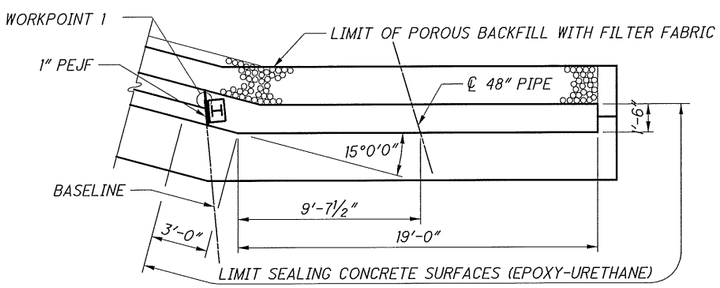
REAR ABUTMENT
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

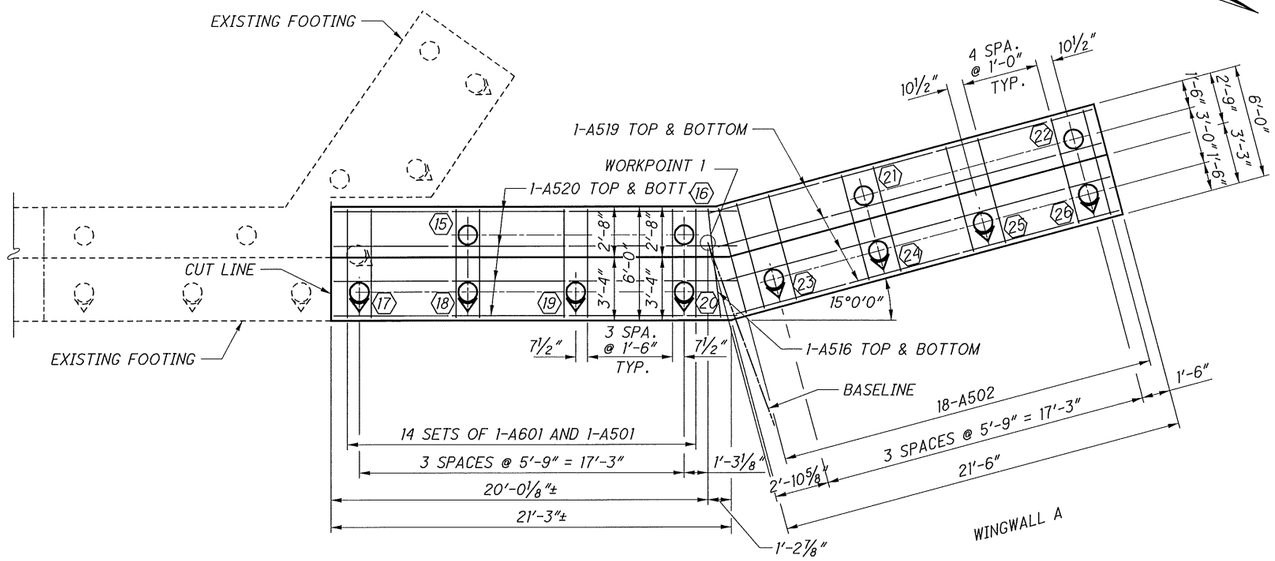
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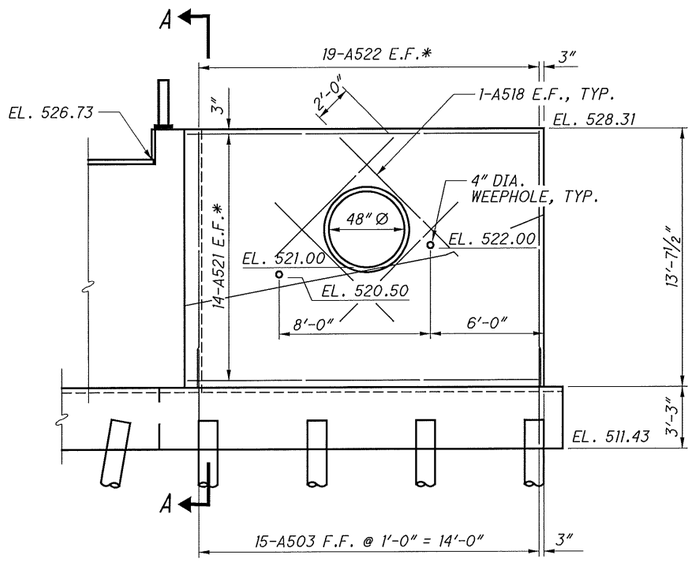
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PLAN

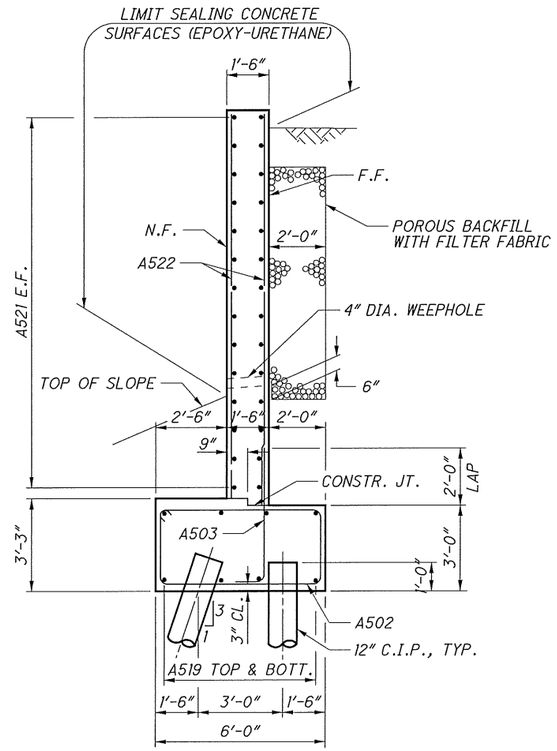


FOOTING PLAN



ELEVATION
WINGWALL A

**TRIM STEEL AS NECESSARY*



SECTION A-A

FOOTING NOTES:
1. ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE.
2. ○ (13) DESIGNATES PILE NUMBER AND LOCATION.
3. ◯ DENOTES PILE BATTERED 1:3 IN DIRECTION OF ARROW.
4. ◌ DENOTES EXISTING PILE.

WINGWALL NOTES:
1. POROUS BACKFILL WITH FILTER FABRIC, 2'-0" THICK, SHALL EXTEND UP TO THE PLANE OF SUBGRADE, 2'-0" BELOW THE EMBANKMENT SURFACE, AND LATERALLY AS SHOWN.
2. FOR ABUTMENT DETAILS, SEE SHEET 6/12 .
3. PEJF = PREFORMED EXPANSION JOINT FILLER
N.F. = NEAR FACE
F.F. = FAR FACE
E.F. = EACH FACE

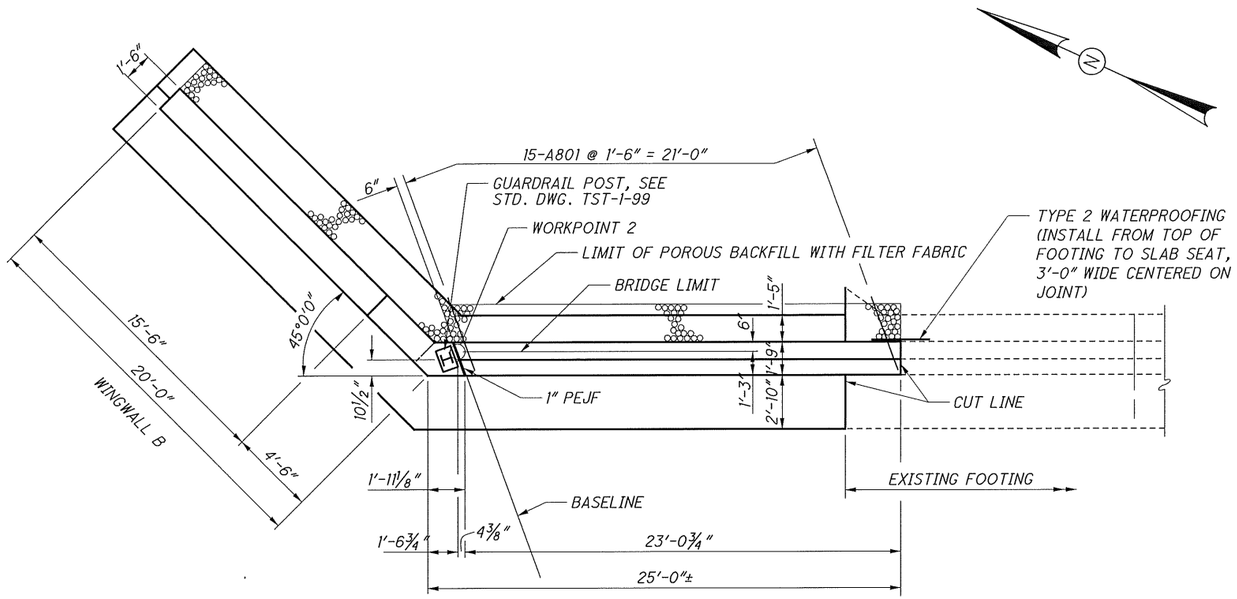
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

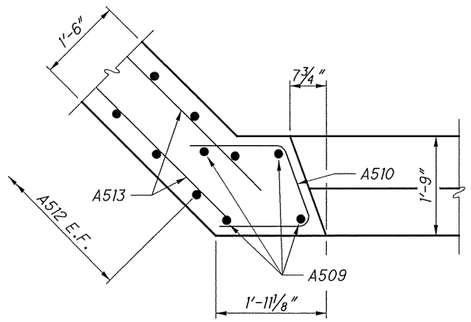
REAR ABUTMENT
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

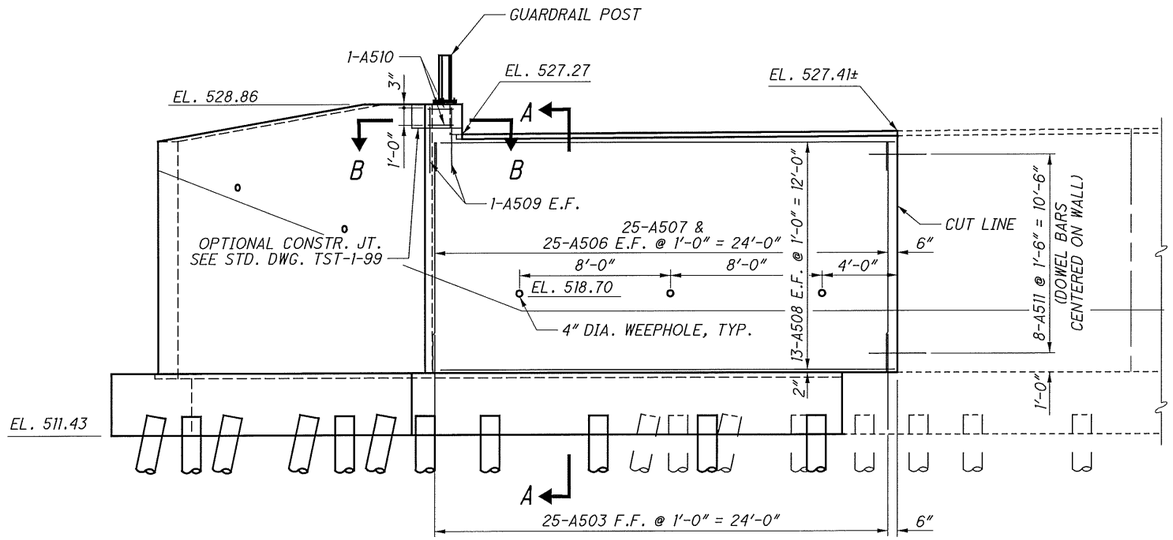
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PLAN



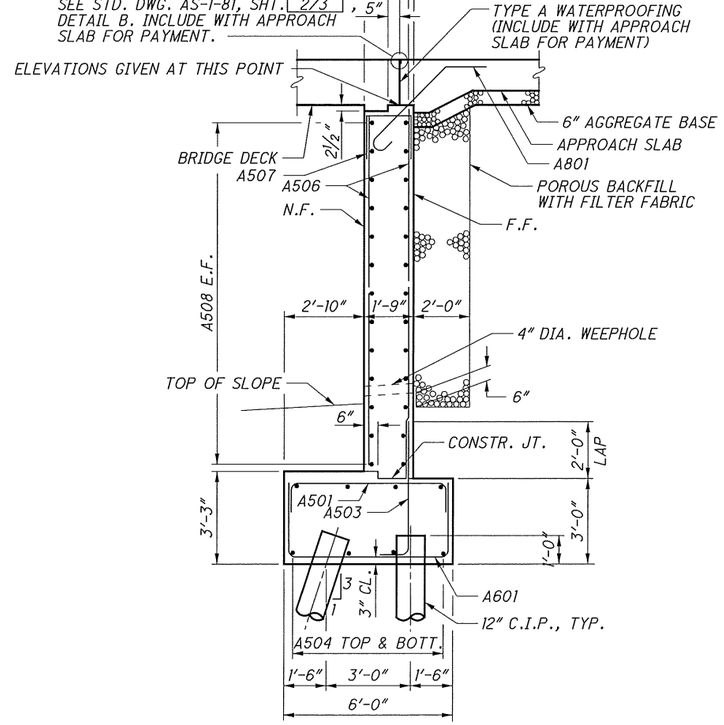
SECTION B-B



ELEVATION

NOTES:

1. FOR PILE LAYOUT AND FOOTING PLAN, SEE SHEET 9/12 .
2. POROUS BACKFILL WITH FILTER FABRIC, 2 FEET THICK SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS. PLACE TWO CUBIC FEET OF BAGGED NO. 3 AGGREGATE AT EACH WEEPHOLE. THE DEPARTMENT WILL INCLUDE BAGGED AGGREGATE WITH POROUS BACKFILL FOR PAYMENT.
3. FOR WINGWALL DETAILS, SEE SHEET 9/12 .
4. PEJF = PREFORMED EXPANSION JOINT FILLER
   N.F. = NEAR FACE
   F.F. = FAR FACE
   E.F. = EACH FACE



SECTION A-A

DESIGN AGENCY
Stantec Consulting Services Inc.
1948 Summit Road
Cincinnati, Ohio 45237
(513) 761-1720
Stantec

DESIGNED	DRAWN	REVIEWED	DATE
EDA	ALH	JRC	5/2012
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

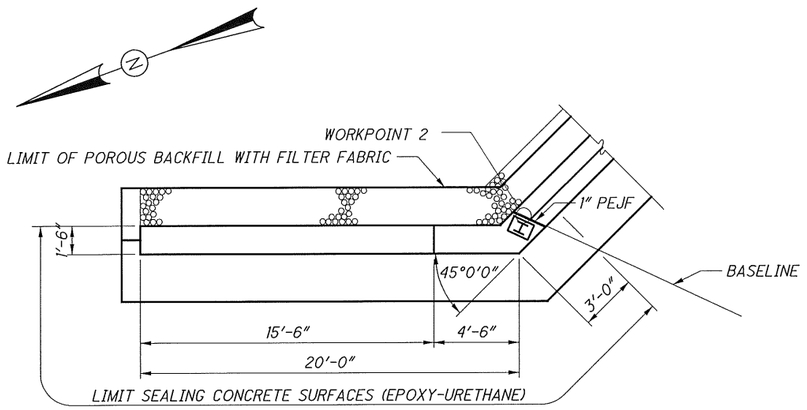
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BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

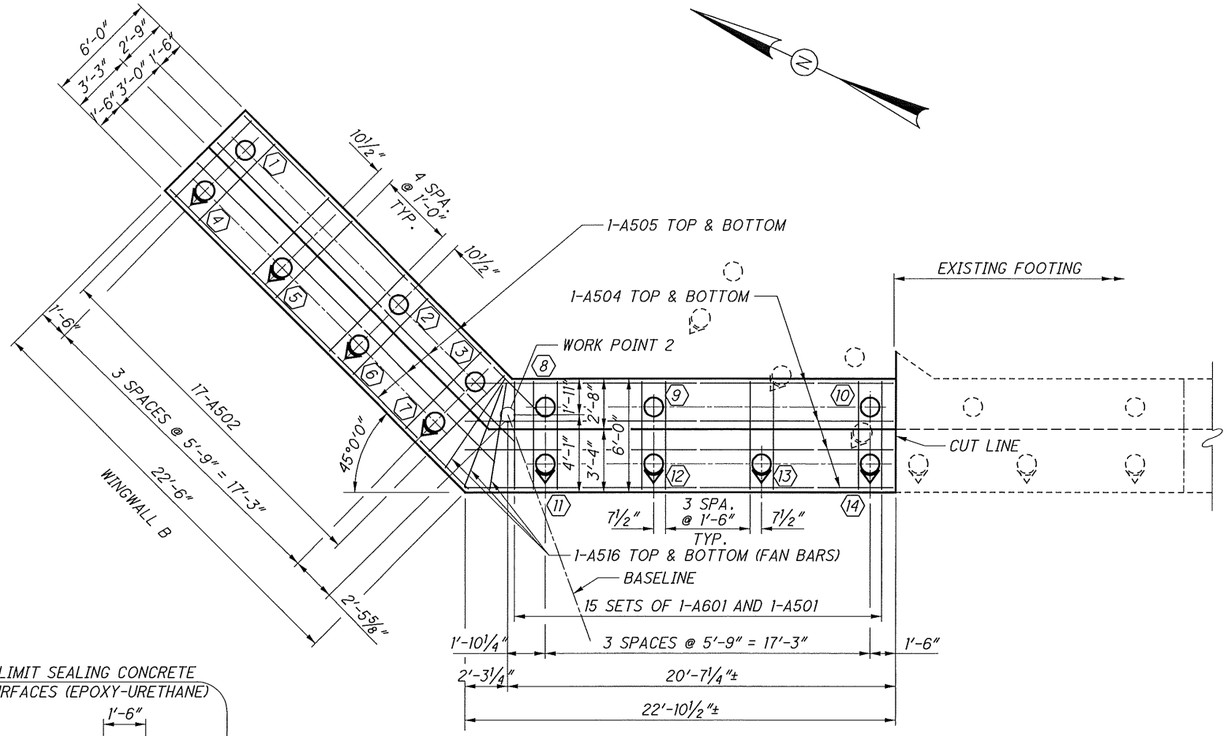
8 / 12

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132

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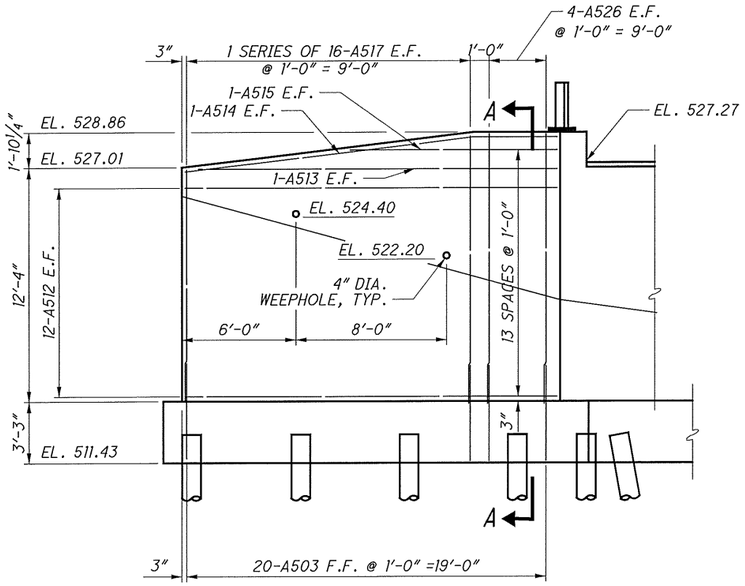


PLAN

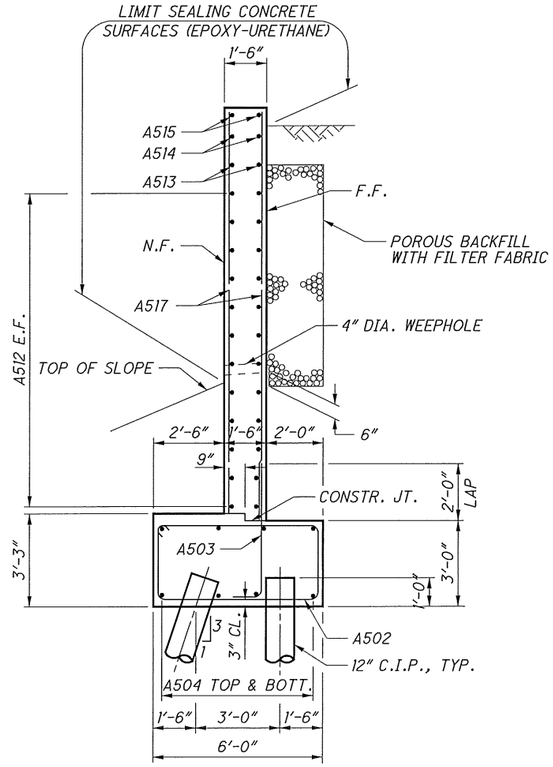


FOOTING PLAN

FOOTING NOTES:
1. ALL PILES ARE 12" DIA. CAST-IN-PLACE REINFORCED CONCRETE.
2. ◯ ⟨13⟩ DESIGNATES PILE NUMBER AND LOCATION.
3. ◯ DENOTES PILE BATTERED 1:3 IN DIRECTION OF ARROW.
4. ◌ DENOTES EXISTING PILE.



ELEVATION
WINGWALL B



SECTION A-A

WINGWALL NOTES:
1. POROUS BACKFILL WITH FILTER FABRIC, 2'-0" THICK, SHALL EXTEND UP TO THE PLANE OF SUBGRADE, 2'-0" BELOW THE EMBANKMENT SURFACE, AND LATERALLY AS SHOWN.
2. FOR ABUTMENT DETAILS, SEE SHEET 8/12 .
3. PEJF = PREFORMED EXPANSION JOINT FILLER
   N.F. = NEAR FACE
   F.F. = FAR FACE
   E.F. = EACH FACE

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1848 Summit Road
Cincinnati, Ohio 45237
(513) 761-1760
Stantec

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

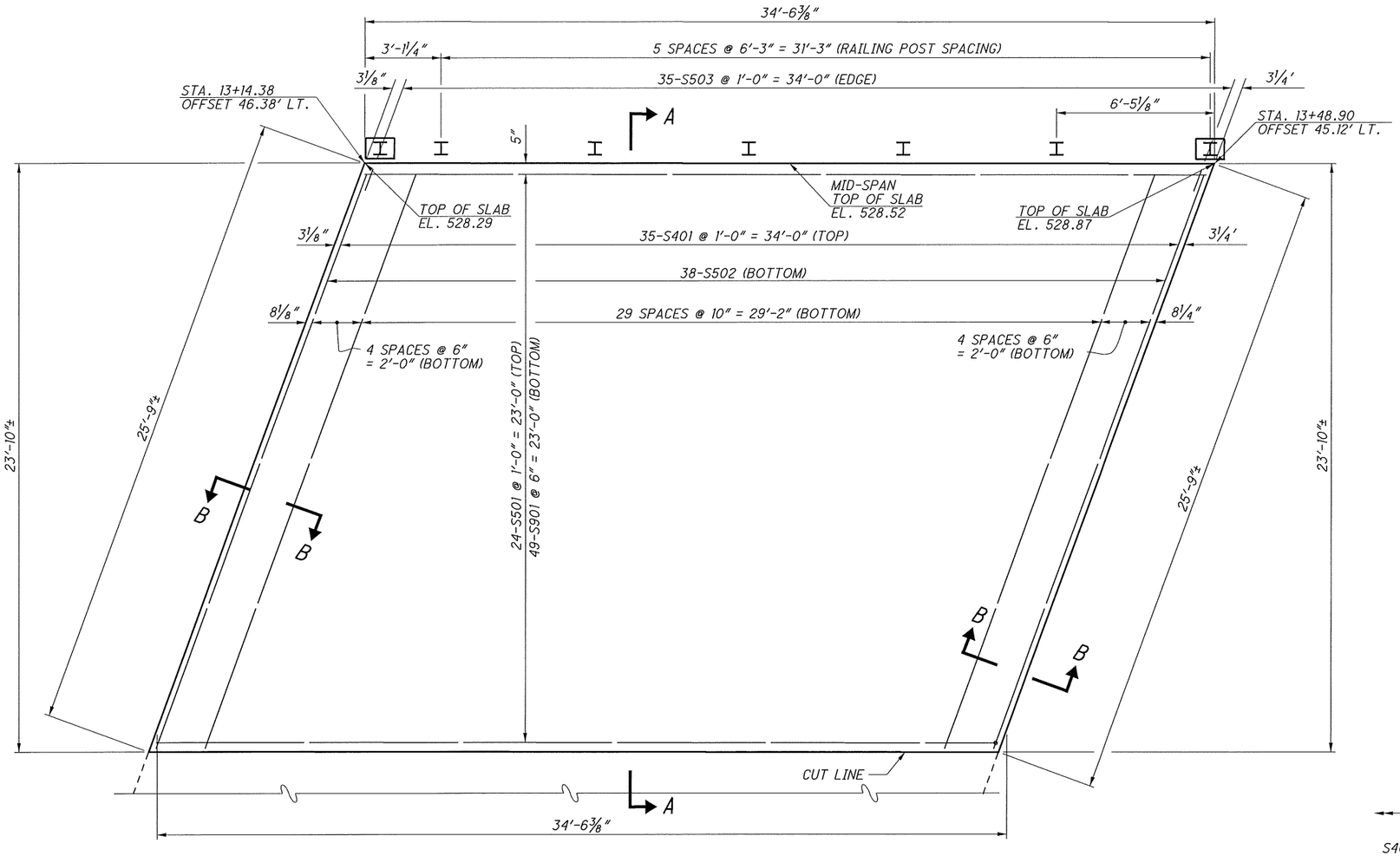
FORWARD ABUTMENT
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

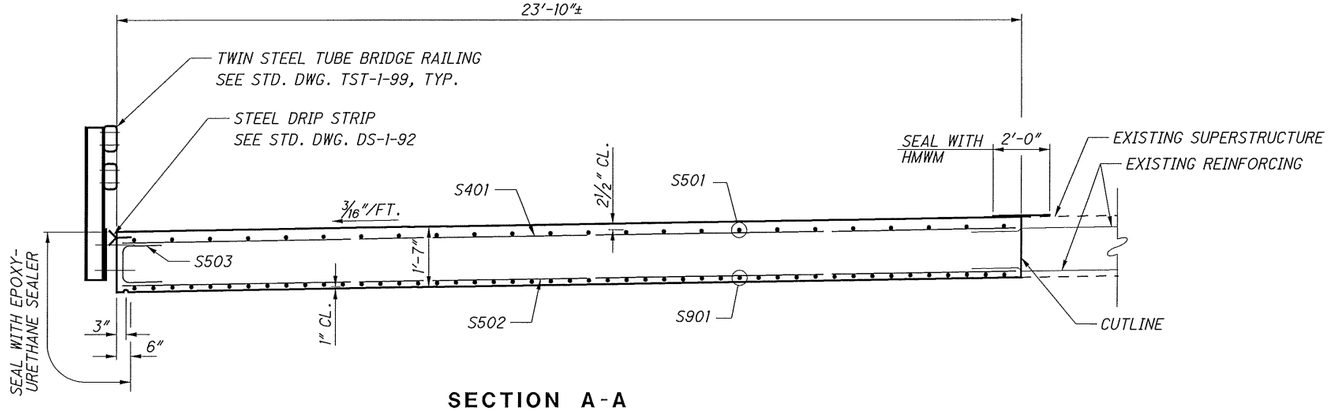
9 / 12

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132

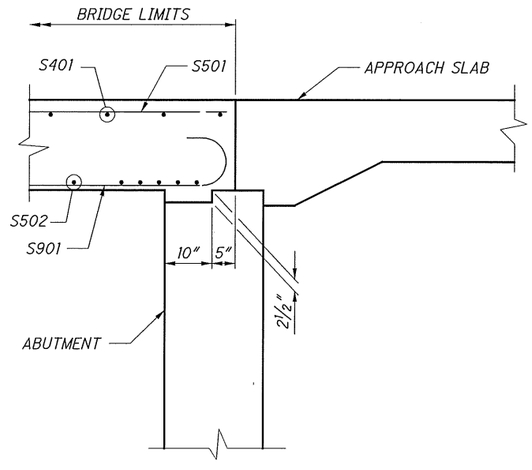
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PLAN



SECTION A-A



SECTION B-B

NOTES:
FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLECTIONS HAVE OCCURRED.

THE APPROACH SLAB CONCRETE SHALL NOT BE PLACED IN THE SAME OPERATION AS THE CONCRETE DECK POUR.

DESIGN AGENCY
Stantec Consulting Services Inc.
1948 Summit Road
Cincinnati, Ohio 45237
(513) 761-1760
Stantec

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MRS		1302515	

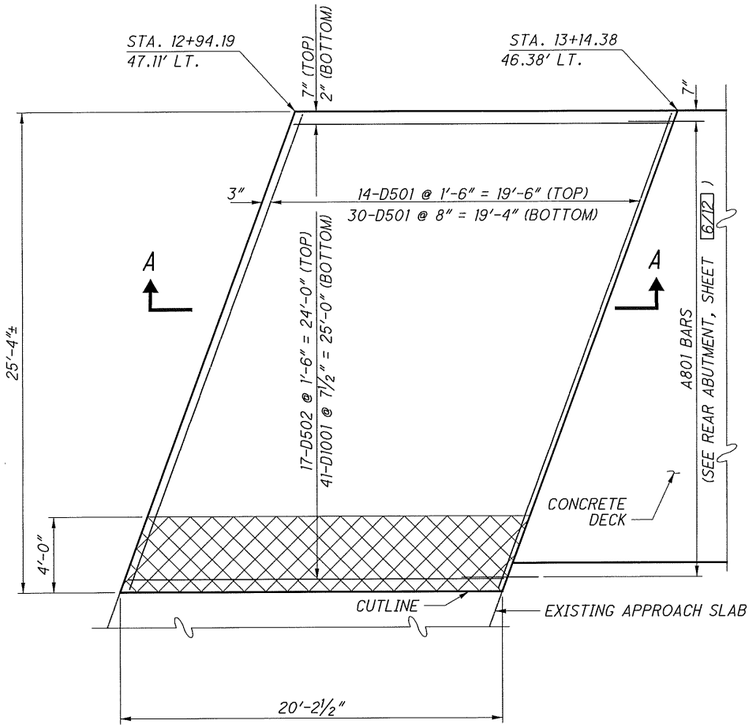
SLAB PLAN AND SECTION
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

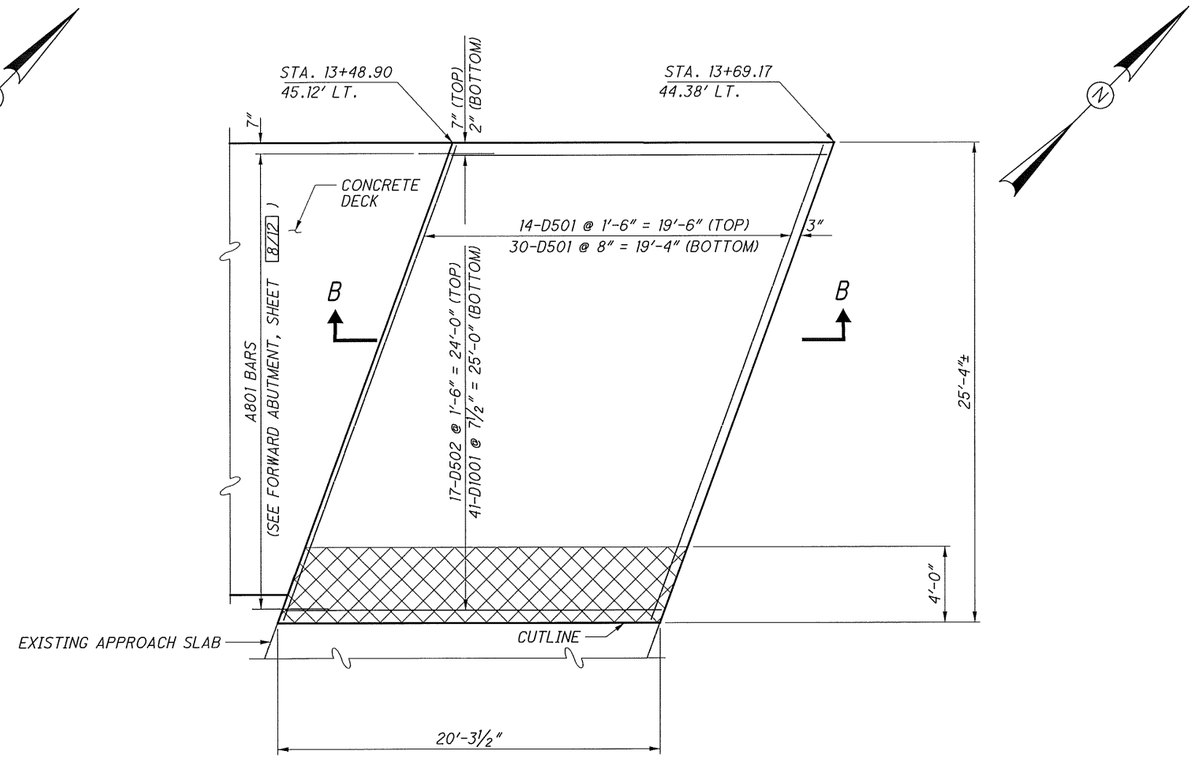
10 / 12

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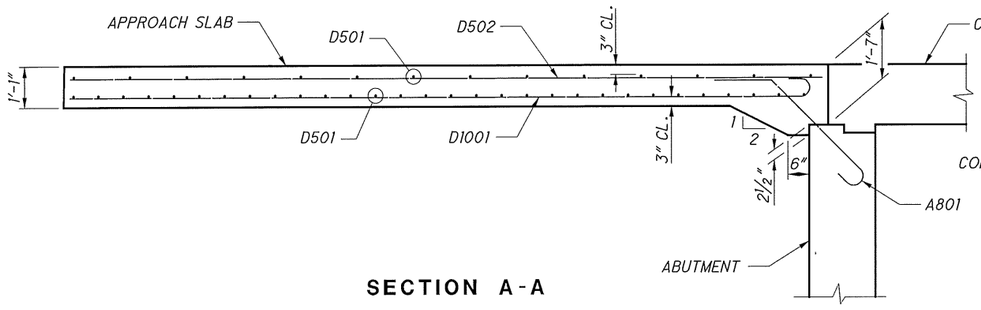


REAR APPROACH SLAB

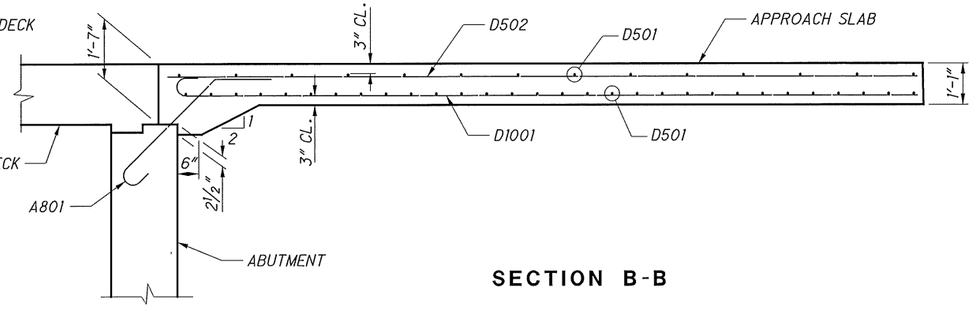


FORWARD APPROACH SLAB

DENOTES PORTION OF EXISTING APPROACH TO BE REMOVED.
EXISTING TRANSVERSE BARS TO REMAIN



SECTION A-A



SECTION B-B

NOTES:
1. FOR ADDITIONAL INFORMATION NOT SHOWN, SEE STD. DWD. AS-1-81.
2. APPROACH SLAB CONCRETE SHALL NOT BE PLACED IN THE SAME OPERATION AS CONCRETE DECK POUR.

DESIGN AGENCY
Stantec Consulting Services Inc.
1848 Summit Road
Cincinnati, Ohio 45237
(513) 781-1700
Stantec

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
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APPROACH SLABS
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

11 / 12

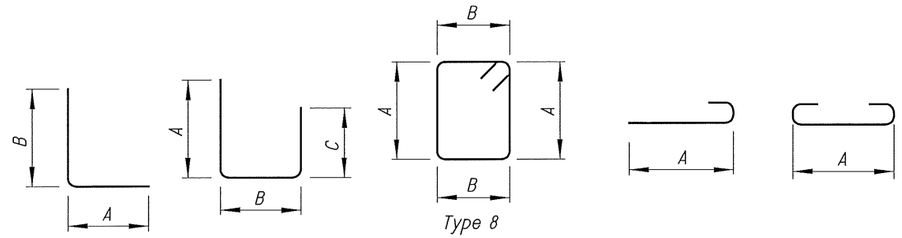
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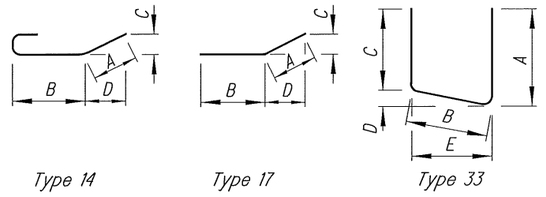
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MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
SUPERSTRUCTURE											
S401	35	25'-5"	594	STR.							
S501	24	34'-2"	855	STR.							
S502	38	25'-5"	1007	STR.							
S503	35	2'-10"	103	2	1'-0"	1'-1"	1'-0"				
S901	49	36'-8"	6109	17	34'-2"						
		TOTAL	8668								
ABUTMENTS											
A501	29	7'-5"	224	2	1'-0"	5'-8"	1'-0"				
A502	38	8'-10"	322	8	2'-7"	5'-8"					
A503	86	5'-8"	508	1	1'-0"	4'-9"					
A504	8	22'-8"	189	STR.							
A505	8	22'-4"	186	STR.							
A506	50	12'-5"	648	STR.							
A507	51	3'-4"	177	2	1'-0"	1'-5"	1'-0"				
A508	26	24'-10"	673	STR.							
A509	8	3'-6"	29	STR.							
A510	2	4'-7"	10	33	1'-8"	1'-6"	1'-8"	6"	1'-5"		
A511	16	3'-0"	648	STR.							
A512	24	19'-10"	177	STR.							
A513	2	19'-0"	673	STR.							
A514	2	11'-0"	29	STR.							
A515	2	19'-9"	41	17	4'-3"	15'-6"	6"	4'-3"			
A516	8	5'-9"	50	STR.							
	1	12'-2"									
A517	SERIES OF	TO	218	STR.							1½"
	16	14'-0"									
A518	8	9'-0"	75	STR.							
A519	8	21'-4"	178	STR.							
A520	8	21'-1"	176	STR.							
A521	28	18'-10"	550	STR.							
A522	38	13'-5"	532	STR.							
A523	26	25'-4"	687	STR.							
A524	52	12'-1"	655	STR.							
A525	2	5'-9"	12	33	3'-0"	1'-6"	1'-6"	6"	1'-5"		
A526	8	14'-0'	117	STR.							
A601	29	10'-7"	461	STR.							
A801	30	5'-7"	447	14	1'-5"	3'-3"	1'-2"	1'-2"			
		TOTAL	8692								

MARK	NUMBER TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E	R	INC
APPROACH SLABS											
D501	88	26'-8"	*	STR.							
D502	34	19'-10"	*	STR.							
D1001	82	21'-3"	*	12	19'-10"						
		TOTAL	*								

* FOR INFORMATION ONLY. COST TO BE INCLUDED WITH ITEM 526 - REINFORCED CONCRETE SLABS (T=13).





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DESIGN AGENCY
Stantec Consulting Services Inc.
1848 Summit Road
Cincinnati, Ohio 45237
(513) 781-1700
Stantec

DESIGNED	DRAWN	REVIEWED	DATE
EDA	ALH	JRC	5/2012
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MRS		1302515	

REINFORCING STEEL LIST
BRIDGE NO. CLE-131-0003
OVER HAPPY HOLLOW CREEK

CLE-50-1.48
MILFORD PARKWAY

12 / 12

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UTILITIES	
TYPE	NAME & ADDRESS
ELECTRIC	DUKE ENERGY 139 EAST FOURTH STREET 467 ANNEX CINCINNATI, OH 45201 (513) 287-1748
TELEPHONE	CINCINNATI BELL 221 EAST FOURTH STREET BUILDING 121-900 CINCINNATI, OH 45201 (513) 565-7071
SEWER	CITY OF MILFORD 745 CENTER ST., SUITE 200 MILFORD, OH 45150 (513) 248-5098
WATER	CITY OF MILFORD 745 CENTER ST. SUITE 200 MILFORD, OH 45150 (513) 831-6819
GAS	DUKE ENERGY 139 EAST FOURTH STREET ROOM 460A CINCINNATI, OH 45201 (513) 287-2934
CABLE	TIME WARNER 11252 CORNELL PARK DRIVE CINCINNATI, OH 45242 (513) 469-5483

NOTE:
THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

LEGEND:

SH = STANDARD HIGHWAY EASEMENT

T = TEMPORARY EASEMENT

U = PUBLIC UTILITY EASEMENT

RIGHT OF WAY LEGEND SHEET CLE-50-1.48 MILFORD PARKWAY

WHITE MILITARY SURVEY NO. 597, GARRETT MILITARY SURVEY NO. 3832, NANCARROW MILITARY SURVEY NO. 1748 & SIMPSON MILITARY SURVEY NO. 1770 CITY OF MILFORD, CLERMONT COUNTY OHIO

LEGEND

- (D) –Ex Storm M.H.
- (S) –Ex Sanitary M.H.
- –Ex Storm Catch Basin
- –Ex Storm Catch Basin
- –Ex Fire Hydrant
- (W) –Ex Water M.H.
- –Ex Water Meter
- (E) –Ex Elec. M.H.
- [E] –Ex Elec. Box
- –Ex Light Pole
- –Ex Yard Light
- –Ex Utility Pole
- –Ex Guy Wire
- R/W –Ex Right of Way
- P/L –Ex Property Line
- –Ex Gas Valve
- (T) –Ex Tele. M.H.
- [T] –Ex Tele. Box
- –Ex Tele. Marker
- [C] –Ex Cable Box
- WV –Ex Water Valve
- –Ex Sign
- –Ex Mail Box
- –Ex Post
- –Ex Flag Pole
- –Ex Signal Pole
- –Ex Pull Box
- –Ex Deciduous Tree
- –Ex Deciduous Bush

Ex Underground Water Main (w)
Ex Underground Gas Main (g)
Ex Overhead Utilities (oh)
Ex Underground Fiber Optic (uf)
Ex Underground Electric (ue)
Ex Guard Rail
Ex Underground Telephone (ut)
Ex Landscape Border
Ex Treeline

INDEX OF RIGHT OF WAY SHEETS

LEGEND SHEET	1
CENTERLINE PLAT	2
PROPERTY MAP	3
SUMMARY OF ADDITIONAL R/W	4
R/W DETAIL SHEETS	5-11

MONUMENT LEGEND

- *Found 5/8" Iron Pin*
- *Found Spike*
- *Found Iron Pipe*

I, JEFFREY O. LAMBERT, P.S., HAVE CONDUCTED A SURVEY OF THE EXISTING CONDITIONS FOR THE CLERMONT COUNTY TRANSPORTATION IMPROVEMENT DISTRICT IN THE SUMMER OF 2011. THE RESULTS OF THE SURVEY ARE CONTAINED HEREIN. THE HORIZONTAL COORDINATES EXPRESSED HEREIN ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE. THE PROJECT ADJUSTMENT FOR THIS PROJECT IS 1.00007741. FURTHERMORE I HAVE CALCULATED THE PROPOSED PROPERTY LINES, GROSS TAKE, PRESENT ROADWAY OCCUPIED (PRO), NET TAKE AND NET RESIDUE; AS WELL AS PREPARED LEGAL DESCRIPTIONS NECESSARY TO ACQUIRE THESE PARCELS AS SHOWN HEREIN. AS PART OF THIS PROJECT I HAVE DETERMINED THE LOCATIONS OF THE EXISTING PROPERTY LINES FOR PROPERTY TAKES CONTAINED HEREIN. I ALSO HAVE SET MONUMENTS AT THE PROPOSED PROPERTY CORNER, SECTION CORNERS AND OTHER POINTS SHOWN HEREIN. THE CENTERLINE MONUMENTATION CALLED FOR HEREIN WILL BE SET UNDER MY DIRECT SUPERVISION DURING THE CONSTRUCTION OF THIS PROJECT. THIS WORK WILL BE DONE IN ACCORDANCE WITH OAC 4733-37 AS CITED BELOW. ALL OF MY WORK CONTAINED HEREIN WAS CONDUCTED IN ACCORDANCE WITH OHIO ADMINISTRATIVE CODE 4733-37 COMMONLY KNOWN AS MINIMUM STANDARDS FOR BOUNDARY SURVEY IN THE STATE OF OHIO UNLESS SO NOTED. THE WORDS I AND MY AS USED HEREIN ARE TO MEAN THAT EITHER MYSELF OR SOMEONE WORKING FOR ME UNDER MY DIRECT CONTROL OR SUPERVISION.

JEFFERY O. LAMBERT
PROFESSIONAL SURVEYOR NO. 7568

PROJECT DESCRIPTION

UPGRADING 0.27 MILES OF S.R. 131, U.S. 50, AND MILFORD PARKWAY BY WIDENING AND RESURFACING, INCLUDING BRIDGE WIDENING, NEW SEWER SYSTEM, CURB AND GUTTER, SIDEWALKS, TRAFFIC CONTROL SIGNS, PAVEMENT MARKINGS, AND TRAFFIC SIGNAL.

PROJECT CONTROL

STATE PLANE GRID - OHIO STATE PLANE SOUTH ZONE NAD83 (3402)
PROJECT ADJUSTMENT FACTOR = 1.000077411

PLANS PREPARED BY:
FIRM NAME: BAYER BECKER

PLANS PREPARED BY:

FIELD REVIEW BY: _____
DATE COMPLETED: _____

OWNERSHIP VERIFIED BY:
DATE COMPLETED: _____

DATE COMPLETED: _____

SURVEYORS SEAL

SIGNED: _____

DATE: _____

DESIGNER | REVIEWER

RIGHT OF WAY LEGEND SHEET

CLE-50-1.48 MILFORD PARKWAY

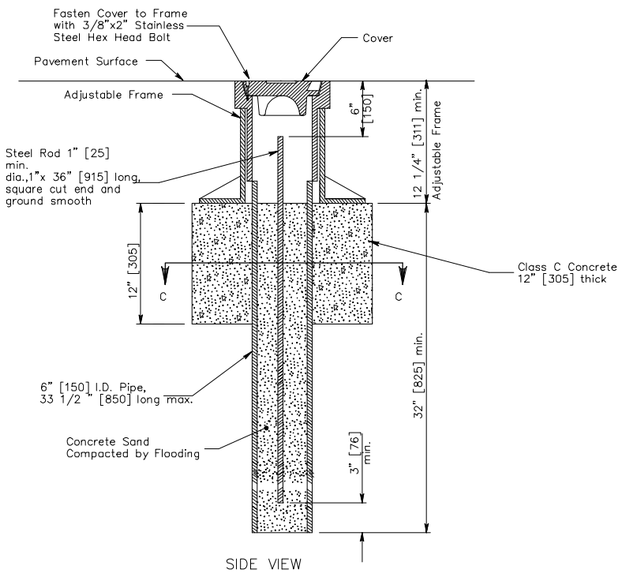
1/11

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132

Plot time: Jun 13, 2012 – 11:55am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 Legend Sheet – Layout Tab: 104 RW LEGEND SHEET

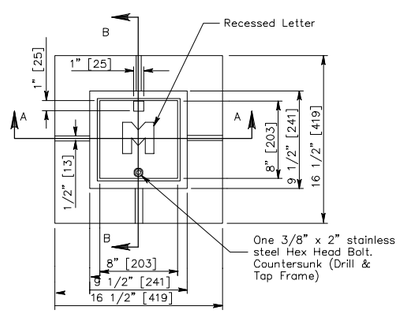
MONUMENTS TO BE SET DURING CONSTRUCTION

℄ R/W & CONSTRUCTION STATION	DISTANCE FROM ℄ OF RIGHT OF WAY		ADJUSTABLE ℄ MONUMENTS	AFFECTED ROUTE	NORTHING	EASTING
	LEFT	RIGHT				
34+13.55	-	-	1	U.S. 50	432433.1131	1465126.0964
34+51.14	-	-	1	U.S. 50	432418.2404	1465160.6239
40+45.31	-	-	1	U.S. 50	432109.2114	1465666.0326
41+72.34	-	-	1	U.S. 50	432026.3267	1465762.2756
47+13.00	-	-	1	U.S. 50	431661.9537	1466161.7104
14+74.01	-	-	1	S.R. 131	432375.0372	1465913.7363
18+14.22	-	-	1	S.R. 131	432568.1863	1466190.7099
21+23.00	-	-	1	S.R. 131	432687.6428	1466475.4509
11+10.66	-	-	1	MILFORD PARKWAY	432109.2114	1465666.0326
7+68.00	-	-	1	MILFORD PARKWAY	431805.5877	1465570.0684
	TOTALS:		10			



SIDE VIEW

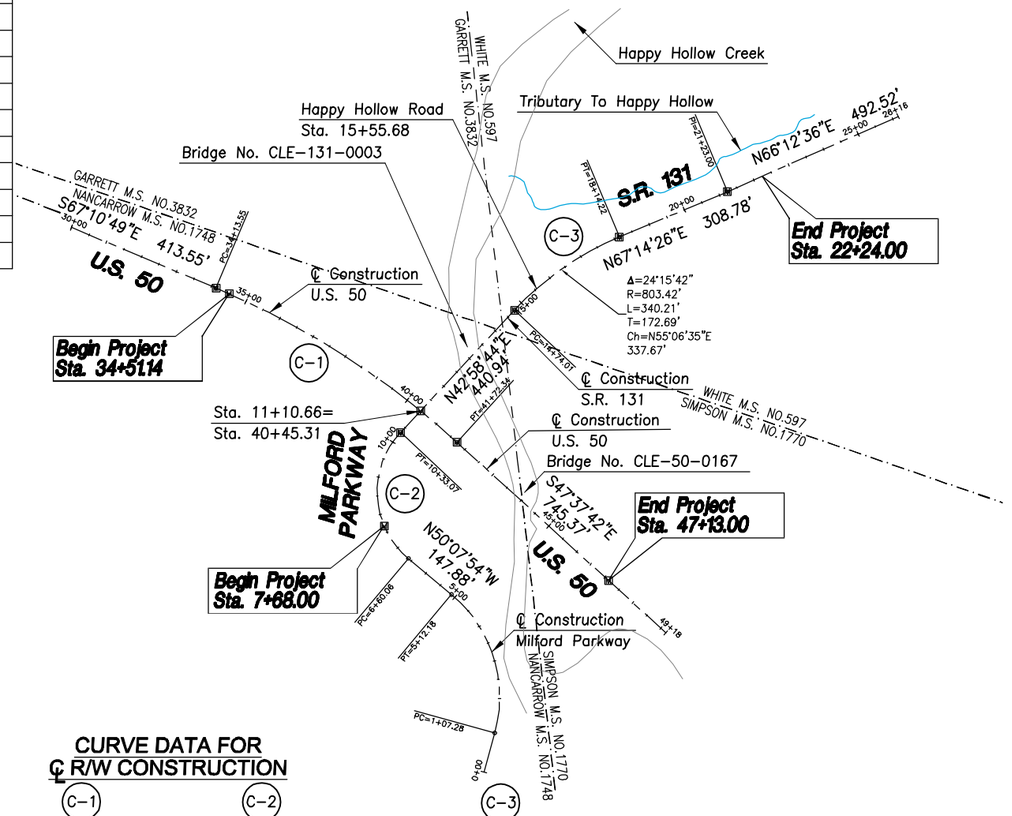
MONUMENT TYPE C



PLAN VIEW

MONUMENT LEGEND

M PROPOSED ADJUSTABLE CENTERLINE MONUMENT



CURVE DATA FOR ℄ R/W CONSTRUCTION

C-1

Curve Data
Lt. ℄ Existing U.S. 50
P.I. Sta. 37+92.94
Δ=19°33'07"
D_c=02°34'36"
R=2,223.58'
T=383.12'
L=758.79'
E=32.76'
e_{max} =NC

C-2

Curve Data
Lt. ℄ Existing Milford Parkway
P.I. Sta. 8+46.55
Δ=93°02'44"
D_c=24°56'58"
R=229.65'
T=242.20'
L=372.94'
E=104.31'
e_{max} =0.04

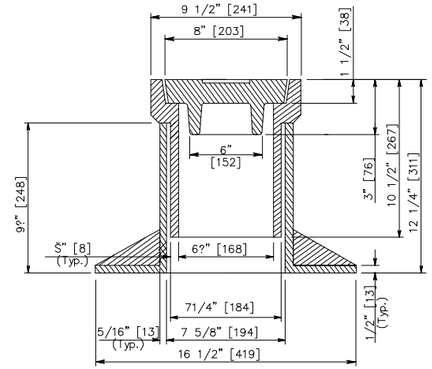
C-3

Curve Data
Lt. ℄ Existing S.R. 131
P.I. Sta. 16+44.11
Δ=24°15'42"
D_c=07°07'32"
R=803.42'
T=172.69'
L=340.21'
E=18.37'
e_{max} =0.04

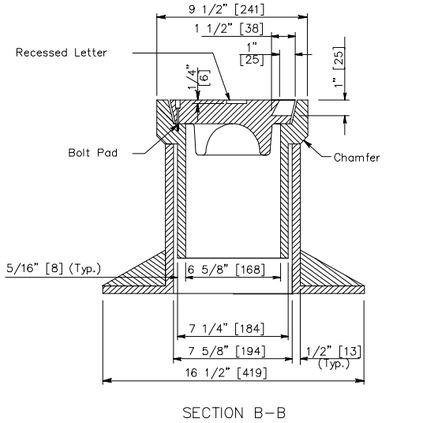
BASIS OF BEARINGS:

BEARINGS SHOWN HEREON ARE BASED ON GRID NORTH OBSERVED BY BAYER BECKER, USING TRIMBLE R6 GPS RECEIVER (O.D.O.T. CORS NETWORK). HORIZONTAL DATUM (NAD83 1996)

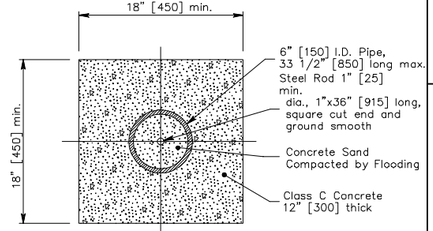
BASIS OF EXISTING CENTERLINE OF R/W AND THE R/W WIDTH: THE EXISTING RIGHT OF WAY WIDTH AND LOCATIONS WERE DETERMINED FROM ODOT R/W PLANS CLE-50-0.83-1.47, CLE-50-1.67, CLE-131-0.03, CLE-131-0.00-0.97 ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 8 OFFICE, LEBANON, OHIO, DEDICATION PLAT OF TOEBBEN, LTD RECORDED IN P.C. 8, PG. 137, DEDICATION PLAT FOR THE CITY OF MILFORD RECORDED IN P.C. 6, PG. 161.



SECTION A–A



SECTION B–B



SECTION C–C

NOTES

THE EXISTING RIGHT-OF-WAY WIDTH, CENTERLINE AND LOCATIONS WERE DETERMINED USING THE FOLLOWING RECORDS: CLERMONT COUNTY TAX MAPS, MISCELLANEOUS CLERMONT COUNTY AUDITOR'S RECORDS, DOCUMENTS PROVIDED BY THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT EIGHT AND DEEDS AND SURVEY PLATS AS FOLLOWS.

D.B. 588, PAGE 26	O.R. 8, PGE 137	PC7-75	TL12-98	TL880
D.B. 621, PAGE 232	17M-119	PC8-110	TL12-129	CLE-50-0.83-1.47 ODOT
D.B. 757, PAGE 466	19M-200	PC8-224	TL12-130	CLE-50-1.67 ODOT
O.R. 1381, PAGE 2410	20M-152	PC9--255	TL13-96	CLE-131-0.03 ODOT
O.R.1463, PAGE 1934	CEMETERY SURVEY PLAT 1996	PC10-128	TL15-8	S.H. 494 SEC B ODOT
O.R. 1680, PAGE 167	MIA3-95	PC10-256	TL16-104	MILFORD COMMERCE PARK
O.R. 1821, PAGE 2183	MIA3-241	PC11-10	TL18-119	PHASE 1 PLANS PAGE 3 OF 50
O.R. 2017, PAGE 2345	MIA3241A	PC12-206	TL27-45	
O.R. 2150, PAGE 190	PC6-155	TL9-24	TL29-49	
O.R. 2163, PAGE 1594	PC6-161	TL9-51	TL35-40	
O.R. 1215, PAGE 1801	PC6-246	TL9-108	TL43-50	
O.R. 2146, PAGE 578	PC6-263	TL9-134	TL75-117	

THE PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF RIGHT OF WAY.

THE PLACEMENT OF ALL MONUMENTS SHALL BE UNDER THE DIRECTION OF A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE CENTERLINE MONUMENT ASSEMBLY BOX(S) AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION.

1" IRON PIN AND CAP TO INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN ON THIS PLAT, REQUIRES PRIOR APPROVAL OF THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS OF THE CENTERLINE MONUMENTS, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING CLE-50-1.48, OF THE OHIO DEPARTMENT OF TRANSPORTATION.

RECIEVED _____, 20__.

RECORDED_____, 20__.

BOOK _____ PAGE _____

_____
COUNTY RECORDER

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE COUNTY COMMISSIONERS OF CLERMONT COUNTY OHIO BY BAYER BECKER IN 2011.

THE ESTABLISHMENT OF THE PROPERTY LINES AND EXISTING RIGHT OF WAY LINES SHOWN ON THIS PLAN AS OF THIS DATE WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

BY _____
JEFFREY O. LAMBERT

SURVEYOR NO. 7568 DATE: _____

SURVEYORS SEAL

HORIZONTAL SCALE IN FEET
0 100 200 400

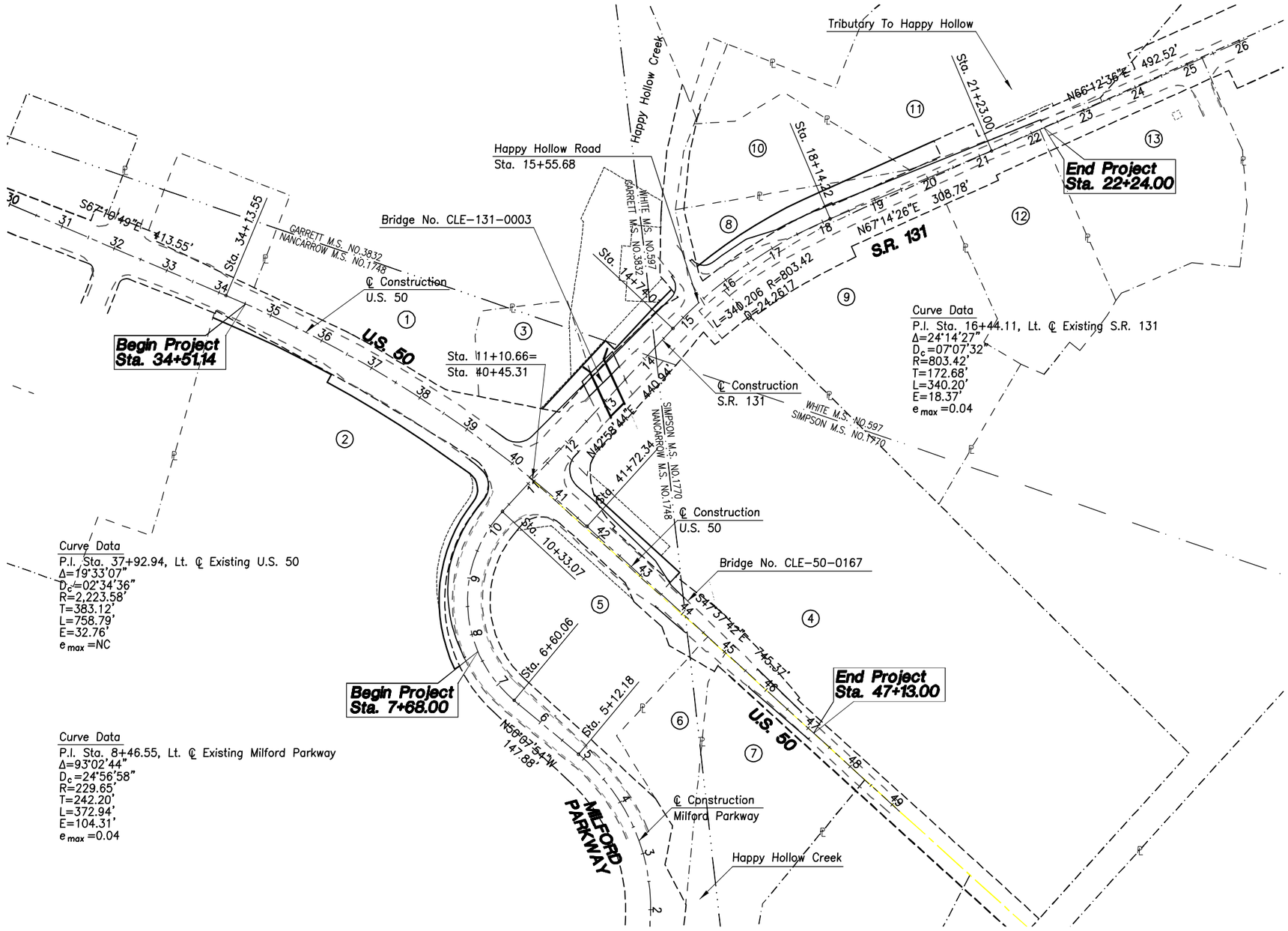
CENTERLINE PLAT

CLE-50-1.48
MILFORD PARKWAY

2/11

105
132

Plot time: Jun 14, 2012 - 10:55am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 Centerline Map - Layout Tab: 105 CENTERLINE PLAT



NOTES

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

REFERENCE POINT INFORMATION IS CONTAINED IN THE CONSTRUCTION PLAN.

PROPERTY OWNERS

1. TOEBBEN LTD
2. CITY OF MILFORD
3. TOEBBEN LTD
4. MIKE CASTRUCCI, LLC
5. CITY OF MILFORD
6. CITY OF MILFORD
7. MIKE CASTRUCCI, LLC
8. THE 474 GROUP
9. DOUBLEGATE CONDOMINUIMS PHASE III
10. JOHN C. & MONICA R. ADAMS
11. DOUGLAS B. & LORAINE L. ROESSLER
12. DOUBLEGATE CONDOMINUIMS PHASE II
13. DOUBLEGATE CONDOMINUIMS PHASE I

HORIZONTAL SCALE IN FEET
0 50 100 200

PROPERTY MAP

REV. BY	DATE	
DATE COMPLETED		

CLE-50-1.48
MILFORD PARKWAY

3/11

106
132

Plot time: Jun 14, 2012 - 11:52am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 Property Map - Layout Tab: 106 PROPERTY MAP

GROSS TAKE – P.R.O. TAKE = NET TAKE   RECORD AREA – TOTAL P.R.O – NET TAKE = NET RESIDUE

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALITY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1–SH	CITY OF MILFORD	108 & 114	NO DEED FOUND		210737.012P	18.112 Ac.	0.000 Ac.	0.261 Ac.	0.000 Ac.	0.261 Ac.					Fence (*)		
1–T1		108						0.017 Ac.									
1–T2		109						0.046 Ac.									
1–T3								0.076 Ac.									
2–SH	MIKE CASTRUCCI, LLC.	109	1463	1934	210737.042P	13.359 Ac.	0.325 Ac.	0.091 Ac.	0.000 Ac.	0.091 Ac.		12.943 Ac.					
2–T		109						0.090 Ac.									
3–SH	TOEBBEN LTD	111	1680	172	210725.343	0.722 Ac.	0.000 Ac.	0.059 Ac.	0.000 Ac.	0.059 Ac.							
3–T		111						0.045 Ac.									
4–SH	TOEBBEN LTD	111	757	466	210725.001	21.005 Ac.	0.000 Ac.	0.058 Ac.	0.000 Ac.	0.058 Ac.							
4–T		111						0.711 Ac.									
4–U		108						0.003 Ac.									
5–SH	THE 474 GROUP	112	740	777	182411F113	1.04 Ac.	0.522 Ac.	0.230 Ac.	0.000 Ac.	0.230 Ac.		0.288 Ac.					
6–SH	JOHN C. & MONICA R. ADAMS	112	1381	2410	182411F112	1.0536 Ac.	0.000 Ac.	0.030 Ac.	0.000 Ac.	0.030 Ac.							
7–SH	DOUGLAS B. & LARAINE L. ROESSLER	112	731	801	182411F114	6.64 Ac.	0.000 Ac.	0.048 Ac.	0.000 Ac.	0.048 Ac.							
7–T		112						0.011 Ac.									

NOTES

UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

ALL TEMPORARY PARCELS ARE TO BE OF 12 MONTHS DURATION FROM THE DATE CONSTRUCTION BEGINS.

LEGEND

SH = STANDARD HIGHWAY EASEMENT
T = TEMPORARY
U = PUBLIC UTILITY EASEMENT

GRANTEE:

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF THE CLERMONT COUNTY COMMISSIONERS UNLESS OTHERWISE SHOWN.

REV. BY	DATE	DESCRIPTION
B.R.J.	04–27–12	Deleted 2–U
	11–27–12	ADD P.R.O. TO PARCEL 5

FIELD REVIEW BY   DATE:
OWNERSHIP VARIFIED BY   DATE:
DATE COMPLETED

HORIZONTAL SCALE IN FEET 0 10 20 40

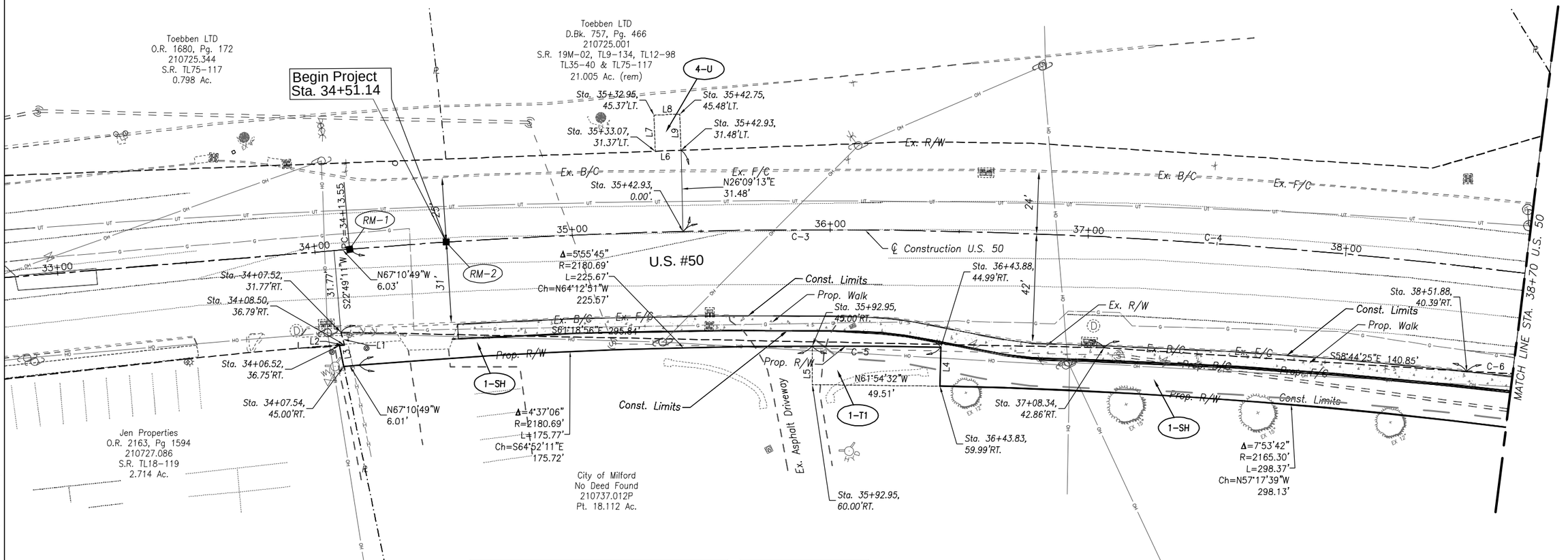
CALCULATED BRJ CHECKED JOL

SUMMARY OF ADDITIONAL RIGHT OF WAY

CLE-50-1.48
MILFORD PARKWAY

4/11

Plot time: Nov 28, 2012 – 10:09am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 Summary of RW – Layout Tab: 107 RW SUMMARY



CURVE TABLE				
Curve	Delta	Radius	Length	Chord
C-3	16°16'44"	2223.58'	631.76'	N59°02'27"W 629.64'
C-4	12°56'42"	2223.58'	502.38'	N57°22'26"W 501.31'
C-5	1°18'40"	2180.69'	49.90'	S61°54'19"E 49.90'
C-6	3°27'44"	1507.91'	91.12'	S58°18'40"E 91.10'

LINE TABLE		
Line	Direction	Distance
L1	S11°45'51"W	5.11
L2	N66°17'36"W	1.98
L3	S15°47'14"W	8.31
L4	S28°54'45"W	15.00
L5	N27°26'33"E	15.00
L6	N64°36'53"W	10.00
L7	N25°23'07"E	14.00
L8	S64°36'53"E	10.00
L9	N25°23'07"E	14.00

REV. BY	DATE	
DATE COMPLETED		

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BRJ
CHECKED JOL

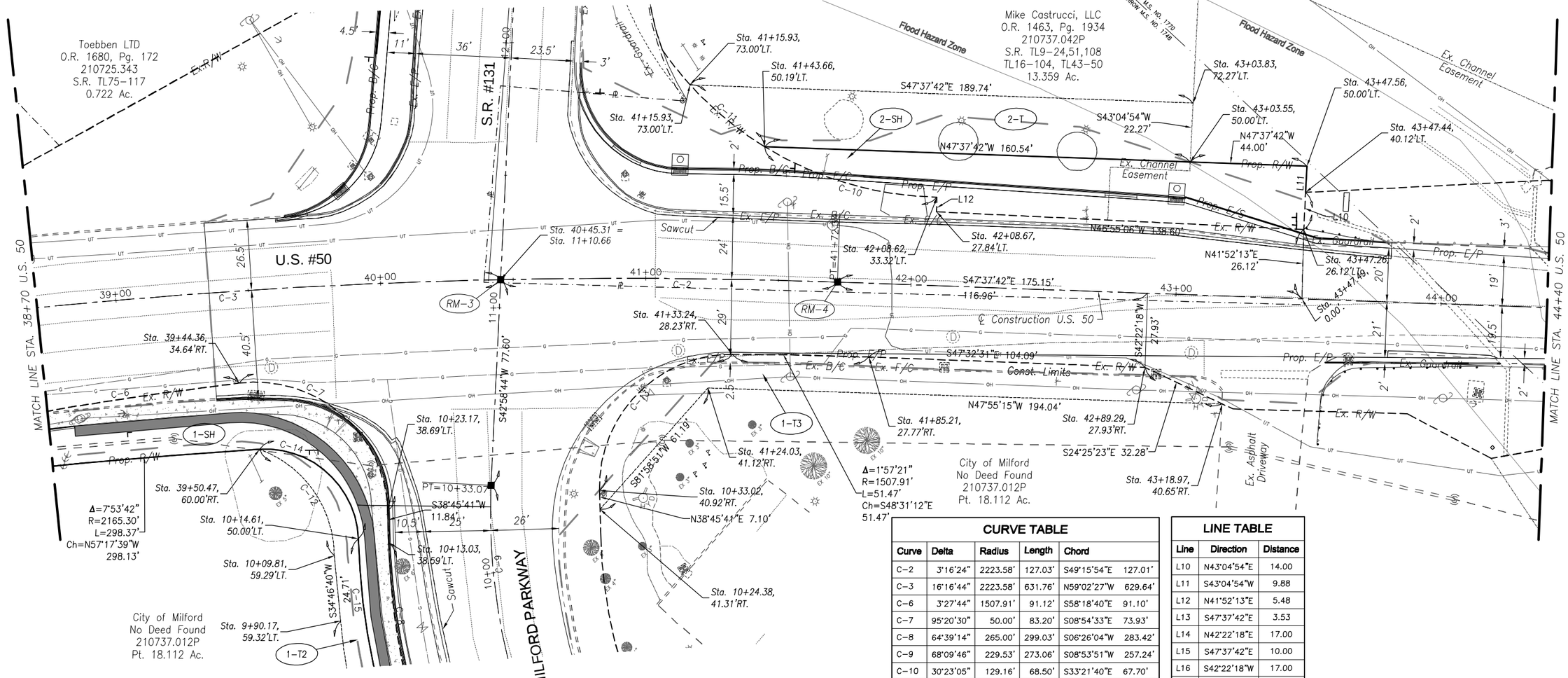
RIGHT OF WAY DETAIL SHEET - U.S. 50
STA. 33+00 TO STA. 38+70

CLE-50-1.48
MILFORD PARKWAY

5/11

108
132

Plot time: Jun 13, 2012 - 12:07pm
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (US 50) - Layout Tab: RW US 50



CURVE TABLE

Curve	Delta	Radius	Length	Chord
C-2	3°16'24"	2223.58'	127.03'	S49°15'54"E 127.01'
C-3	16°16'44"	2223.58'	631.76'	N59°02'27"W 629.64'
C-6	3°27'44"	1507.91'	91.12'	S58°18'40"E 91.10'
C-7	95°20'30"	50.00'	83.20'	S08°54'33"E 73.93'
C-8	64°39'14"	265.00'	299.03'	S06°26'04"W 283.42'
C-9	68°09'46"	229.53'	273.06'	S08°53'51"W 257.24'
C-10	30°23'05"	129.16'	68.50'	S33°21'40"E 67.70'
C-11	16°14'55"	129.16'	36.63'	N10°02'40"W 36.51'
C-12	69°44'10"	42.87'	52.18'	N05°12'21"E 49.02'
C-13	91°44'26"	50.00'	80.06'	N84°37'54"E 71.78'
C-14	91°43'06"	35.00'	56.03'	N07°29'09"W 50.23'
C-15	64°00'14"	279.53'	312.26'	S06°22'16"W 296.27'

LINE TABLE

Line	Direction	Distance
L10	N43°04'54"E	14.00
L11	S43°04'54"W	9.88
L12	N41°52'13"E	5.48
L13	S47°37'42"E	3.53
L14	N42°22'18"E	17.00
L15	S47°37'42"E	10.00
L16	S42°22'18"W	17.00
L17	N47°37'42"W	10.00

REV. BY	DATE	
B.R.J.	04-27-12	Take Duke Easement off Castrucci Property (2-U)
DATE COMPLETED		

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BRJ
CHECKED JOL

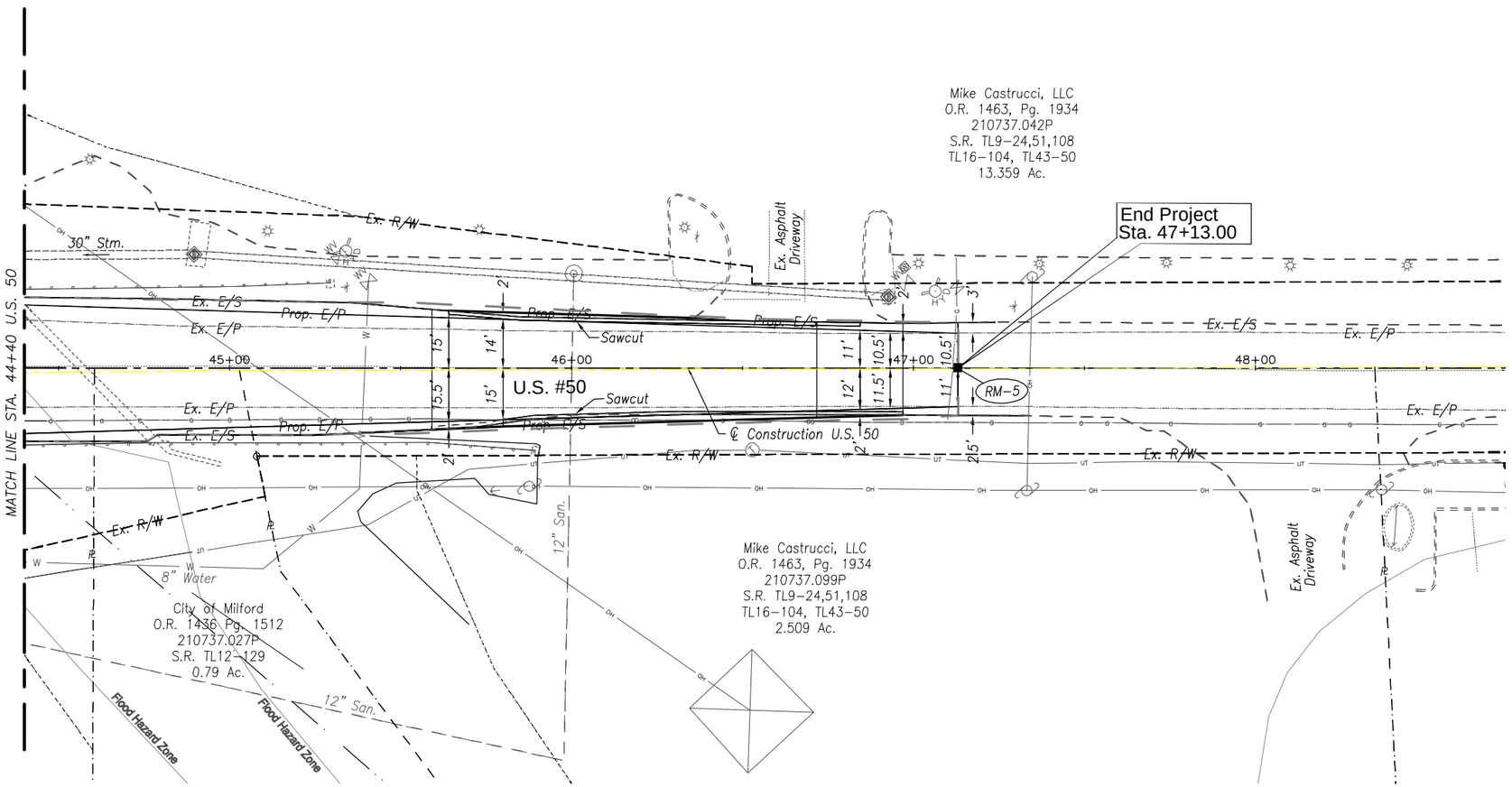
RIGHT OF WAY DETAIL SHEET - U.S. 50
STA. 38+70 TO STA. 44+40

CLE-50-1.48
MILFORD PARKWAY

6/11

109
132

Plot time: Aug 30, 2012 - 9:44am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (US 50) - Layout Tab: RW US 50



REV. BY	DATE	
DATE COMPLETED		

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BRJ
CHECKED JOL

RIGHT OF WAY DETAIL SHEET - U.S. 50
STA. 44+40 TO STA. 47+13

CLE-50-1.48
MILFORD PARKWAY

7/11

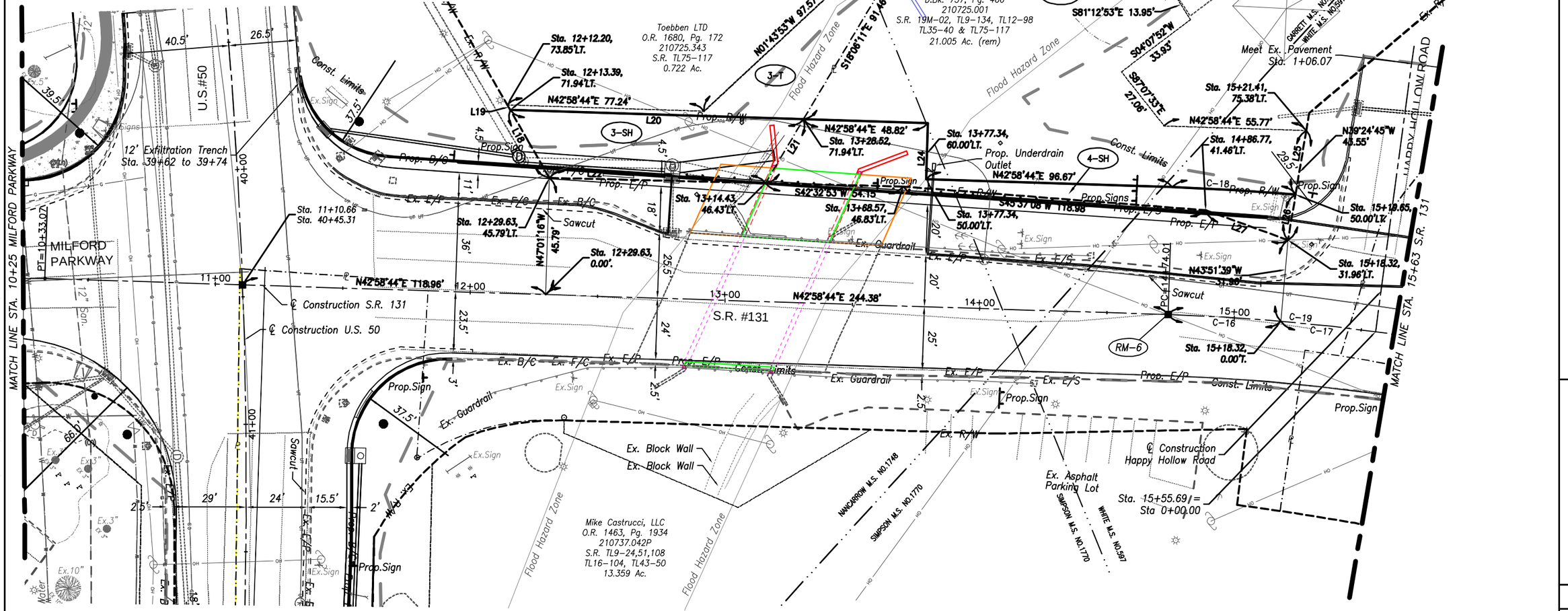
110
132

Plot time: Jun 13, 2012 – 12:09pm
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (US 50) – Layout Tab: RW US 50

REV. BY	DATE	
DATE COMPLETED		

LINE TABLE		
Line	Direction	Distance
L18	N78°51'52"W	30.78
L19	N78°51'52"W	2.25
L20	N42°58'44"E	115.13
L21	S18°06'11"E	29.15
L22	S42°32'53"W	84.80
L23	N08°45'25"E	16.89
L24	S47°01'16"E	21.94
L25	S39°24'45"E	25.45
L26	S39°24'45"E	18.09
L27	S61°04'24"W	34.33

CURVE TABLE					
Curve	Delta	Radius	Length	Chord	
C-16	3°09'37"	803.42'	44.31'	N44°33'33"E	44.31'
C-17	3°35'12"	803.42'	50.29'	S47°55'57"W	50.29'
C-18	3°15'16"	853.42'	48.48'	N44°36'22"E	48.47'
C-19	6°44'49"	803.42'	94.61'	N46°21'09"E	94.55'



CALCULATED	BRJ
CHECKED	JOL

HORIZONTAL SCALE IN FEET
0 10 20 40

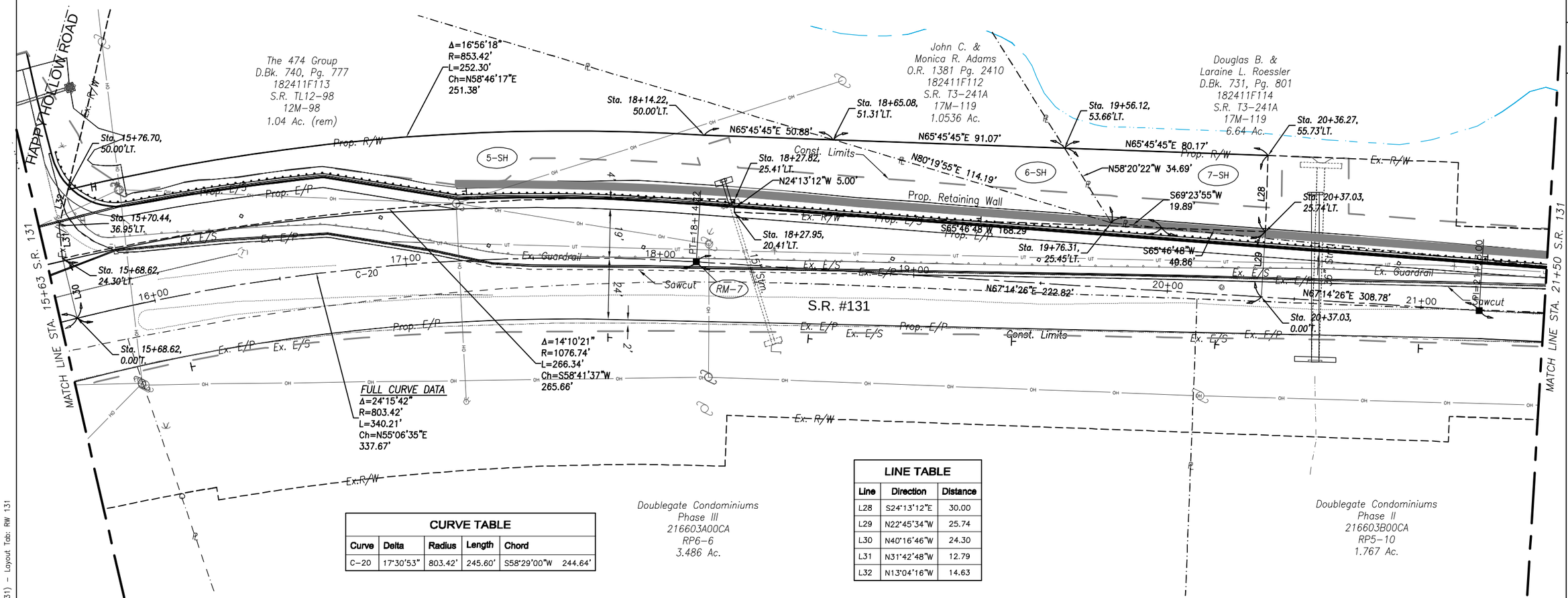
RIGHT OF WAY DETAIL SHEET - S.R. 131
STA. 10+25 TO STA. 15+80

CLE-50-1.48
MILFORD PARKWAY

8/11

111
132

Plot time: Aug. 30, 2012 - 9:40am
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (SR131) - Layout Tab: RW 131



CURVE TABLE				
Curve	Delta	Radius	Length	Chord
C-20	17°30'53"	803.42'	245.60'	S58°29'00"W 244.64'

LINE TABLE		
Line	Direction	Distance
L28	S24°13'12"E	30.00
L29	N22°45'34"W	25.74
L30	N40°16'46"W	24.30
L31	N31°42'48"W	12.79
L32	N13°04'16"W	14.63

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BRJ
CHECKED JOL

RIGHT OF WAY DETAIL SHEET - S.R. 131
STA. 15+80 TO STA. 21+50

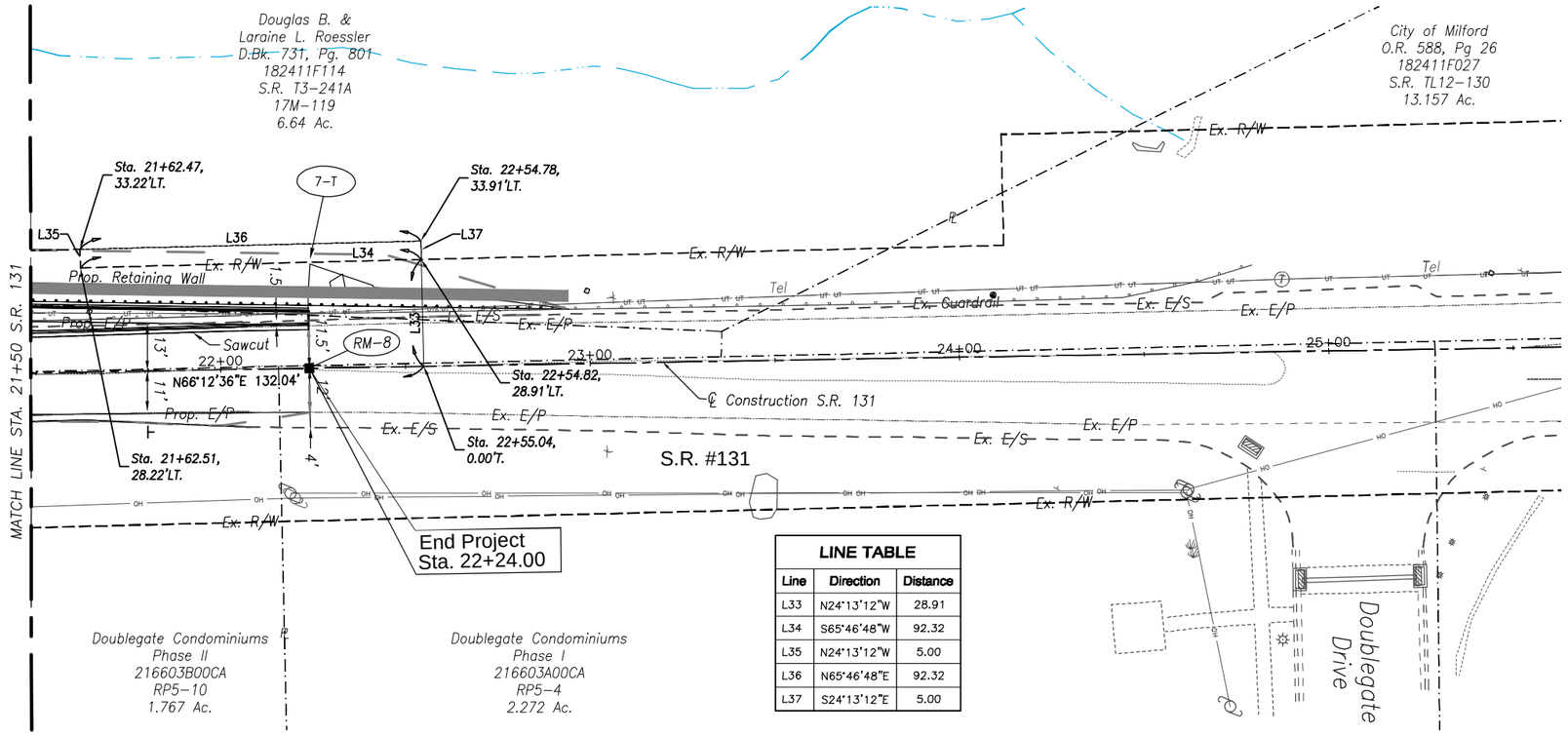
CLE-50-1.48
MILFORD PARKWAY

9/11

112
132

REV. BY	DATE	
DATE COMPLETED		

Plot time: Jun 13, 2012 - 12:16pm
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (SR131) - Layout Tab: RW 131



LINE TABLE		
Line	Direction	Distance
L33	N24°13'12"W	28.91
L34	S65°46'48"W	92.32
L35	N24°13'12"W	5.00
L36	N65°46'48"E	92.32
L37	S24°13'12"E	5.00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED BRJ
CHECKED JOL

RIGHT OF WAY DETAIL SHEET - S.R. 131
STA. 21+50 TO STA. 24+00

CLE-50-1.48
MILFORD PARKWAY

10/11

113
132

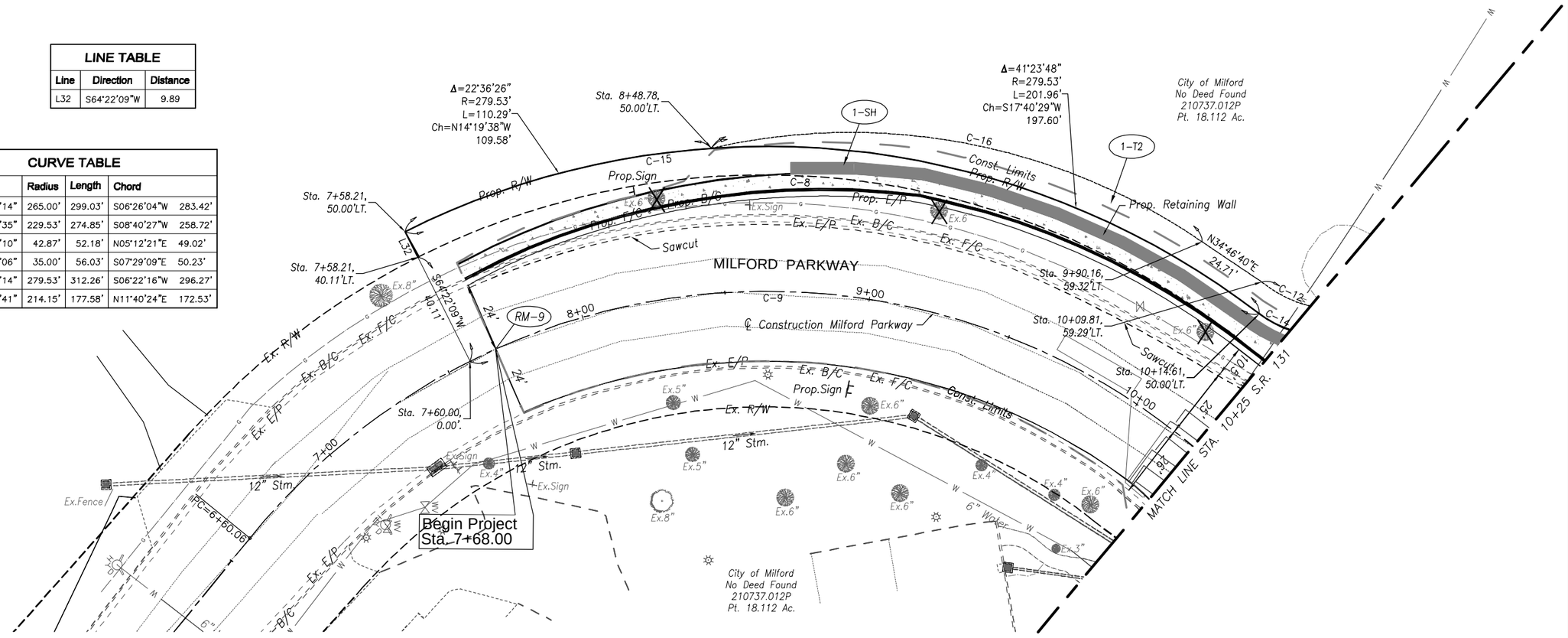
REV. BY	DATE	

DATE COMPLETED

Plot time: Jun 13, 2012 - 12:17pm
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (SR131) - Layout Tab: RW 131

LINE TABLE		
Line	Direction	Distance
L32	S64°22'09"W	9.89

CURVE TABLE				
Curve	Delta	Radius	Length	Chord
C-8	64°39'14"	265.00'	299.03'	S06°26'04"W 283.42'
C-9	68°36'35"	229.53'	274.85'	S08°40'27"W 258.72'
C-12	69°44'10"	42.87'	52.18'	N05°12'21"E 49.02'
C-14	91°43'06"	35.00'	56.03'	S07°29'09"E 50.23'
C-15	64°00'14"	279.53'	312.26'	S06°22'16"W 296.27'
C-16	47°30'41"	214.15'	177.58'	N11°40'24"E 172.53'



REV. BY	DATE	
DATE COMPLETED		

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED BRJ CHECKED JOL

RIGHT OF WAY DETAIL SHEET - MILFORD PARKWAY
STA. 6+50 TO STA. 10+25

CLE-50-1.48
MILFORD PARKWAY

11/11

114
132

Plot time: Jun 14, 2012 - 12:47pm
Drawing name: J:\2009\09C145-001\TR\DWG\Right of Way Plan\09C145-001 RW (Milford) - Layout Tab: 114 RW MILFORD PKWY

PROJECT DESCRIPTION

IMPROVEMENTS TO THE INTERSECTION OF US ROUTE 50 AND OHIO STATE ROUTE 131, IN CLERMONT COUNTY, OHIO. THE IMPROVEMENTS WILL CONSIST OF THE WIDENING OF THE INTERSECTION TO ACCOMMODATE TURNING LANES, THE WIDENING OF A BRIDGE (CLE-131-0.03) CARRYING SR 131 OVER HAPPY HOLLOW CREEK JUST NORTH OF US 50 AND THE CONSTRUCTION OF TWO NEW RETAINING WALLS. THE FIRST PROPOSED RETAINING WALL IS ALIGNED ALONG THE SOUTH SIDE OF US 50 WEST OF THE INTERSECTION AND CONTINUES SOUTH ON TO MILFORD PARKWAY AT THE INTERSECTION. THE SECOND PROPOSED RETAINING WALL IS ALIGNED ALONG THE WEST SIDE OF SR 131, BEGINNING APPROXIMATELY 700 FEET NORTH OF THE INTERSECTION.

HISTORIC RECORDS

NO HISTORIC RECORDS WERE OBTAINED.

GEOLOGY

THE STUDY AREA LIES WITHIN THE ILLINOIAN TILL PLAIN REGION OF THE TILL PLAINS SECTION. THIS AREA IS CHARACTERIZED BY ILLINOIAN-AGED GROUND MORAINE DEPOSITS OF SILTY LOAM (RAINSBORO, CENTERVILLE, RICHMOND, BUTLER, MAPLEDALE, MILLBROOK, MOGADORE AND TITUSVILLE TILLS) COVERED BY APPROXIMATELY 3 TO 10 FEET OF LOESS (WIND-BLOWN EROSIONAL DEPOSITS).

THE BEDROCK SURFACE CONSISTS OF THE KOPE FORMATION WHICH GENERALLY AVERAGES 75 PERCENT SHALE AND 25 PERCENT LIMESTONE AND RANGES IN THICKNESS BETWEEN 200 TO 260 FEET. REGIONALLY, THE TOP OF BEDROCK GENERALLY FOLLOWS THE GROUND SURFACE AND IS RELATIVELY SHALLOW IN THE PROJECT AREA. THE BEDROCK SLOPES DOWNWARD ACROSS THE INTERSECTION TOWARD THE SOUTHWEST, WITH THE TOP OF BEDROCK RANGING FROM APPROXIMATE ELEVATIONS OF 500 FEET MSL AT THE NORTHEAST NEAR DOUBLEGATE DRIVE TO 475 FEET MSL JUST SOUTH OF THE INTERSECTION. BASED ON THE BORINGS PERFORMED FOR THE CURRENT PROJECT, THE DEPTH TO BEDROCK NEAR THE CLE-131-0.03 BRIDGE STRUCTURE RANGED FROM 45.5 TO 61.5 FEET BELOW THE GROUND SURFACE.

RECONNAISSANCE

THE INTERCHANGE IS CURRENTLY A FOUR-WAY SIGNALIZED INTERSECTION IN A COMMERCIAL AREA. US 50 (ALSO KNOWN AS LILA AVENUE) IS A FOUR LANE TO TWO LANE, ASPHALT PAVED ROADWAY ALIGNED NORTHWEST TO SOUTHEAST AT THE INTERSECTION WITH SR 131. SR 131 IS GENERALLY A THREE LANE (WITH ADDITIONAL TURN LANES AT THE INTERSECTIONS) ASPHALT PAVED ROADWAY ALIGNED IN A SOUTHWEST TO NORTHEAST ORIENTATION AT THE INTERSECTION. A BRIDGE STRUCTURE (CLE-131-0.03) LIES APPROXIMATELY 200 FEET NORTHEAST OF THE INTERSECTION ON SR 131. THIS BRIDGE CROSSES OVER HAPPY HOLLOW CREEK. THE GENERAL SLOPE ACROSS THE INTERSECTION TO THE NORTHEAST TOWARD HAPPY HOLLOW CREEK AND THEN FALLING AWAY TO THE SOUTHWEST AND SOUTH TOWARD THE EAST FORK LITTLE MIAMI RIVER.

SUBSURFACE EXPLORATION

BETWEEN MARCH 2 AND 21, 2011, A TOTAL OF FOURTEEN (14) TEST BORINGS, DESIGNATED AS B-001-0-11 THROUGH B-014-0-11, WERE DRILLED TO DEPTHS RANGING FROM 10.0 TO 64.2 FEET BELOW THE EXISTING GROUND SURFACE. TO FURTHER DELINEATE THE TOP OF BEDROCK ELEVATION IN THE VICINITY OF THE PROPOSED RETAINING WALL ALONG SR 131, TWO (2) ADDITIONAL BORINGS, DESIGNATED AS B-011-1-11 AND B-013-1-11, WERE DRILLED AT THE BASE OF THE SLOPE ADJACENT TO THE ROADWAY ON THE NORTHWEST SIDE OF SR 131. BORINGS B-011-1-11 AND B-013-1-11 WERE DRILLED ON AUGUST 23, 2011 TO COMPLETION DEPTHS OF 27.4 FEET AND 28.4 FEET, RESPECTIVELY.

THE BORINGS WERE DRILLED USING AN ALL TERRAIN VEHICLE (ATV)-MOUNTED ROTARY DRILLING MACHINE, UTILIZING EITHER A 3.75-INCH OR 4.25-INCH CONTINUOUS, HOLLOW-STEM AUGER OR A 4.5-INCH CONTINUOUS, SOLID FLIGHT AUGER TO ADVANCE THE HOLES. RII UTILIZED A CALIBRATED AUTOMATIC DROP HAMMER TO GENERATE CONSISTENT ENERGY TRANSFER TO THE SAMPLER. THE HAMMER FOR THE ATV-MOUNTED DRILL RIG USED FOR THE INITIAL BORINGS PERFORMED BETWEEN MARCH 2 AND 21, 2011, WAS CALIBRATED ON MAY 28, 2009 AND HAD A DRILL ROD ENERGY RATIO OF 88.7 PERCENT. THE HAMMER FOR THE ATV-MOUNTED DRILL RIG USED FOR THE ADDITIONAL BORINGS PERFORMED ON AUGUST 23, 2011 WAS CALIBRATED ON MAY 6, 2011 AND HAS A DRILL ROD ENERGRY RATIO OF 77.1 PERCENT.

UPON COMPLETION OF DRILLING, THE BORINGS WERE EITHER BACKFILLED WITH SOIL CUTTINGS GENERATED DURING THE DRILLING PROCESS OR SEALED WITH A BENTONITE CEMENT GROUT IN ACCORDANCE TO ODOT GUIDELINES. ANY DISTURBED PAVEMENT SURFACES WERE REPAIRED WITH AN EQUIVALENT THICKNESS OF COLD PATCH ASPHALT OR FAST SET CONCRETE.

WHERE BORINGS WERE EXTENDED INTO THE BEDROCK (AFTER ENCOUNTERING AUGER/SPILT-SPOON SAMPLER REFUSAL), A NQ-SIZED DOUBLE-TUBE DIAMOND BIT CORE BARREL WITH WIRELINE EQUIPMENT WAS USED TO CORE THE BEDROCK. CORING PRODUCED 2.0-INCH DIAMETER CORES FROM WHICH THE TYPE OF ROCK AND ITS GEOLOGICAL CHARACTERISTICS WERE DETERMINED.

EXPLORATION FINDINGS

BORINGS B-003-0-11 THROUGH B-009-0-11, B-011-1-11 AND B-013-1-11 ENCOUNTERED 2.0 TO 14.0 INCHES OF TOPSOIL AT THE GROUND SURFACE, AS IDENTIFIED BY THE SIGNIFICANT PRESENCE OF VEGETATION AND ORGANIC MATERIALS. THE REMAINING BORINGS WERE DRILLED THROUGH THE EXISTING PAVEMENT ALONG US 50 AND SR 131 AND ENCOUNTERED 7.5 TO 24.0 INCHES OF ASPHALT OVERLYING 6.0 TO 10.0 INCHES OF AGGREGATE BASE.

LEGEND

	DESCRIPTION	ODOT CLASS	CLASSIFIED MECH./VISUAL	
	GRAVEL AND/OR STONE FRAGMENTS	*A-1-a*	*1*	*4*
	GRAVEL AND/OR STONE FRAGMENTS WITH SAND	*A-1-b*	*5*	*10*
	GRAVEL AND/OR ST. FRAGS. WITH SAND AND SILT	*A-2-4*	*1*	*3*
	GRAVEL AND/OR ST. FRAGS. WITH SAND, SILT & CLAY	*A-2-6*	*1*	*2*
	COARSE AND FINE SAND	*A-3a*	*1*	*2*
	SANDY SILT	*A-4a*	*4*	*2*
	SILT	*A-4b*	*8*	*6*
	SILT AND CLAY	*A-6a*	*13*	*41*
	SILTY CLAY	*A-6b*	*7*	*20*
	CLAY	*A-7-6*	*11*	*22*
		TOTAL	*52*	*112*
	LIMESTONE	*VISUAL*		
	SHALE	*VISUAL*		
	INTERBEDDED SHALE AND LIMESTONE	*VISUAL*		
	PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
	SOD AND TOPSOIL = X = APPROXIMATE THICKNESS	*VISUAL*		

EXPLORATION LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

W— INDICATES FREE WATER ELEVATION.

▼— INDICATES STATIC WATER ELEVATION.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

● INDICATES A PLASTIC MATERIAL WITH A MOISTURE CONTENT EQUAL TO OR GREATER THAN THE LIQUID LIMIT MINUS 3.

⊖ INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25% OR GREATER THAN 19% WITH A WET APPEARANCE.

* INDICATES A SAMPLE TAKEN WITHIN 3 FT OF PROPOSED GRADE.

SS INDICATES A SPLIT-SPOON SAMPLE.

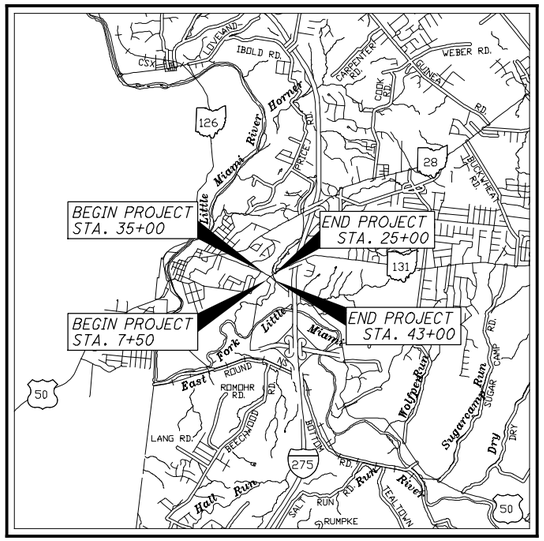
TR INDICATES THE TOP OF ROCK.

EXPLORATION FINDINGS (CONTINUED)

BENEATH THE SURFACE MATERIALS IN BORINGS B-001-0-11 THROUGH B-003-0-11, B-010-0-11 AND B-011-1-11 THROUGH B-014-0-11, MATERIAL IDENTIFIED AS EXISTING FILL WAS ENCOUNTERED EXTENDING TO DEPTHS RANGING FROM 5.5 TO 17.5 FEET BELOW THE GROUND SURFACE. THE FILL CONSISTED PRIMARILY OF BROWN AND GRAY SANDY SILT, SILT, SILT AND CLAY, SILTY CLAY, AND CLAY (ODOT A-4a, A-4b, A-6a, A-6b, A-7-6), AND BROWN, GRAVEL AND SAND, GRAVEL WITH SAND AND SILT, AND GRAVEL WITH SAND, SILT AND CLAY (ODOT A-1-b, A-2-4, A-2-6).

BENEATH THE EXISTING FILL, AND THE SURFACE MATERIALS IN THE REMAINING BORINGS, NATURAL COHESIVE AND GRANULAR SOILS WERE ENCOUNTERED. THE COHESIVE SOILS WERE GENERALLY DESCRIBED AS BROWN AND GRAY SANDY SILT, SILT, SILT AND CLAY, SILTY CLAY AND CLAY (ODOT A-4a, A-4b, A-6a, A-6b, A-7-6). THE GRANULAR SOILS WERE GENERALLY DESCRIBED AS BROWN AND GRAY GRAVEL, GRAVEL AND SAND, COARSE AND FINE SAND, GRAVEL WITH SAND AND SILT, GRAVEL WITH SAND, SILT AND CLAY, AND SILT (ODOT A-1-a, A-1-b, A-3a, A-2-4, A-2-6, A-4b). COBBLES AND/OR BOULDERS WERE NOTED DURING DRILLING IN BORINGS B-009-0-11 THROUGH B-014-0-11. IN ADDITION, THE PRESENCE OF ORGANIC MATTER WAS ENCOUNTERED IN BORINGS B-009-0-11 AND B-012-0-11, AND A PETROLEUM ODOR WAS NOTED IN B-013-0-11.

(CONTINUED ON SHEET 2)



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

INDEX OF SHEETS

LOCATION FROM STA.	TO STA.	PLAN VIEW SHEET	PROFILE SHEET	CROSS-SECTION SHEET	CUT MAX.	FILL EMB. MAX.
US 50						
35+00	43+00	4	4	-	<1 FT	<1 FT
SR 131						
7+50	20+00	5	5	-	<1 FT	<1 FT
20+00	25+00	6	6	-	<1 FT	<1 FT

RECON. - RB 02/10/11

DRILLING - RB 3/2/11 - 3/21/11

TF 8/23/11

DRAWN - RRM 03/29/12

REVIEWED - JPS 03/29/12

DESIGN AGENCY
RESOURCE INTERNATIONAL
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231

PID NO. 89291

SOIL PROFILE

CLE-50-1.48

RII PROJECT: B-07-020(4)

DRAWN RRM
CHECKED JPS

EXPLORATION FINDINGS (CONTINUED)

THE SHEAR STRENGTH AND CONSISTENCY OF THE COHESIVE SOILS ARE PRIMARILY DERIVED FROM THE HAND PENETROMETER VALUES (HP). THE COHESIVE SOIL ENCOUNTERED RANGED FROM VERY SOFT (HP ≤ 0.25 TSF) TO HARD (HP > 4.0 TSF). THE UNCONFINED COMPRESSIVE STRENGTH OF THE COHESIVE SOIL SAMPLES TESTED, OBTAINED FROM THE HAND PENETROMETER, RANGED FROM 0.25 TSF TO OVER 4.5 TSF (LIMIT OF THE INSTRUMENT). THE RELATIVE DENSITY OF GRANULAR SOILS IS PRIMARILY DERIVED FROM SPT BLOW COUNTS (N60). BASED ON THE SPT BLOW COUNTS OBTAINED, THE GRANULAR SOILS ENCOUNTERED RANGED FROM VERY LOOSE (N60 < 5 BLOWS PER FOOT [BPF]) TO VERY DENSE (N60 > 50 BPF). BLOW COUNTS RECORDED FROM THE SPT SAMPLING FOR ALL SAMPLES RANGED FROM 3 BPF TO SPLIT SPOON SAMPLER REFUSAL, GENERALLY INCREASING WITH DEPTH. SPLIT SPOON SAMPLER REFUSAL IS DEFINED AS EXCEEDING 50 BLOWS WITH LESS THAN 6 INCHES OF PENETRATION BY THE SPLIT SPOON SAMPLER.

NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 1 TO 39 PERCENT. THE NATURAL MOISTURE CONTENTS OF THE COHESIVE SOIL SAMPLES TESTED FOR PLASTICITY INDEX RANGED FROM 11 PERCENT BELOW TO 13 PERCENT ABOVE THEIR CORRESPONDING PLASTIC LIMITS. IN THE CASE OF BORING B-009-0-11, SS-6, THE NATURAL MOISTURE CONTENT WAS 4 PERCENT ABOVE THE CORRESPONDING LIQUID LIMIT. IN GENERAL, THE SOILS EXHIBITED NATURAL MOISTURE CONTENTS ESTIMATED TO BE SIGNIFICANTLY BELOW TO SIGNIFICANTLY ABOVE OPTIMUM MOISTURE LEVELS.

CONTINUOUS SAMPLING WAS PERFORMED STARTING BELOW THE STREAM BED ELEVATION IN BORINGS B-009-0-11 AND B-010-0-11 FOR A 6.0-FOOT INTERVAL TO DETERMINE THE D50 OF THE STREAM BED SOIL. THE STREAM BED SOILS ARE CLASSIFIED AS GRAVEL, GRAVEL WITH SAND AND SILT, GRAVEL WITH SAND, SILT AND CLAY, SILT, SILT AND CLAY AND SILTY CLAY (ODOT A-1-a, A-2-4, A-2-6, A-4b, A-6a, A-6b). BASED UPON THE GRAIN SIZE ANALYSIS PERFORMED, THE D50 OF THE GRANULAR MATERIAL ENCOUNTERED RANGED FROM 0.21 TO 4.81 MILLIMETERS, AND THE D50 OF THE COHESIVE MATERIAL ENCOUNTERED RANGED FROM 0.01 TO 0.02 MILLIMETERS.

D_{50} VALUES			
BORING NO.	SAMPLE NO.	ELEVATION	D_{50} VALUE
B-009-0-11	SS-6	515.7' - 514.2'	0.0200 mm
	SS-7	514.2' - 512.7'	0.2500 mm
	SS-8	512.7' - 511.2'	0.2100 mm
B-010-0-11	SS-6	516.6' - 515.1'	0.0100 mm
	SS-7	515.1' - 513.6'	1.9900 mm
	SS-8	513.6' - 512.1'	4.8100 mm

BEDROCK WAS ENCOUNTERED IN BORINGS B-009-0-11, B-010-0-11, B-011-1-11 AND B-012-0-11 THROUGH B-014-0-11 AT DEPTHS RANGING FROM 19.4 TO 61.5 FEET BELOW THE EXISTING GROUND SURFACE. THE BEDROCK WAS DESCRIBED AS PRIMARILY GRAY AND BLUISH GRAY, VERY WEAK, HIGHLY WEATHERED SHALE. IN GENERAL, THE BEDROCK WAS ABLE TO BE AUGERED WITH CONVENTIONAL DRILLING EQUIPMENT TO THE TERMINATION DEPTHS. THE UNDERLYING CORED BEDROCK ENCOUNTERED IN BORING B-011-1-11 CONSISTS OF LIMESTONE OVERLYING SHALE. THE LIMESTONE IS DESCRIBED AS DARK TO LIGHT GRAY, MODERATELY WEATHERED, MODERATELY STRONG, THIN TO MEDIUM BEDDED, HIGHLY FRACTURED AND VERY ROUGH. THE SHALE IS DESCRIBED AS DARK GRAY, HIGHLY WEATHERED, WEAK, LAMINATED, HIGHLY FRACTURED AND SLIGHTLY ROUGH.

IT SHOULD BE NOTED THAT BEDROCK EXPERIENCES MECHANICAL BREAKS DURING THE DRILLING AND CORING PROCESSES. RII ATTEMPTED TO ACCOUNT FOR FRESH, MANMADE BREAKS DURING TABULATION OF THE RQD ANALYSIS. THE QUALITY OF THE CORED BEDROCK, ACCORDING TO THE RQD VALUE, WAS VERY POOR (RQD < 25%).

GROUNDWATER WAS ENCOUNTERED INITIALLY DURING DRILLING IN BORINGS B-001-0-11, B-003-0-11, B-005-0-11, B-006-0-11, B-009-0-11, B-010-0-11 AND B-012-0-11 AT DEPTHS RANGING FROM 7.0 TO 38.0 FEET BELOW THE EXISTING GROUND SURFACE. AT THE COMPLETION OF DRILLING AND AFTER REMOVING THE AUGERS, GROUNDWATER HAD ACCUMULATED IN THE BOREHOLES IN BORINGS B-001-0-11, B-003-0-11, B-005-0-11 AND B-010-0-11 TO DEPTHS RANGING FROM 7.0 TO 45.0 FEET BELOW THE GROUND SURFACE. GROUNDWATER WAS NOT ENCOUNTERED IN THE REMAINING BORINGS. PLEASE NOTE THAT CAVE-IN OCCURRED IN SEVERAL OF THE BORINGS AFTER REMOVING THE AUGERS AT DEPTHS RANGING FROM 4.5 TO 53.8 FEET BELOW THE EXISTING GROUND SURFACE. THE CAVING LIKELY INFLUENCED THE GROUNDWATER READINGS UPON COMPLETION (I.E., THE CAVED-IN MATERIAL MAY HAVE DISPLACED THE WATER IN THE BOREHOLE, PREVENTED INSTRUMENTS FROM MEASURING THE GROUNDWATER OR SMALL VOLUMES OF WATER SEEPAGE MAY HAVE COLLECTED ON TOP OF THE CAVED-IN SOIL).

SPECIFICATIONS

THIS GEOTECHNICAL EXPLORATION WAS PERFORMED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, OFFICE OF GEOTECHNICAL ENGINEERING, SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS, DATED JANUARY 2011.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL AND BEDROCK INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE GEOTECHNICAL EXPLORATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

SOIL PROFILE

CLE-50-1.48

SUMMARY OF SOIL TEST DATA
US 50

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-003-0-11	00.40	01.50	SS-1	56	23	9	17	32	19	27	16	11	12	A-6a (4) *
STA. 42.16.28, 34.3' LT.	01.50	03.00	SS-2	67	32	12	16	26	14	24	16	8	9	A-4a (1) *
NORTHING = 432022.070	03.00	04.50	SS-3	67	FILL: V. STIFF, SILTY CLAY, LITTLE COARSE TO FINE SAND, TR. FINE GRAVEL								21	A-6b (VISUAL)
EASTING = 1465817.868	04.50	06.00	SS-4	39				SAME AS SS-3					17	A-6b (VISUAL)
	08.50	10.00	SS-5	67				SAME AS SS-3					21	A-6b (VISUAL)
B-007-0-11	00.00	00.55	SS-1	100	31	12	16	20	21	27	15	12	12	A-6a (2) *
STA. 41+16.67, 36.4' LT.	01.50	03.00	SS-2	83	14	10	14	31	31	30	15	15	14	A-6a (7) *
NORTHING = 432090.849	03.00	04.50	SS-3	78				SAME AS SS-2					17	A-6a (VISUAL)
EASTING = 1465744.551	04.50	06.00	SS-4	100				SAME AS SS-2					17	A-6a (VISUAL)
	08.50	10.00	SS-5	83				SAME AS SS-2					23	A-6a (VISUAL)

SUMMARY OF SOIL TEST DATA
SR 131

EXPLORATION NO., STATION & OFFSET	FROM	TO	SAMPLE ID	% REC	% GR	% CS	% FS	% SILT	% CLAY	LL	PL	PI	% WC	ODOT CLASS (GI)
B-008-0-11	01.20	02.70	SS-1	56	56	17	9	12	6	20	15	5	5	A-1-b (0) *
STA. 12+04.23, 42.2' LT.	02.70	04.20	SS-2	67	29	8	22	20	21	26	14	12	15	A-6a (2) *
NORTHING = 432206.399	04.20	05.70	SS-3	78				SAME AS SS-2					16	A-6a (VISUAL)
EASTING = 1465698.985	05.70	07.20	SS-4	44				SAME AS SS-2					12	A-6a (VISUAL)
	08.50	10.00	SS-5	67				SAME AS SS-2					14	A-6a (VISUAL)
B-011-0-11	01.00	02.50	SS-1	44	V. STIFF, SILT, SOME CLAY, LITTLE COASE TO FINE SAND, TR. FINE GRAVEL								13	A-4b (VISUAL)*
STA. 16+21.05, 13.5' LT.	02.50	04.00	SS-2	67	9	6	10	53	22	22	16	6	16	A-4b (8) *
NORTHING = 432483.701	04.00	05.50	SS-3	78	2	4	9	64	21	22	15	7	18	A-4b (8)
EASTING = 1466015.208	05.50	07.00	SS-4	83				SAME AS SS-3					24	A-4b (VISUAL)
	08.50	10.00	SS-5	83				SAME AS SS-3					23	A-4b (VISUAL)

DRAWN RRM
CHECKED JPS

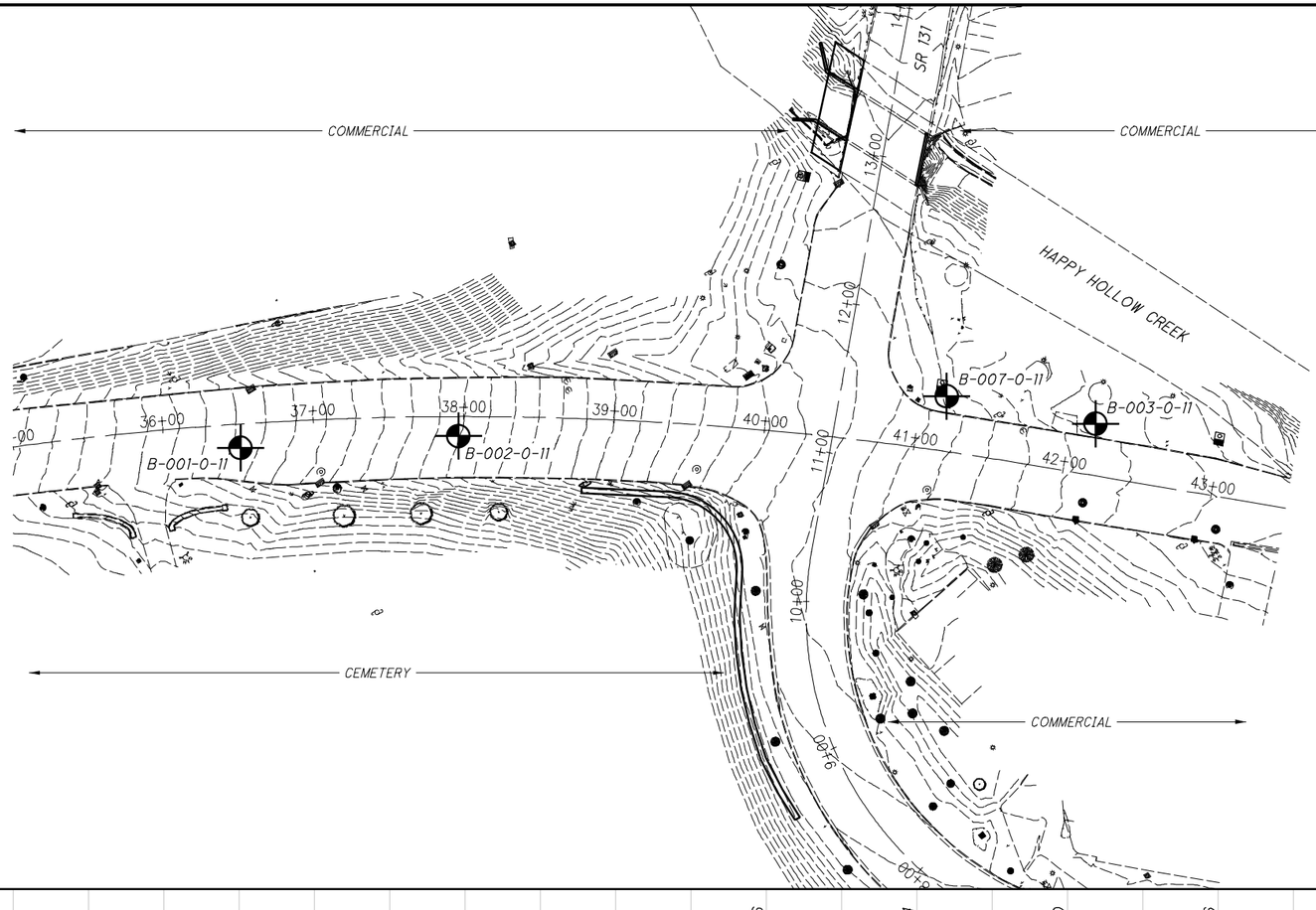
SOIL PROFILE
SUMMARY OF SOIL TEST DATA

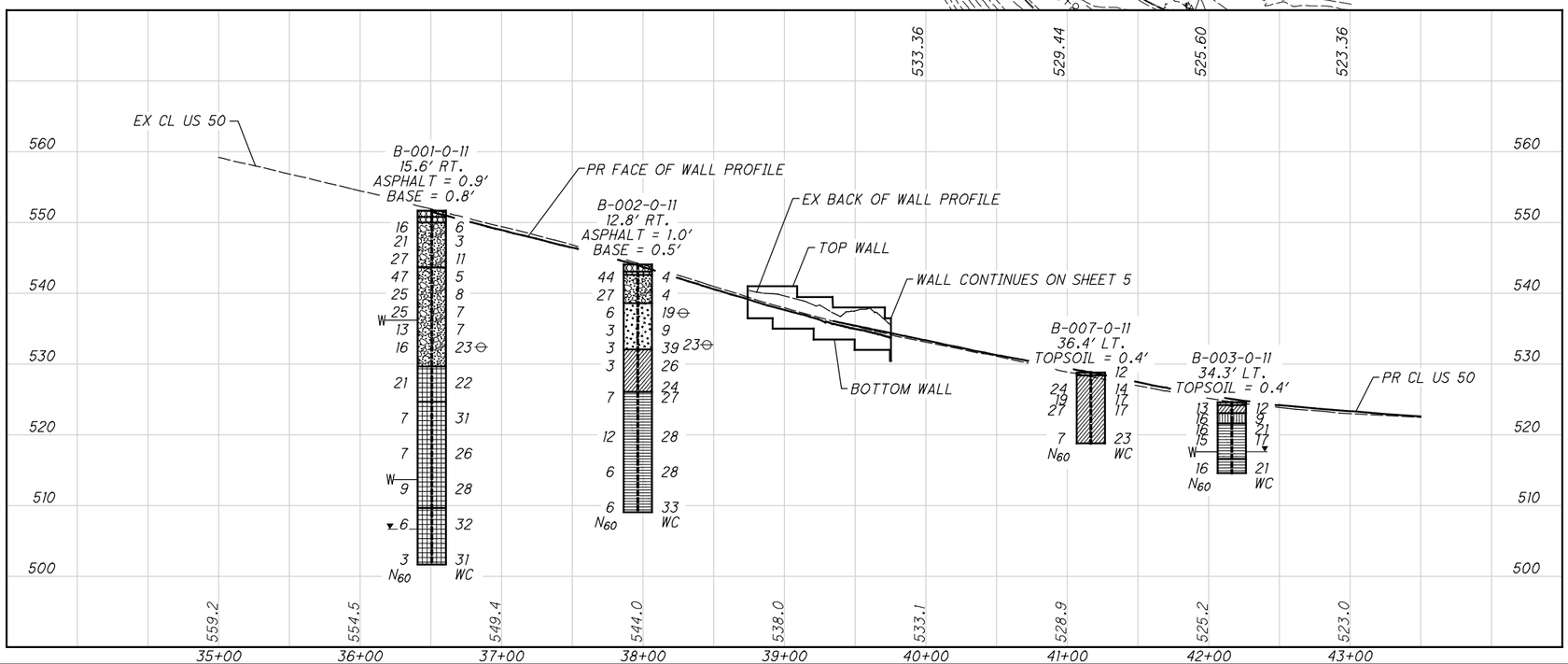
CLE-50-1.48

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132

RII PROJECT: B-07-020(4)





SOIL PROFILE
STA. 35+00 TO STA. 43+50 US 50

HORIZONTAL SCALE IN FEET
0 25 50 100

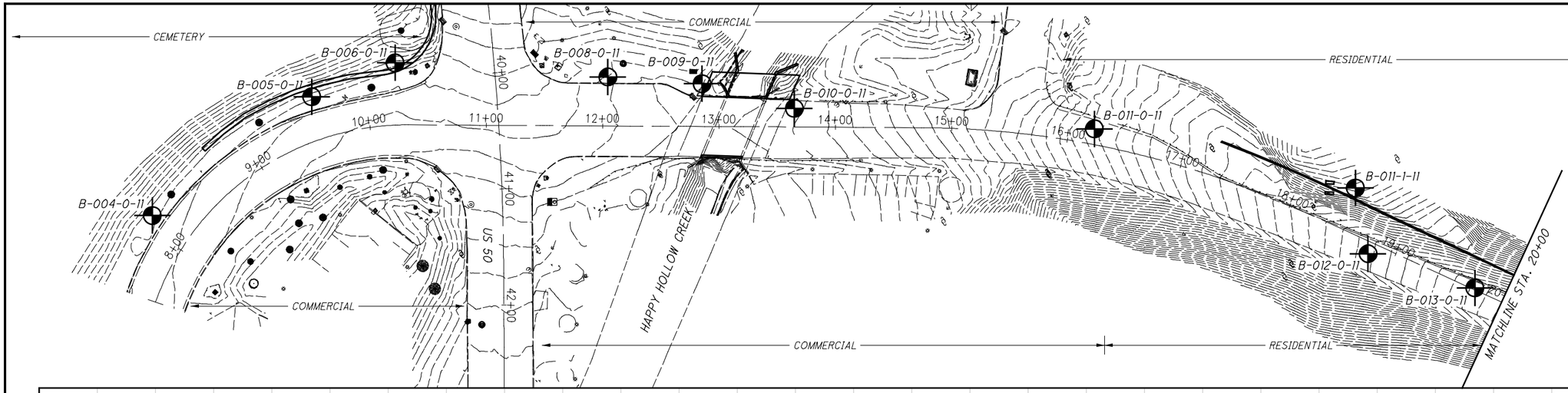
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CHECKED JPS

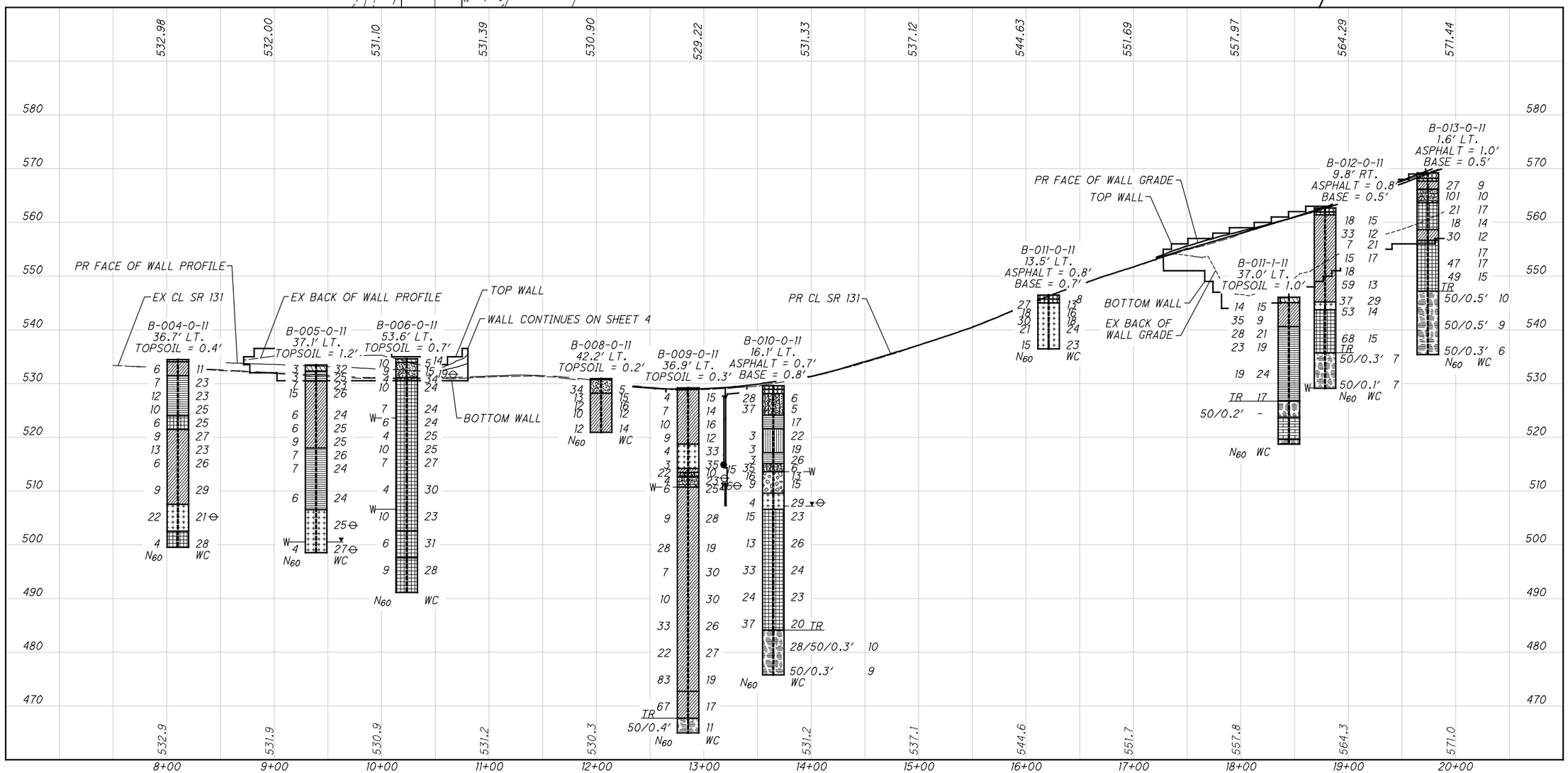
CLE-50-1.48

4 / 18

118 / 132

RII PROJECT: B-07-020(4)





RII PROJECT: B-07-020(4)

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN RRM
CHECKED JPS

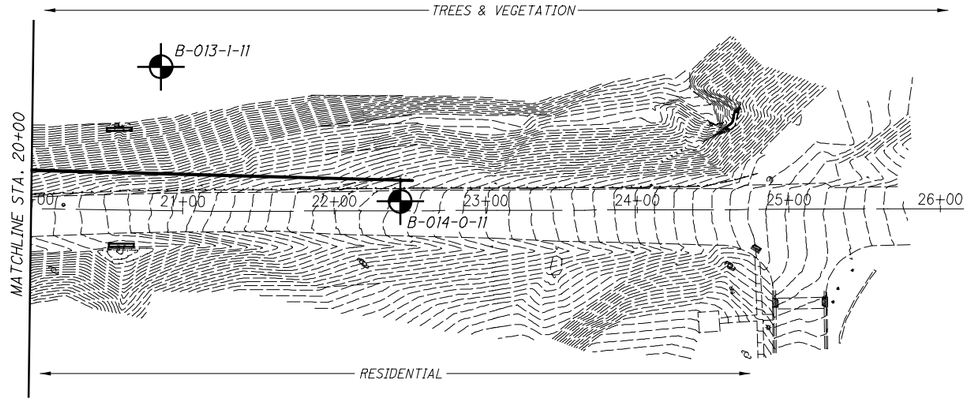
SOIL PROFILE

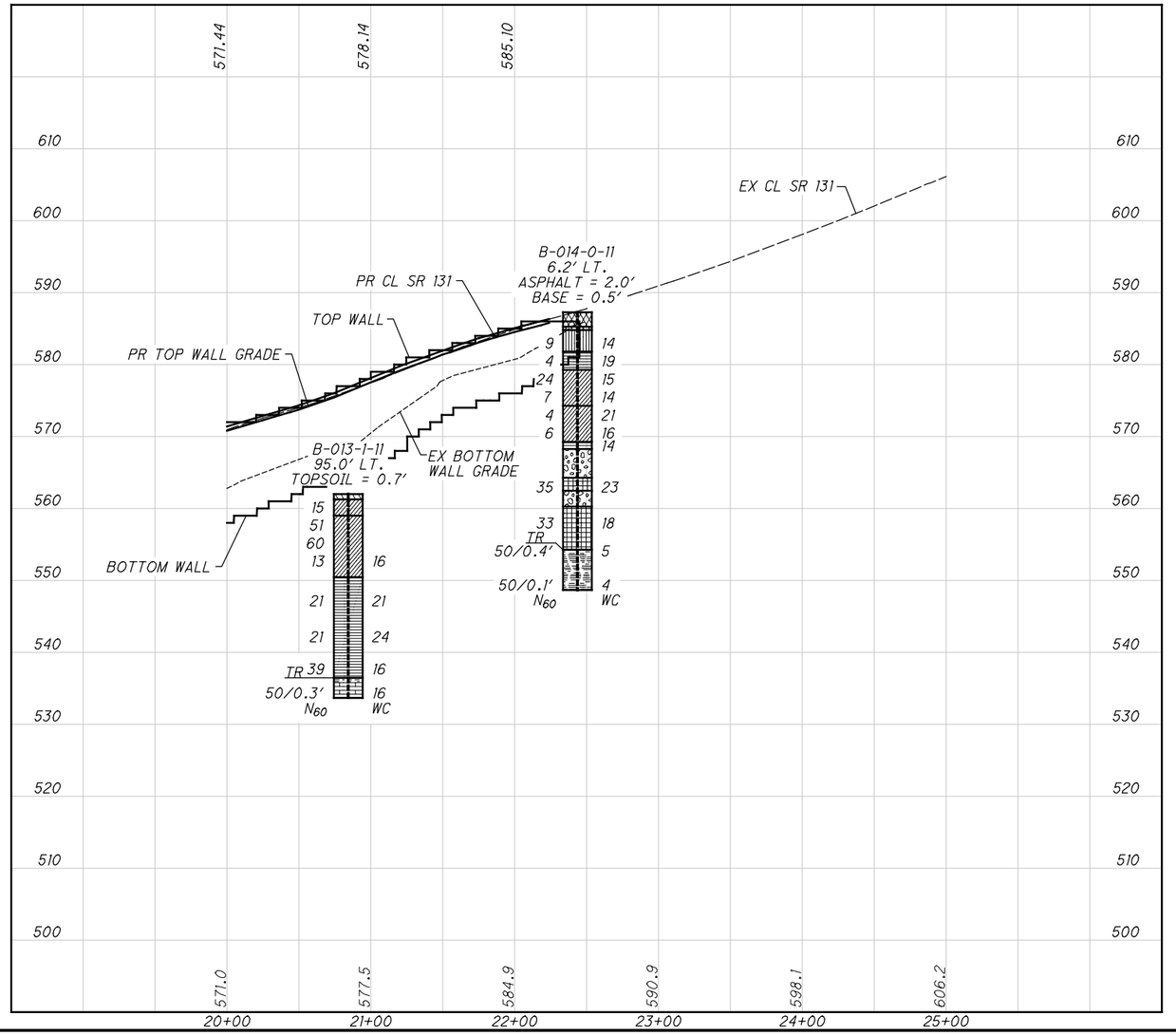
STA. 7+50 TO STA. 20+00 SR 131

CLE-50-1.48

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119 / 132





RII PROJECT: B-07-02(4)

HORIZONTAL SCALE IN FEET
0 25 50 100

DRAWN RRM
CHECKED JPS

SOIL PROFILE
STA. 20+00 TO STA. 25+00 SR 131

CLE-50-1.48

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 36+50.62 / 15.6' Rt	EXPLORATION ID B-001-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: US 50	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 551.7 (MSL) EOB: 50.0 ft.	PAGE 1 OF 1
START: 3/2/11 END: 3/2/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432316.000 N, 1465331.730 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.9' - ASPHALT (11.0")	551.7																	
0.8' - AGGREGATE BASE (9.0")	550.8																	
FILL: MEDIUM DENSE, BROWN **GRAVEL AND SAND**, LITTLE SILT, TRACE CLAY, DRY TO DAMP.	550.0		9 7 4	16	44	SS-1	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	
			2 3 11	21	11	SS-2	-	-	-	-	-	-	-	-	-	3	A-1-b (V)	
			14 8 10	27	50	SS-3	-	44	14	17	18	7	20	15	5	11	A-1-b (0)	
MEDIUM DENSE TO DENSE, BROWN **GRAVEL AND SAND**, SOME SILT, TRACE CLAY, DRY TO WET.	543.7		8 10 22	47	67	SS-4	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
			8 8 9	25	72	SS-5	-	-	-	-	-	-	-	-	-	8	A-1-b (V)	
			4 8 9	25	78	SS-6	-	29	40	8	22	1	NP	NP	NP	7	A-1-b (0)	
			6 5 4	13	67	SS-7	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	
		W	5 5 6	16	89	SS-8	-	-	-	-	-	-	-	-	-	23	A-1-b (V)	
VERY STIFF, GRAY **CLAY**, SOME SILT, TRACE COARSE TO FINE SAND, MOIST.	529.7		3 6 8	21	89	SS-9	3.25	-	-	-	-	-	-	-	-	22	A-7-6 (V)	
STIFF, GRAY **CLAY**, SOME SILT, MOIST.	524.7		2 2 3	7	100	SS-10	1.50	0	0	0	26	74	42	20	22	31	A-7-6 (13)	
			2 2 3	7	100	SS-11	1.75	-	-	-	-	-	-	-	-	26	A-7-6 (V)	
		W	2 3 3	9	83	SS-12	1.75	-	-	-	-	-	-	-	-	28	A-7-6 (V)	
VERY SOFT, GRAY **CLAY**, SOME SILT, MOIST.	509.7		1 2 2	6	100	SS-13	0.25	0	0	0	22	78	45	21	24	32	A-7-6 (15)	
		▼	1 1 1	3	100	SS-14	0.25	-	-	-	-	-	-	-	-	31	A-7-6 (V)	
	501.7	EOB																

NOTES: GROUNDWATER INITIALLY ENCOUNTERED @ 38.0' AND AT COMPLETION @ 45.0'; SEEPAGE ENCOUNTERED @ 18.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS; PUMPED 188 LBS CEMENT / 25 LBS BENTONITE / 100 GAL WATER

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 37+96.41 / 12.8' Rt	**EXPLORATION ID**	
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: US 50	**B-002-0-11**	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 544.1 (MSL) EOB: 35.0 ft.	PAGE	
START: 3/9/11 END: 3/9/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432244.230 N, 1465457.550 E	1 OF 1	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
1.0' - ASPHALT (12.0")	544.1																	
1.5' - AGREGATE BASE (6.0")	543.1																	
FILL: MEDIUM DENSE TO DENSE, BROWN **GRAVEL AND SAND**, TRACE SILT, TRACE CLAY, DRY.	542.6	1	11 17 13	44	56	SS-1	-	-	-	-	-	-	-	-	-	4	A-1-b (V)	
		2																
		3																
		4	6 8 10	27	33	SS-2	-	-	-	-	-	-	-	-	-	4	A-1-b (V)	
	538.6	5																
VERY LOOSE TO LOOSE, BROWN **COARSE AND FINE SAND**, LITTLE FINE GRAVEL, LITTLE SILT, TRACE CLAY, DRY TO WET.		6																
		7	1 2 2	6	67	SS-3	-	-	-	-	-	-	-	-	-	19	A-3a (V)	
		8																
		9	1 1 1	3	78	SS-4	-	10	31	41	14	4	NP	NP	NP	9	A-3a (0)	
		10																
		11																
	532.1	12	1 1 1	3	100	SS-5	-	-	-	-	-	-	-	-	-	23	A-3a (V)	
MEDIUM STIFF TO STIFF, BROWN **SILT AND CLAY**, MOIST TO WET.							1.50	-	-	-	-	-	-	-	-	39	A-6a (V)	
		13																
		14	WOH WOH 2	3	100	SS-6	0.75	-	-	-	-	-	-	-	-	26	A-6a (V)	
		15																
		16																
		17			96	ST-7	1.75	0	0	0	39	61	33	19	14	24	A-6a (10)	
	526.1	18																
STIFF, GRAY **SILTY CLAY**, MOIST.		19	2 2 3	7	100	SS-8	2.00	-	-	-	-	-	-	-	-	27	A-6b (V)	
		20																
		21																
		22																
		23																
		24	2 3 5	12	94	SS-9	1.50	-	-	-	-	-	-	-	-	28	A-6b (V)	
	517.1	25																
VERY SOFT TO SOFT, GRAY **SILTY CLAY**, MOIST.		26																
		27																
		28																
		29	1 2 2	6	100	SS-10	0.25	0	0	0	38	62	37	19	18	28	A-6b (11)	
		30																
		31																
		32																
		33																
		34	1 2 2	6	89	SS-11	0.50	-	-	-	-	-	-	-	-	33	A-6b (V)	
	509.1	35	EOB															

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 200 LBS BENTONITE CHIPS AND SOIL CUTTINGS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 8+10.41 / 36.7' Lt	EXPLORATION ID B-004-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: MILFORD PKWY	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 534.5 (MSL) EOB: 35.0 ft.	PAGE 1 OF 1
START: 3/10/11 END: 3/10/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 431837.855 N, 1465521.183 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 534.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.4' - TOPSOIL (5.0")	534.1																	
VERY STIFF, BROWNISH GRAY **SILT AND CLAY**, AND COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP.	531.5		2 2 2	6	72	SS-1	2.50	18	22	20	16	24	25	14	11	11	A-6a (1)	
STIFF TO VERY STIFF, GRAY **SILTY CLAY**, TRACE FINE GRAVEL, MOIST.	524.0		1 2 3	7	78	SS-2	2.25	1	0	0	37	62	37	19	18	23	A-6b (11)	
			3 3 5	12	83	SS-3	2.00	-	-	-	-	-	-	-	-	23	A-6b (V)	
			2 2 5	10	94	SS-4	2.00	-	-	-	-	-	-	-	-	25	A-6b (V)	
STIFF, GRAY **CLAY**, SOME SILT, MOIST.	521.5		2 2 2	6	94	SS-5	1.50	0	0	0	32	68	41	20	21	25	A-7-6 (13)	
STIFF TO VERY STIFF, GRAY **SILT AND CLAY**, MOIST TO WET.			1 3 3	9	83	SS-6	2.25	-	-	-	-	-	-	-	-	27	A-6a (V)	
			4 5 4	13	78	SS-7	1.75	-	-	-	-	-	-	-	-	23	A-6a (V)	
			2 2 2	6	100	SS-8	1.25	0	0	0	53	47	31	18	13	26	A-6a (9)	
			2 2 4	9	100	SS-9	1.75	-	-	-	-	-	-	-	-	29	A-6a (V)	
	507.5																	
MEDIUM DENSE, GRAY **SILT**, TRACE CLAY, TRACE FINE SAND, WET.	502.5		5 6 9	22	67	SS-10	1.50	0	0	2	92	6	NP	NP	NP	21	A-4b (8)	
MEDIUM STIFF, GRAY **CLAY**, TRACE FINE SAND, MOIST.																		
-SAND SEAM ENCOUNTERED @ 34.5'	499.5	EOB	WOH 1 2	4	100	SS-11	0.75	-	-	-	-	-	-	-	-	28	A-7-6 (V)	

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 200 LBS BENTONITE CHIPS AND SOIL CUTTINGS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 9+39.79 / 37.1' Lt	**EXPLORATION ID**	
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: MILFORD PKWY	**B-005-0-11**	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 533.5 (MSL) EOB: 35.0 ft.	PAGE	
START: 3/3/11 END: 3/3/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432007.776 N, 1465538.920 E	1 OF 1	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
1.2' - TOPSOIL (14.0") -LBI (ORGANIC MATTER) = 4.7%	532.3	1	WOH 1 1	3	78	SS-1	1.25	4	7	12	55	22	37	27	10	32	A-4b (8)	
STIFF, GRAY **SILTY CLAY**, MOIST.	530.5	2	1 1 1	3	78	SS-2	1.75	0	0	0	31	69	40	19	21	25	A-6b (12)	
STIFF TO VERY STIFF, GRAY **SILT AND CLAY**, MOIST.		3	1 2 3	7	72	SS-3	2.75	-	-	-	-	-	-	-	-	23	A-6a (V)	
		4	3 5 5	15	78	SS-4	2.00	0	0	0	47	53	33	19	14	26	A-6a (10)	
		5																
		6																
		7																
		8																
		9	2 2 2	6	100	SS-5	2.00	-	-	-	-	-	-	-	-	24	A-6a (V)	
		10																
		11	1 2 2	6	100	SS-6	1.75	-	-	-	-	-	-	-	-	25	A-6a (V)	
		12																
		13																
		14	1 3 3	9	100	SS-7	2.75	-	-	-	-	-	-	-	-	25	A-6a (V)	
	518.0	15																
MEDIUM STIFF TO STIFF, GRAY **SILTY CLAY**, MOIST.		16	2 2 3	7	100	SS-8	1.00	0	0	0	37	63	38	19	19	26	A-6b (12)	
		17																
		18																
		19	1 2 3	7	67	SS-9	1.75	-	-	-	-	-	-	-	-	24	A-6b (V)	
		20																
		21																
		22																
		23																
		24	1 1 3	6	78	SS-10	2.00	-	-	-	-	-	-	-	-	24	A-6b (V)	
	506.5	25																
STIFF, GRAY **SILT**, MOIST.		26																
		27																
		28																
		29			100	ST-11	1.25	0	0	0	98	2	NP	NP	NP	25	A-4b (8)	
		30																
		31																
		32																
		33																
	498.5	34	1 1 2	4	100	SS-12	1.75	-	-	-	-	-	-	-	-	27	A-4b (V)	
	EOB	35																

NOTES: GROUNDWATER ENCOUNTERED INITIALLY @ 33.0' AND AT COMPLETION AT 33.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS

STRUCTURE FOUNDATION EXPLORATION

BRIDGE CLE-131-0.03 OVER HAPPY HOLLOW CREEK & RETAINING WALLS

DRAWN RRM | CHECKED JPS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 10+23.45 / 53.6' Lt	EXPLORATION ID B-006-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: MILFORD PKWY	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 534.6 (MSL) EOB: 43.5 ft.	PAGE 1 OF 1
START: 3/3/11 END: 3/3/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432080.159 N, 1465566.079 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.7' - TOPSOIL (8.0")	534.6 / 533.9		2 3 4	10	56	SS-1	2.50	20	17	21	26	16	27	17	10	14	A-4a (1)	
VERY LOOSE TO LOOSE, BROWN **GRAVEL AND SAND**, TRACE SILT, TRACE CLAY, DRY TO MOIST.		1					-	-	-	-	-	-	-	-	-	5	A-1-b (V)	
		2	2 2 4	9	67	SS-2	-	13	41	32	9	5	NP	NP	NP	15	A-1-b (0)	
	531.1	3					-	-	-	-	-	-	-	-	-	19	A-1-b (V)	
STIFF TO VERY STIFF, BROWN CHANGING TO GRAY **CLAY**, SOME SILT, TRACE FINE GRAVEL, MOIST.			3 1 2	4	78	SS-3	1.75	-	-	-	-	-	-	-	-	34	A-7-6 (V)	
		4	2 3 4	10	89	SS-4	1.50	1	0	0	26	73	43	21	22	24	A-7-6 (13)	
		5																
		6																
		7																
		8																
		9	2 2 3	7	100	SS-5	1.75	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
		10																
W		11																
		12	1 2 2	6	100	SS-6	1.75	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
		13																
		14	1 1 2	4	100	SS-7	2.50	0	0	0	32	68	42	18	24	25	A-7-6 (14)	
		15																
		16																
		17	3 3 4	10	100	SS-8	1.50	-	-	-	-	-	-	-	-	25	A-7-6 (V)	
		18																
		19	2 3 2	7	100	SS-9	1.25	-	-	-	-	-	-	-	-	27	A-7-6 (V)	
		20																
		21																
		22																
		23																
		24	1 1 2	4	89	SS-10	1.25	0	0	0	22	78	42	20	22	30	A-7-6 (13)	
		25																
		26																
		27																
W		28																
		29	3 3 4	10	67	SS-11	1.75	-	-	-	-	-	-	-	-	23	A-7-6 (V)	
		30																
		31																
	502.6	32																
SOFT, GRAY **CLAY**, SOME SILT, TRACE FINE SAND, MOIST.		33																
		34	1 2 2	6	100	SS-12	0.50	-	-	-	-	-	-	-	-	31	A-7-6 (V)	
		35																
		36																
	497.6	37																
STIFF, GRAY **CLAY**, SOME SILT, TRACE FINE SAND, MOIST.		38																
		39	2 3 3	9	89	SS-13	1.50	-	-	-	-	-	-	-	-	28	A-7-6 (V)	
		40																
		41																
		42																
	491.1	43 EOB																

NOTES: SEEPAGE ENCOUNTERED @ 11.0' AND 28.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS

PROJECT: CLE-50-1.48 | DRILLING FIRM / OPERATOR: RII / R.B. | DRILL RIG: CME 750 - SN 98048 | STATION / OFFSET: 12+85.20 / 36.9' Lt | EXPLORATION ID B-009-0-11

TYPE: ROADWAY | SAMPLING FIRM / LOGGER: RII / T.S. | HAMMER: CME AUTOMATIC | ALIGNMENT: SR 131

PID: 89291 BR ID: NA | DRILLING METHOD: 3.75" HSA | CALIBRATION DATE: 5/28/09 | ELEVATION: 529.2 (MSL) EOB: 64.2 ft. | PAGE 1 OF 1

START: 3/10/11 END: 3/10/11 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 88.7 | COORD: 432262.057 N, 1465758.023 E

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.3' - TOPSOIL (3.0")	529.2																	
FILL: STIFF TO VERY STIFF, BROWN TO GRAY **SILT AND CLAY**, SOME COARSE TO FINE SAND, SOME FINE GRAVEL, DAMP. -TRACE ROOTS IN SS-1	528.9		1 1 2	4	44	SS-1	1.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
			1 2 3	7	56	SS-2	3.00	-	-	-	-	-	-	-	-	14	A-6a (V)	
-TRACE SHALE FRAGMENTS IN SS-3 AND SS-4			2 3 4	10	72	SS-3	2.50	21	10	12	29	28	33	18	15	16	A-6a (6)	
			2 3 3	9	39	SS-4	2.00	-	-	-	-	-	-	-	-	12	A-6a (V)	
	518.7																	
FILL: STIFF, GRAY **SILT**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, WET. -TRACE ORGANICS IN SS-5			WOH 1 2	4	83	SS-5	1.75	-	-	-	-	-	-	-	-	33	A-4b (V)	
-WOOD FIBER PRESENT IN SS-6			WOH 1 1	3	11	SS-6	1.25	2	2	15	59	22	31	22	9	35	A-4b (8)	
	514.2																	
VERY STIFF, GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP. -COBBLES PRESENT @ 15.7'	513.5		5 4 11	22	100	SS-7	2.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
	512.7						-	22	18	32	18	10	NP	NP	NP	10	A-2-4 (0)	
MEDIUM DENSE, GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, DAMP. -TRACE ROOTS PRESENT IN SS-7			2 1 2	4	67	SS-8	-	5	32	32	16	15	28	16	12	23	A-2-6 (0)	
	510.7	W					-	-	-	-	-	-	-	-	-	26	A-2-6 (V)	
VERY LOOSE, GRAY **GRAVEL WITH SAND, SILT, AND CLAY**, MOIST. -ORGANIC ODOR @ 18.0'			1 2 2	6	72	SS-9	2.50	-	-	-	-	-	-	-	-	25	A-6a (V)	
STIFF TO VERY STIFF, GRAY **SILT AND CLAY**, AND TO TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST TO WET.			2 3 3	9	67	SS-10	1.25	-	-	-	-	-	-	-	-	28	A-6a (V)	
			25 11 8	28	25	SS-11	1.25	4	4	35	36	21	27	16	11	19	A-6a (5)	
			2 2 3	7	83	SS-12	1.75	-	-	-	-	-	-	-	-	30	A-6a (V)	
			2 3 4	10	78	SS-13	2.50	-	-	-	-	-	-	-	-	30	A-6a (V)	
			5 9 13	33	78	SS-14	2.75	-	-	-	-	-	-	-	-	26	A-6a (V)	
	472.7																	
HARD, GRAY **SILT AND CLAY**, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.			7 7 8	22	78	SS-15	4.00	-	-	-	-	-	-	-	-	27	A-6a (V)	
			13 24 32	83	78	SS-16	3.50	-	-	-	-	-	-	-	-	19	A-6a (V)	
			10 15 30	67	78	SS-17	4.50	-	-	-	-	-	-	-	-	17	A-6a (V)	
	467.7	TR																
SHALE : GRAY, VERY WEAK, LAMINATED, FISSILE, HIGHLY BROKEN.. AUGER REFULSAL @ 64.2'	465.0	EOB	50/5"	-	100	SS-18	-	-	-	-	-	-	-	-	-	11	Rock (V)	

NOTES: GROUNDWATER INITIALLY ENCOUNTERED @ 18.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 200 LBS BENTONITE CHIPS AND SOIL CUTTINGS; PUMPED 188 LBS CEMENT / 20 LBS BENTONITE / 110 GAL WATER

STRUCTURE FOUNDATION EXPLORATION

BRIDGE CLE-131-0.03 OVER HAPPY HOLLOW CREEK & RETAINING WALLS

DRAWN RRM | CHECKED JPS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / I.C.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 13+64.61 / 16.1' Lt	EXPLORATION ID B-010-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / T.S.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 529.6 (MSL) EOB: 53.8 ft.	PAGE 1 OF 1
START: 3/21/11 END: 3/21/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432305.979 N, 1465827.366 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.7' - ASPHALT (7.5")	529.6																	
0.8' - AGGREGATE BASE (10.0")	528.9																	
FILL: MEDIUM DENSE TO DENSE, BROWN **GRAVEL WITH SAND AND SILT**, DRY.	528.1		9 8 11	28	67	SS-1	-	-	-	-	-	-	-	-	-	6	A-2-4 (V)	
			10 11 14	37	67	SS-2	-	-	-	-	-	-	-	-	-	5	A-2-4 (V)	
FILL: BROWN **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	524.1				0	AS-3	-	-	-	-	-	-	-	-	-	17	A-6b (V)	
FILL: MEDIUM STIFF, BROWN **SANDY SILT**, LITTLE CLAY, TRACE FINE GRAVEL, MOIST TO WET.	521.6		1 1 1	3	72	SS-4	1.00	3	8	22	49	18	25	17	8	22	A-4a (6)	
			1 1 1	3	67	SS-5	1.00	-	-	-	-	-	-	-	-	19	A-4a (V)	
MEDIUM STIFF, BROWNISH GRAY **SILTY CLAY**, TRACE COARSE TO FINE SAND, MOIST.	517.1		1 1 1	3	67	SS-6	1.00	0	1	8	56	35	38	18	20	26	A-6b (12)	
DENSE, BROWNISH GRAY **GRAVEL WITH SAND AND SILT**, TRACE CLAY, DRY.	515.1		22 11 13	35	33	SS-7	-	50	20	13	11	6	NP	NP	NP	6	A-2-4 (V)	
LOOSE TO MEDIUM DENSE, BROWN **GRAVEL**, SOME FINE TO COARSE SAND, TRACE SILT, TRACE CLAY, DAMP TO MOIST.	513.6	W	12 5 6	16	56	SS-8	-	63	16	8	8	5	NP	NP	NP	13	A-1-a (0)	
			3 3 3	9	33	SS-9	-	-	-	-	-	-	-	-	-	15	A-1-a (V)	
MEDIUM STIFF, BROWN **SILT**, LITTLE CLAY, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, WET.	509.6		1 1 2	4	67	SS-10	0.75	10	4	4	65	17	NP	NP	NP	29	A-4b (V)	
VERY STIFF TO HARD, GRAY **CLAY**, TRACE FINE GRAVEL, TRACE FINE SAND, MOIST.	506.6	▼	4 4 6	15	78	SS-11	3.00	-	-	-	-	-	-	-	-	23	A-7-6 (V)	
			3 3 6	13	78	SS-12	3.00	-	-	-	-	-	-	-	-	26	A-7-6 (V)	
			7 9 13	33	78	SS-13	3.75	-	-	-	-	-	-	-	-	24	A-7-6 (V)	
-COBBLES AND BOULDERS PRESENT @ 41.0'-43.5'			6 7 9	24	78	SS-14	4.00	-	-	-	-	-	-	-	-	23	A-7-6 (V)	
			9 9 16	37	83	SS-15	4.50	2	0	1	39	58	42	19	23	20	A-7-6 (14)	
SHALE : GRAY, VERY WEAK, LAMINATED TO THINLY LAMINATED, FISSILE, FRIABLE, HIGHLY FRACTURED.	484.1	TR	28 50/3"	-	133	SS-16	4.5+	-	-	-	-	-	-	-	-	10	Rock (V)	
	475.8	EOB	50/3"	-	67	SS-17	4.5+	-	-	-	-	-	-	-	-	9	Rock (V)	

NOTES: GROUNDWATER ENCOUNTERED INITIALLY @ 16.0' AND AT COMPLETION @ 22.4'; CAVE-IN DEPTH @ 53.8'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: PUMPED 141 LBS CEMENT / 38 LBS BENTONITE / 110 GAL WATER

STRUCTURE FOUNDATION EXPLORATION

BRIDGE CLE-131-0.03 OVER HAPPY HOLLOW CREEK & RETAINING WALLS

DRAWN RRM | CHECKED JPS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / T.F.	DRILL RIG: CME-750X (SN 310218)	STATION / OFFSET: 18+44.83 / 37.0' Lt	EXPLORATION ID B-011-1-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 4.25" HSA	CALIBRATION DATE: 5/6/11	ELEVATION: 546.1 (MSL) EOB: 27.4 ft.	PAGE 1 OF 1
START: 8/23/11 END: 8/23/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.1	COORD: 432614.173 N, 1466204.611 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
1.0' - TOPSOIL (12.0")	546.1 / 545.1																	
FILL: HARD, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DRY TO DAMP.		1–5	5 5 6	14	83	SS-1	4.50	-	-	-	-	-	-	-	-	15	A-6a (V)	
		5–6	10 17 10	35	39	SS-2	4.50	-	-	-	-	-	-	-	-	9	A-6a (V)	
	540.6																	
VERY STIFF TO HARD, BROWN TO GRAY **SILTY CLAY**, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST. -TRACE ORGANICS PRESENT IN SS-3 (LBI=4.3%)		6–7	5 11 11	28	44	SS-3	3.75	3	3	5	49	40	37	20	17	21	A-6b (11)	
		8–10	6 8 10	23	44	SS-4	4.25	-	-	-	-	-	-	-	-	19	A-6b (V)	
		14–15	4 7 8	19	89	SS-5	3.50	-	-	-	-	-	-	-	-	24	A-6b (V)	
	526.7	19	17 50/5"	-	73	SS-6	4.00	-	-	-	-	-	-	-	-	17	A-6b (V)	
SHALE : GRAY.																		
AUGER REFUSAL @ 22.2'	523.7	22	50/2"	-	100	SS-7	-	-	-	-	-	-	-	-	-	-		
LIMESTONE : DARK GRAY TO LIGHT GRAY, MODERATELY WEATHERED, MODERATELY STRONG, MEDIUM TO THIN BEDDED, HIGHLY FRACTURED, OPEN TO NARROW APERTURE, VERY ROUGH. -SILTY CLAY INCLUSIONS PRESENT THROUGHOUT (APPROXIMATELY 30% OF SAMPLE LENGTH)	519.6	22–25	0		36	RC-1											CORE	
SHALE : DARK GRAY, WEAK, LAMINATED, HIGHLY FRACTURED, OPEN APERTURE, SLIGHTLY ROUGH.	518.7	EOB 27																

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 18+78.27 / 9.8' Rt	EXPLORATION ID B-012-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 562.7 (MSL) EOB: 33.6 ft.	PAGE 1 OF 1
START: 3/17/11 END: 3/17/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432583.916 N, 1466253.572 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 562.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.8' - ASPHALT (10.0")	561.9																	
0.5' - AGGREGATE BASE (6.0")	561.4																	
FILL: VERY STIFF TO HARD, BROWN **SILT AND CLAY**, SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST. -COBBLE PRESENT @ 3.0'		1	5 7 5	18	72	SS-1	3.00	-	-	-	-	-	-	-	-	15	A-6a (V)	
		2																
		3																
		4	33 17 5	33	0	SS-2	-	-	-	-	-	-	-	-	-	-		
		5	6	-	100	3S-2	2.50	6	5	15	51	23	35	20	15	12	A-6a (10)	
		6																
		7	2 2 3	7	83	SS-3	3.00	-	-	-	-	-	-	-	-	21	A-6a (V)	
		8																
		9	6 5 5	15	89	SS-4	3.50	-	-	-	-	-	-	-	-	17	A-6a (V)	
-COBBLE PRESENT @ 10.5'		10																
		11																
		12	7 5 7	18	0	SS-5	-	-	-	-	-	-	-	-	-	-		
		13																
		14	9 13 27	59	44	SS-6	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	
		15																
		16																
	545.2	17	14 12 13	37	0	SS-7	-	-	-	-	-	-	-	-	-	-		
STIFF, GRAY **SILT**, SOME CLAY, TRACE FINE SAND, WET. -TRACE ORGANICS @ 17.5'	543.7	18	26	-	100	3S-7	1.75	0	0	1	78	21	32	22	10	29	A-4b (8)	
HARD, GRAY **CLAY**, AND SILT, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP. -COBBLES PRESENT THROUGHOUT		19	9 19 17	53	94	SS-8	4.5+	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
		20																
		21																
		22																
		23																
		24	11 18 28	68	100	SS-9	4.5+	6	4	7	47	36	41	22	19	15	A-7-6 (12)	
	535.7	25																
		26																
		27																
SHALE : GRAY, VERY WEAK, THINLY LAMINATED, FISSILE, FRIABLE, HIGHLY FRACTURED.		28	50/4"	-	100	SS-10	-	-	-	-	-	-	-	-	-	7	Rock (V)	
		29																
		30																
		31																
		32																
	529.1	33	W EOB 50/1"	-	100	SS-11	-	-	-	-	-	-	-	-	-	7	Rock (V)	

NOTES: GROUNDWATER INITIALLY ENCOUNTERED @ 33.5'; CAVE-IN DEPTH @ 28.0'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 19+73.98 / 1.6' Lt	EXPLORATION ID B-013-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 569.2 (MSL) EOB: 33.8 ft.	PAGE 1 OF 1
START: 3/16/11 END: 3/16/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432631.483 N, 1466337.411 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
1.0' - ASPHALT (12.0")	568.2																	
0.5' - AGGREGATE BASE (6.0")	567.7																	
FILL: HARD, BROWNISH GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DRY.	566.2		8 10 8	27	78	SS-1	4.25	-	-	-	-	-	-	-	-	9	A-6a (V)	
FILL: VERY DENSE, BROWNISH GRAY **GRAVEL WITH SAND, SILT, AND CLAY**, DAMP. -PETROLEUM ODOR IN SS-2	563.7		4 30 38	101	72	SS-2	-	-	-	-	-	-	-	-	-	10	A-2-6 (V)	
FILL: VERY STIFF, BROWNISH GRAY **CLAY**, SOME SILT, SOME COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	558.7		4 4 10	21	89	SS-3	3.25	8	6	15	34	37	41	18	23	17	A-7-6 (13)	
			3 4 8	18	89	SS-4	2.50	-	-	-	-	-	-	-	-	14	A-7-6 (V)	
FILL: VERY STIFF, BROWNISH GRAY **SILT AND CLAY**, SOME COARSE TO FINE SAND, SOME FINE GRAVEL, DAMP.	556.7		4 9 11	30	83	SS-5	3.00	23	13	16	25	23	30	15	15	12	A-6a (4)	
HARD, BROWN **CLAY**, SOME SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.				0	SS-6	-	-	-	-	-	-	-	-	-	-	-		
-COBBLES PRESENT TROUGHOUT			22	-	100	3S-6	4.5+	-	-	-	-	-	-	-	-	17	A-7-6 (V)	
			10 12 20	47	83	SS-7	4.5+	4	1	2	33	60	48	21	27	17	A-7-6 (16)	
			10 11 22	49	94	SS-8	4.5+	-	-	-	-	-	-	-	-	15	A-7-6 (V)	
SHALE : BLUISH GRAY, VERY WEAK, THINLY LAMINATED, FISSILE, FRIABLE, HIGHLY FRACTURED.	547.2		50/6"	-	100	SS-9	-	-	-	-	-	-	-	-	-	10	Rock (V)	
			50/6"	-	100	SS-10	-	-	-	-	-	-	-	-	-	9	Rock (V)	
	535.4	EOB	50/4"	-	100	SS-11	-	-	-	-	-	-	-	-	-	6	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING; CAVE-IN DEPTH @ 18.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / T.F.	DRILL RIG: CME-750X (SN 310218)	STATION / OFFSET: 20+84.29 / 95' Lt	EXPLORATION ID B-013-1-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 4.25" HSA	CALIBRATION DATE: 5/6/11	ELEVATION: 562.0 (MSL) EOB: 28.33 ft.	PAGE 1 OF 1
START: 8/23/11 END: 8/23/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 77.1	COORD: 432760.265 N, 1466403.009 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
0.7' - TOPSOIL	562.0 / 561.3																	
FILL: VERY STIFF, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	559.0	1	10 6 6	15	44	SS-1	4.00	-	-	-	-	-	-	-	-	-	A-6a (V)	
HARD, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.		2																
-COBBLES PRESENT THROUGHOUT		3																
		4	4 20 20	51	39	SS-2	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	
		5																
		6																
		7	19 27 20	60	67	SS-3	4.5+	-	-	-	-	-	-	-	-	-	A-6a (V)	
		8																
		9	7 4 6	13	56	SS-4	4.5+	-	-	-	-	-	-	-	-	16	A-6a (V)	
	550.5	10																
VERY STIFF TO HARD, BROWN CHANGING TO GRAY **SILTY CLAY**, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP TO MOIST.		11																
		12																
		13																
		14	4 9 7	21	0	SS-5	-	-	-	-	-	-	-	-	-	-	A-6b (V)	
		15	16	-	100	3S-5A	3.25	-	-	-	-	-	-	-	-	21	A-6b (V)	
		16																
		17																
		18																
		19	3 6 10	21	0	SS-6	-	-	-	-	-	-	-	-	-	-	A-6b (V)	
		20	20	-	100	3S-6A	3.50	1	0	1	30	68	40	21	19	24	A-6b (12)	
		21																
		22																
		23																
		24	5 10 20	39	100	SS-7	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	
	536.5	25																
INTERBEDDED SHALE AND LIMESTONE : BLUISH GRAY.		26																
AUGER REFUSAL @ 28.0'	533.7	27																
	EOB	28	50/4"	-	100	SS-8	4.5+	-	-	-	-	-	-	-	-	16	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: NOT RECORDED

PROJECT: CLE-50-1.48	DRILLING FIRM / OPERATOR: RII / R.B.	DRILL RIG: CME 750 - SN 98048	STATION / OFFSET: 22+43.68 / 6.2' Lt	EXPLORATION ID B-014-0-11
TYPE: ROADWAY	SAMPLING FIRM / LOGGER: RII / S.M.	HAMMER: CME AUTOMATIC	ALIGNMENT: SR 131	
PID: 89291 BR ID: NA	DRILLING METHOD: 3.75" HSA	CALIBRATION DATE: 5/28/09	ELEVATION: 587.3 (MSL) EOB: 38.6 ft.	PAGE 1 OF 1
START: 3/16/11 END: 3/16/11	SAMPLING METHOD: SPT	ENERGY RATIO (%): 88.7	COORD: 432742.016 N, 1466583.371 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	BACK FILL
2.0' - ASPHALT (24.0")	587.3																	
	585.3																	
0.5' - AGGREGATE BASE (6.0")	584.8																	
FILL: VERY STIFF, BROWN **SANDY SILT**, SOME CLAY, LITTLE FINE GRAVEL, MOIST.	581.8		3 3 3	9	72	SS-1	3.00	11	14	20	32	23	24	14	10	14	A-4a (4)	
FILL: VERY STIFF, BROWN **SILTY CLAY**, LITTLE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	579.3		1 1 2	4	67	SS-2	2.25	-	-	-	-	-	-	-	-	19	A-6b (V)	
VERY STIFF, BROWN **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, DAMP TO MOIST.	574.3		2 8 8	24	33	SS-3	2.75	-	-	-	-	-	-	-	-	15	A-6a (V)	
			1 3 2	7	67	SS-4	2.50	-	-	-	-	-	-	-	-	14	A-6a (V)	
MEDIUM STIFF, BROWN TO GRAY **SILT AND CLAY**, LITTLE COARSE TO FINE SAND, LITTLE FINE GRAVEL, MOIST. -COBBLES PRESENT THROUGHOUT	569.3		2 1 2	4	61	SS-5	1.00	-	-	-	-	-	-	-	-	21	A-6a (V)	
			7 2 2	6	61	SS-6	1.00	16	7	11	37	29	30	15	15	16	A-6a (8)	
VERY STIFF, BLUISH GRAY **SILTY CLAY**, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	568.3		17 50/3"	-	111	SS-7	2.75	-	-	-	-	-	-	-	-	14	A-6b (V)	
VERY DENSE, GRAY COARSE TO FINE **GRAVEL**, DRY. -BOULDER PRESENT FROM 19.5' TO 20.5'	564.3						-	-	-	-	-	-	-	-	-	1	A-1-a (V)	
VERY STIFF, BROWN TO BLUISH GRAY **CLAY**, SOME SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, MOIST.	562.5		4 10 14	35	72	SS-8	2.75	8	2	3	30	57	47	22	25	23	A-7-6 (15)	
DENSE, GRAY COARSE TO FINE **GRAVEL**, DRY. -COBBLES AND BOULDERS PRESENT	560.3						-	-	-	-	-	-	-	-	-	2	A-1-a (V)	
VERY STIFF, BLUISH GRAY **CLAY**, SOME SILT, TRACE COARSE TO FINE SAND, TRACE FINE GRAVEL, DAMP.	554.3		7 8 14	33	89	SS-9	3.25	-	-	-	-	-	-	-	-	18	A-7-6 (V)	
SHALE : GRAY, WEAK TO VERY WEAK, THINLY LAMINATED, FISSILE, FRIABLE, HIGHLY FRACTURED.	548.7		50/5"	-	100	SS-10	-	-	-	-	-	-	-	-	-	5	Rock (V)	
	EOB		50/1"	-	100	SS-11	-	-	-	-	-	-	-	-	-	4	Rock (V)	

NOTES: GROUNDWATER NOT ENCOUNTEED DURING DRILLING; CAVE-IN DEPTH @ 17.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: COMPACTED WITH THE AUGER 100 LBS BENTONITE CHIPS AND SOIL CUTTINGS

STRUCTURE FOUNDATION EXPLORATION

BRIDGE CLE-131-0.03 OVER HAPPY HOLLOW CREEK & RETAINING WALLS

DRAWN RRM CHECKED JPS