

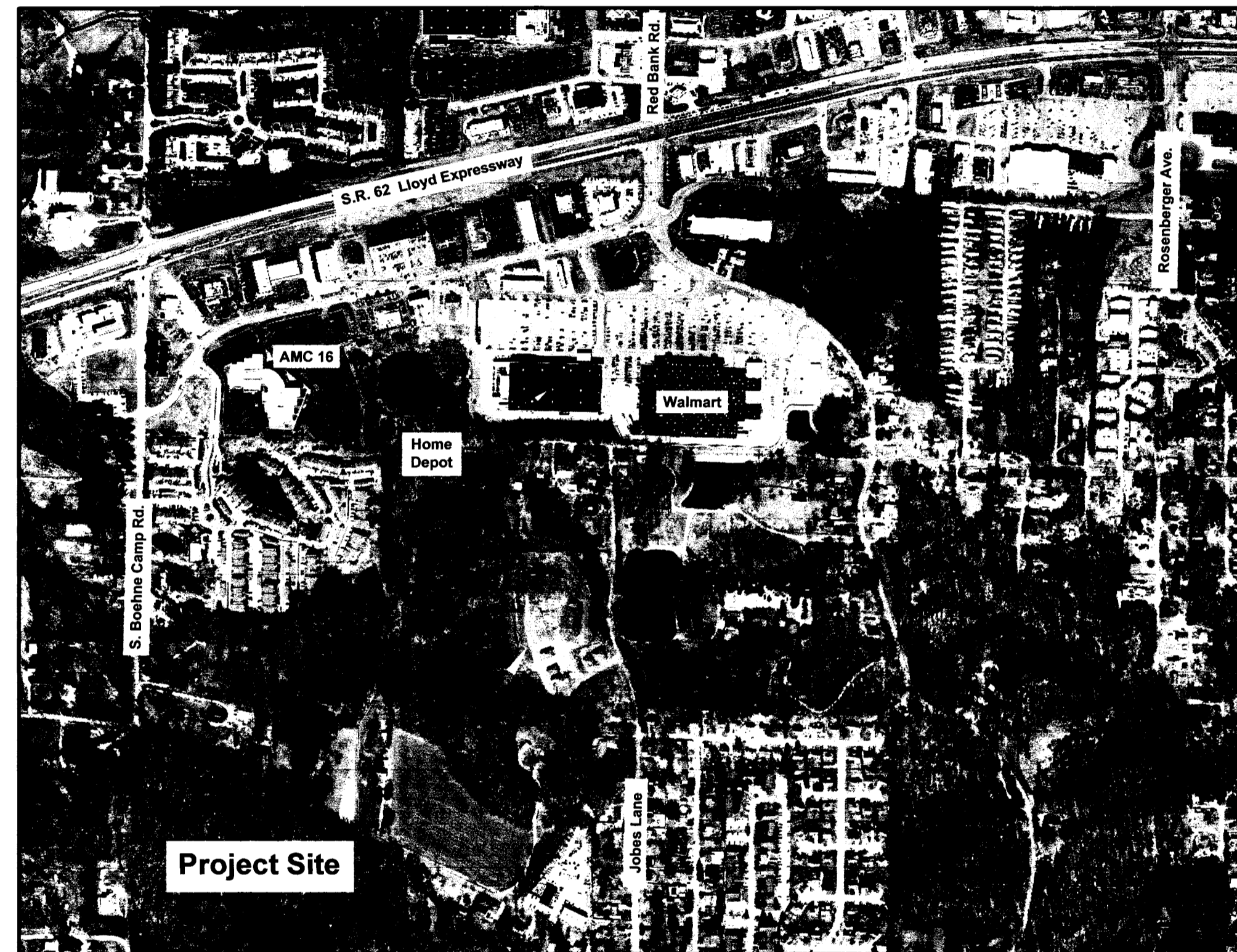
THE RESERVE AT HIDDEN LAKE

PRIMARY SUBDIVISION ROADWAY AND STORM DRAINAGE

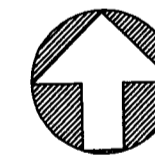
September 03, 2014

SHEET INDEX:

SHEET #	DESCRIPTION
G101	COVER SHEET
	PRIMARY PLAN
C101	DRAINAGE PLAN - <i>Revised 10/15/2014</i>
C102	LYDIA DRIVE PLAN AND PROFILE - STA. 9+46.90 to STA. 16+74.58
C103	POTABLE WATER PLAN
C104	SANITARY SEWER LINE 'A' PLAN AND PROFILE
C501	PAVEMENT DETAILS
C502	STORM DRAINAGE DETAILS



VICINITY MAP



THE CONTRACTOR IS CAUTIONED THAT THE LOCATION AND/OR ELEVATION, SIZE, MATERIAL TYPE OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF VARIOUS UTILITIES, CONSTRUCTION DESIGN PLANS AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY AND THOSE THAT DO NOT SUBSCRIBE TO INDIANA UNDERGROUND PLANT PROTECTION AT LEAST 48 HOURS BEFORE ANY DEMOLITION OR EXCAVATION TO REQUEST EXACT FIELD LOCATION, MATERIAL, TYPE AND SIZE OF UTILITIES.

INDIANA UNDERGROUND PLANT PROTECTION
PH: 811

BENCHMARK DATA:

T.B.M. #2 - on top of curb at North side of Hidden Lake Drive, near Jobes Lane 5' East of Curb Inlet.
Elevation = 403.72

T.B.M. #3 - 'X' set on Southwest head bolt of fire hydrant at Northeast corner of First Road intersection in The Reserve (road 1 and 2 at top of hill).
Elevation = 461.27

PREPARED FOR:

The First National Bank of Carmi
7500 Eagle Crest Blvd.
Evansville, IN 47715
Attn: Dean Ackerman, Sr. V.P.
Senior Loan Officer
&

Jane Duesterburg
740 Lydia Drive
Evansville, IN 47712

Lisa L. McDonald
730 Lydia Drive
Evansville, IN 47712

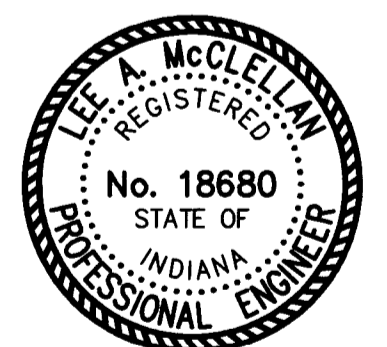
Doris J. Pemberton
5129 Hidden Lake Dr
Evansville, IN 47712

PREPARED BY:



Engineering
Surveying
Architecture

Newburgh, In
(812) 464-9585
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Lee A. McClellan
Lee A. McClellan, P.E.
Indiana Registration No. PE 60018680
Date: 09/03/14

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OCT 28 2014
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DRAINAGE BOARD

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OK 9/15/14

G101

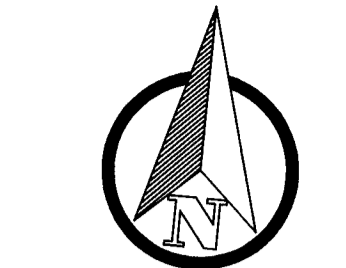
APPROVED

OCT 28 2014

VANDERBURGH COUNTY DRAINAGE BOARD

Proposed Legend

- Rip Rap Channel Lining
- Turf Reinforcement Mat (TRM)
- Erosion Control Blanket (ECB)
- Area Drain, Structure No.
- Curb Inlet, Structure No.
- Flared End Section
- Storm Sewer, Pipe No.
- Continuous Concrete Ribbon
- Sanitary Sewer Pipe
- Sanitary Manhole, Number
- Potable Waterline
- Blow-Off Assembly
- M.J. Bend
- Right-of-way Line
- M.J. Reducer
- Fire Hydrant
- M.J. Gate Valve
- M.J. Tee
- M.J. Tee
- Corp. Cock
- Contour
- Existing House
- Proposed House



SCALE 1" = 40'



Existing Legend

- Area Drain
- Curb Inlet
- Flared End Section
- Storm Sewer Manhole
- Concrete Ribbon
- Center Line
- Easement Line
- Property Boundary Line
- Right-of-way Line
- D & U G P U E
- L M & S D E
- Existing Storm Sewer
- Existing Contour Line
- Existing Swale Flow Line

Storm Sewer Structure Data Table

Structure Number	Location Station	Size (inches)	Description	Length (feet)	Up Stream Elevation	Down Stream Elevation	Slope %	AD/IM=Rim or CI=C/FI Elevation
FES#1004	12		Concrete FES					
AD#1005			Precast 24"x24" Box		446.00			449.00
PI#1006	12		RCP Class III (MIN)	110.90	446.00	443.12	2.60	
CI#1007	14+63.77		Curb Inlet		443.12	443.12		446.12
PI#1008	12		RCP Class III (MIN)	22.30	443.12	442.35	3.45	
CI#1009	14+59.98		Curb Inlet		442.35	441.35		446.12
PI#1010	12		HDPE Extension	25.75	441.35	440.16	±19.7	
FES #1011	12		Concrete FES	8.08	412.44	412.35	1.46	
PI#1012	12		RCP Class III (MIN)	16.00	412.35	412.12	1.46	
FES #1013	12		Concrete FES	6.08	412.12	412.03	1.46	

Storm Swale Data Table

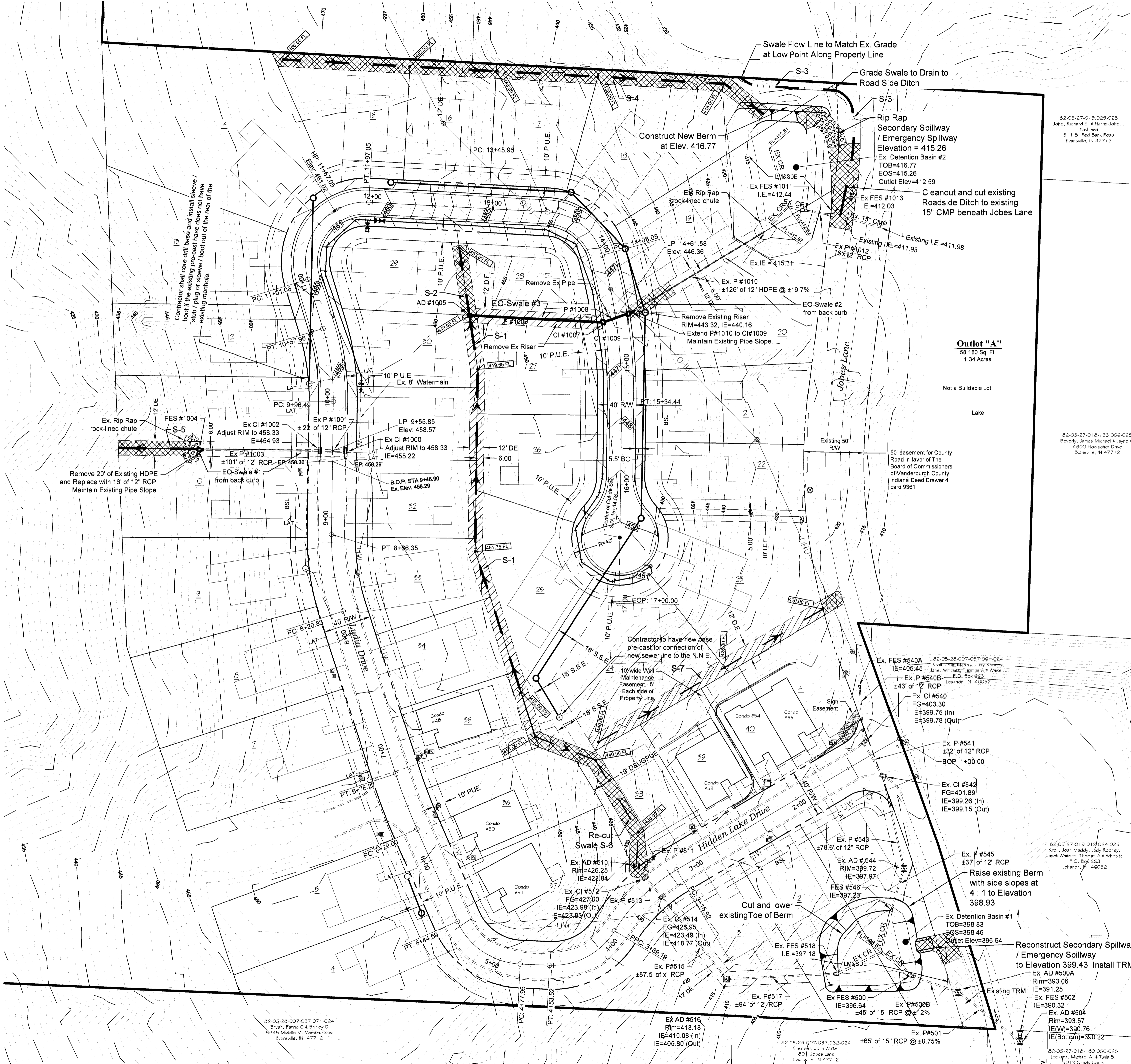
Manning's Coefficient =	0.035	(Table 13.04.220)													
Slope (ft/ft)	Slope (%)	Slope (ft/ft)	Bank Length (ft)	Channel Depth (ft)	Bottom Width (ft)	Top Width (ft)	Area (sq ft)	Hydraulic Radius (ft)	Hydraulic Depth (ft)	Channel Capacity (cfs)	Full Depth (ft)	Traverse Time (min)	US Elev.	DS Elev.	
S-1	0.010	1.01	3.0	123.2	1.00	1.00	7.32	4.00	0.55	0.57	11.46	2.86	0.72	482.00	451.75
S-2	0.014	1.36	3.0	151.4	1.00	1.00	7.32	4.00	0.55	0.57	13.40	3.35	0.75	451.75	449.65
S-3	0.014	1.43	3.0	45.6	1.00	1.00	7.32	4.00	0.55	0.57	13.96	3.40	0.22	440.65	449.60
S-4	0.070	7.04	3.0	56.8	1.00	1.00	7.32	4.00	0.55	0.57	30.19	7.55	0.13	453.00	449.00
S-5	0.000	2.04	3.0	208.0	1.00	1.00	7.32	4.00	0.55	0.57	16.36	4.07	0.85	416.18	411.93
S-6	0.038	3.82	3.0	104.8	1.00	1.00	7.32	4.00	0.55	0.57	22.23	5.56	0.31	466.00	462.00
S-7	0.194	19.44	3.0	72.0	1.00	1.00	7.32	4.00	0.55	0.57	50.17	12.54	0.10	462.00	448.00
S-8	0.119	11.75	3.0	85.1	1.00	1.00	7.32	4.00	0.55	0.57	38.00	9.35	0.15	448.00	439.00
S-9	0.159	16.02	3.0	105.7	1.00	1.00	7.32	4.00	0.55	0.57	46.40	12.37	0.14	438.00	418.00
S-10	0.047	4.73	3.0	41.1	1.00	1.00	7.32	4.00	0.55	0.57	35.89	8.87	0.06	418.00	414.00
S-11	0.147	14.68	3.0	66.0	1.00	1.00	7.32	4.00	0.55	0.57	43.59	10.90	0.10	444.00	435.00
S-12	0.055	5.46	3.0	36.6	1.00	1.00	7.32	4.00	0.55	0.57	38.40	6.65	0.09	453.00	451.00
S-13	0.205	20.52	3.0	53.6	1.00	1.00	7.32	4.00	0.55	0.57	51.54	12.99	0.07	451.00	440.00
S-14	0.143	14.30	3.0	70.0	1.00	1.00	7.32	4.00	0.55	0.57	41.00	10.75	0.11	440.00	430.00
S-15	0.144	14.42	3.0	36.0	1.00	1.00	7.32	4.00	0.55	0.57	43.21	10.80	0.04	430.00	425.25
S-16	0.110	11.47	3.0	122.1	1.00	1.00	7.32	4.00	0.55	0.57	36.52	9.63	0.21	440.00	426.00
S-17	0.063	6.32	3.0	95.0	1.00	1.00	7.32	4.00	0.55	0.57	28.56	7.15	0.22	436.00	420.00

Design Notes:

- All pipe lengths are measured center to center of structure except pipes ending in flared end sections. Pipes ending in flared end sections shall be measured to the end of the pipe.
- Design pipe slopes are calculated from the center of structure to the center of structure, or end of pipe for flared end sections. Construction pipe slopes may vary slightly if the structure cross slope does not match the design pipe slope. Flared end section slopes shall match design pipe slopes.
- All storm pipes under and within 5 feet of a roadway or under a sidewalk shall have compacted sand backfill.

General Notes:

- Contractor shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and other legal requirements of municipal authorities which bear on the performance of the work.
- The contractor is cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of various utility companies, and where possible measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities. Indiana Underground Utility Location Service Phone: 811
- Material specifications shall be in conformance with applicable portions of the INDOT standard specifications, (latest edition) unless specifically stated otherwise on these plans, contract documents or local code.
- Turf Reinforcement Mat (TRM) shall be LandLok 450 manufactured by Propex Operating Company, LLC, or approved equal.
- Swales S-1 and S-3 shall have the sides and bottom seeded and lined with Erosion Control Blankets (ECB) SC250 manufactured by North American Green, CS-3 manufactured by Western Excelsior, or approved equal installed in accordance with manufacturer's instructions.
- Swales S-2, S-4, S-5, S-6, S-7, EO-Swale #1, EO-Swale #2, EO-Swale #3, emergency spillway for existing Detention Basin #1 and #2 shall have sides and bottoms lined with Turf Reinforcement Mats installed in accordance with manufacturer's instructions. Erosion Control Blanket (ECB) shall be SC 250 manufactured by North American Green or CS-3 manufactured by Western Excelsior or approved equal.



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Newburgh, IN 47630
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Revisions

No.	Date	By	Description

Scale: 1" = 40'

Designed by: LAM Job Number: 8716.4.002-B

Drawn by: DWN Date: 10/15/14

Filename: 8716 Civil Base.dwg

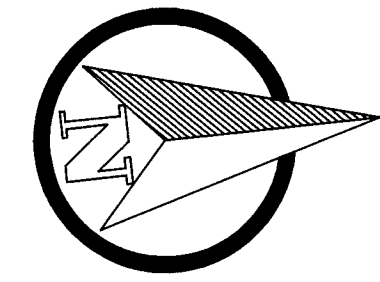
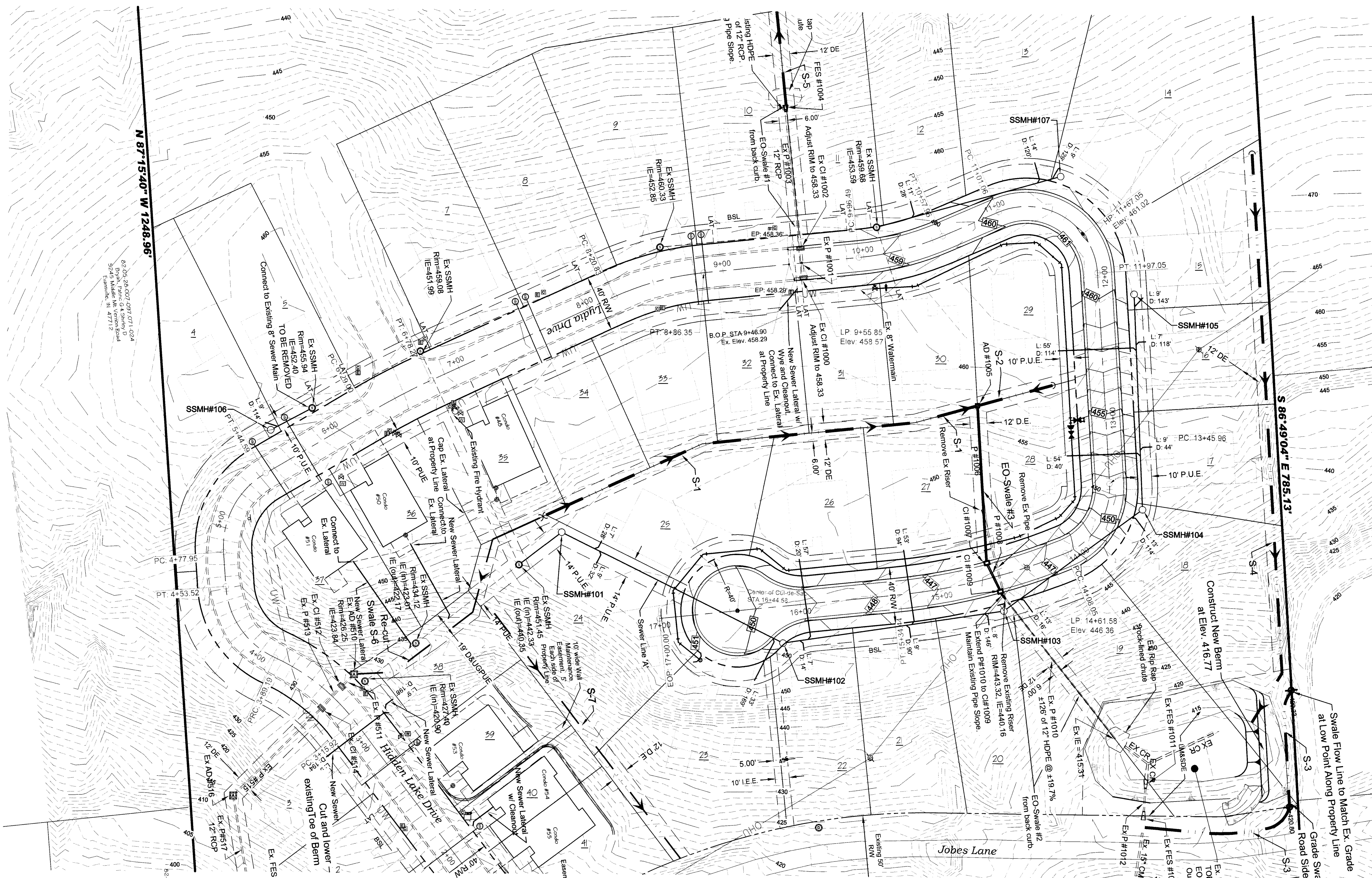
Sheet Number: **C101**

The Reserve at Hidden Lake
First National Bank of Carmi

Drainage Plan

VANDERBURGH COUNTY
SOIL CONSERVATION SERVICE 10/16/14

Professional Engineer Seal: No. 18680, State of Indiana



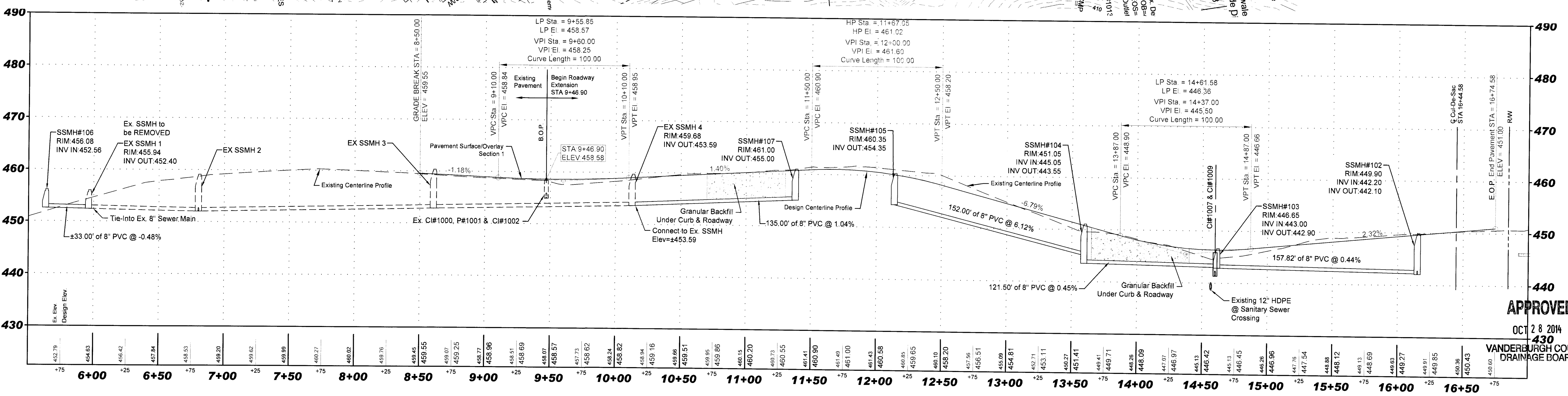
SCALE 1" = 40'



- | Existing Legend | Proposed Legend |
|-------------------------------|--|
| Light Pole | Roll Curb and Gutter |
| Pipe Bollard | Area Drain, AD |
| Power Pole | Curb Inlet, CI |
| Sanitary Sewer Manhole | Flared End Section, FES |
| Sign | Storm Pipe, P |
| Storm Sewer Manhole | Swale and Direction of Flow, Swale No. |
| Area Drain | Property Line |
| Curb Inlet | Easement Line |
| Cleanout | Building Setback Line, B.S.L. |
| Communications Box | Sanitary Sewer Lateral of Downstream Manhole |
| Electric Meter | Sanitary Sewer Pipe |
| Electric Transformer | Sanitary Manhole, Number |
| Utility Pole | Potable Waterline |
| Guy Wire | Blow-Off Assembly |
| Fire Hydrant | M.J. Bend |
| Water Meter | M.J. Gate Valve |
| Water Valve | M.J. Reducer |
| Gas Meter | Fire Hydrant M.J. Gate Valve |
| Gas Valve | M.J. Tee |
| Building Setback Line, B.S.L. | M.J. Tee |
| Center Line | Corp. Cock |
| Easement Line | Contour |
| Fence Line | Horizontal Station Number |
| Property Boundary Line | Point of Curvature (Horizontal) |
| Right-of-way Line | Point of Tangency (Horizontal) |
| Overhead Electric | High Point, Elevation |
| Overhead Communication | Low Point, Elevation |
| Underground Electric | Beginning of Pavement |
| Underground Gas | End of Pavement |
| Underground Water | |
| Underground Sanitary Sewer | |
| Concrete Ribbon | |
| Storm Pipe | |

- General Notes**
- Contractor shall comply with all local, state and federal codes, ordinances, rules, regulations, orders and other legal requirements of municipal authorities which bear on the performance of the work.
 - The contractor is cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of various utility companies, and where possible measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must contact the appropriate utility company at least 48 hours before any excavation to request exact field location of utilities.
Indiana Underground Utility Locate Service
Phone: 811
 - Material specifications shall be in conformance with applicable portions of the INDOT standard specifications, (latest edition) unless specifically stated otherwise on these plans, contract documents or local code.

Refer to Sheet C104 for Sanitary Sewer General Notes



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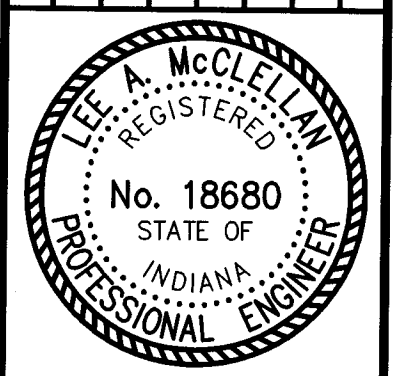
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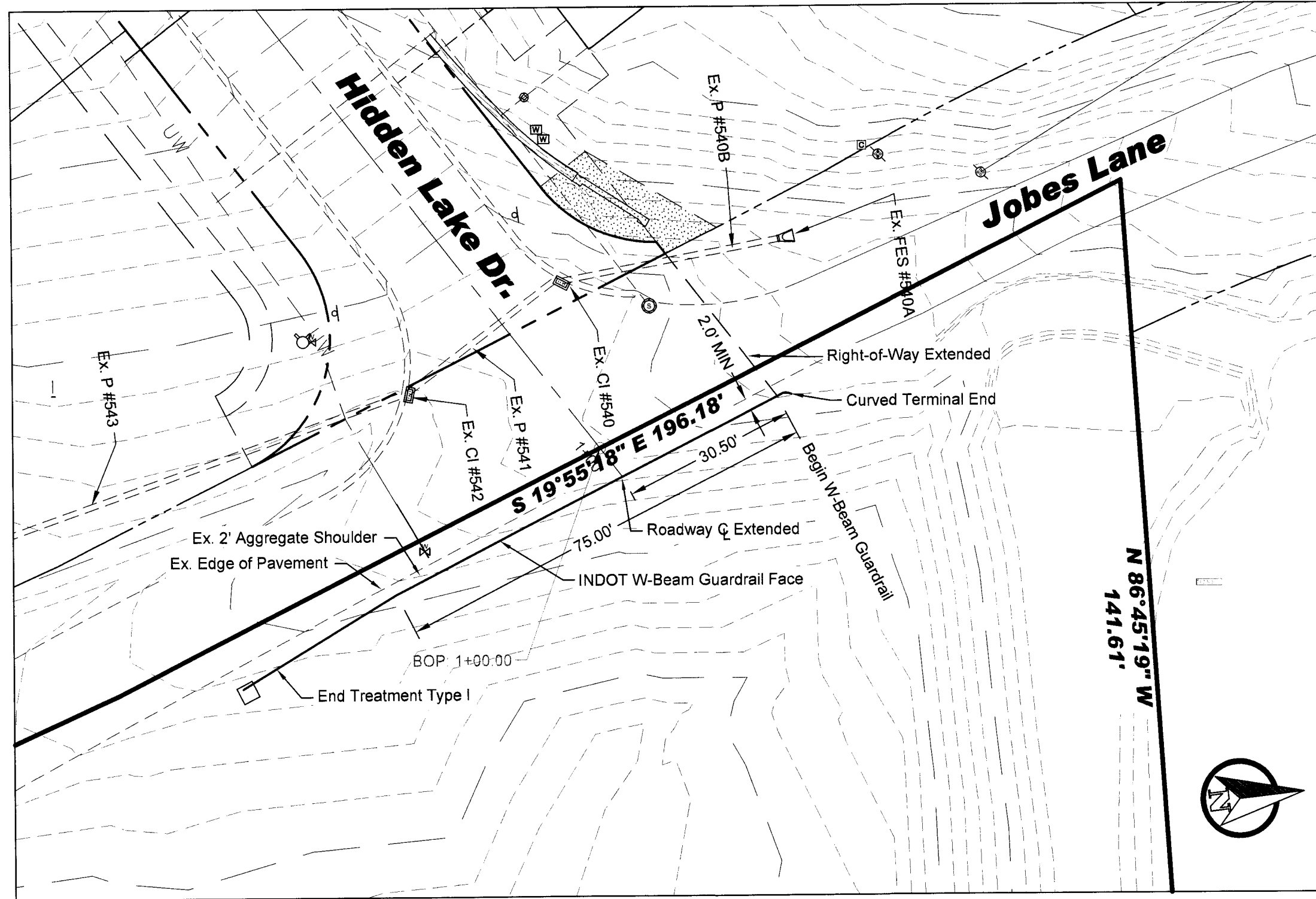
No.	By	Date	Description



The Reserve at Hidden Lake
First National Bank of Carmi
Lydia Drive
Plan and Profile
STA 9+46.90 to STA 16+74.58

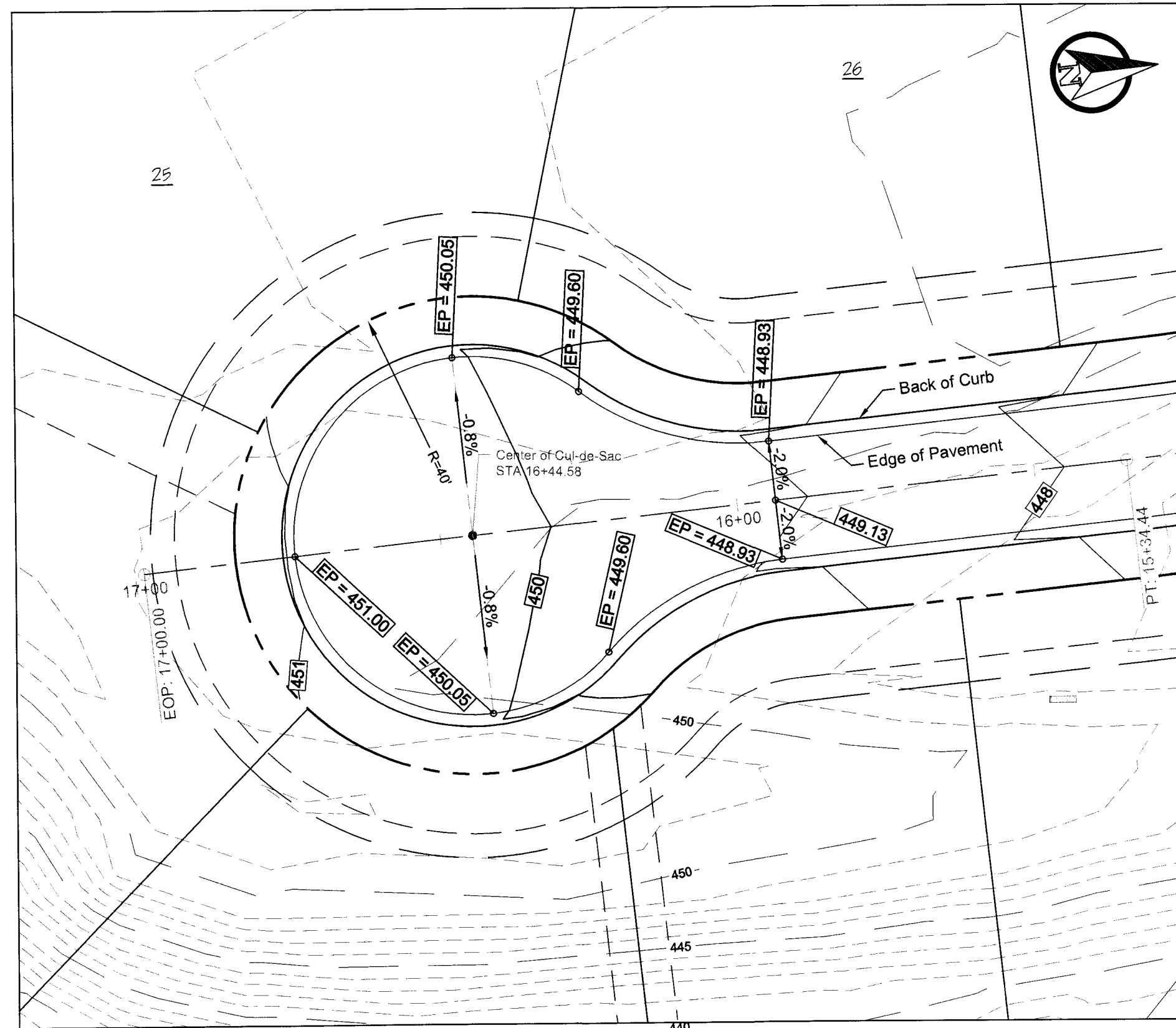
Scale: HOR: 1" = 40'
VER: 1" = 10'

Designed By: LAM Job Number: 8716.4.002-B
Drawn By: MTC Date: 09/03/14
Filename: 8716 Civil Base.dwg
Sheet Number: **C102**

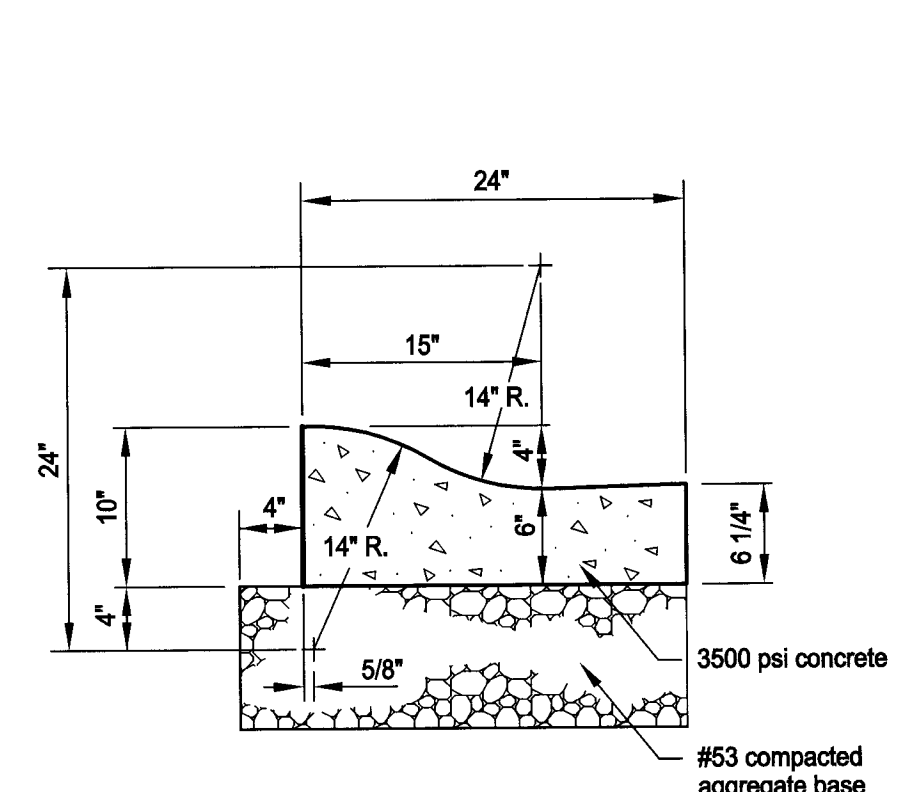


Guard Rail on Jobs Lane at Hidden Lake Drive
Scale: 1"=20'-0"

NOTE: Guardrail and end treatments to be constructed in accordance with Section 600 - Incidental Construction and Section 601 - Guardrail of the Indiana Department of Transportation Standard Specifications dated 2014, and latest supplements.

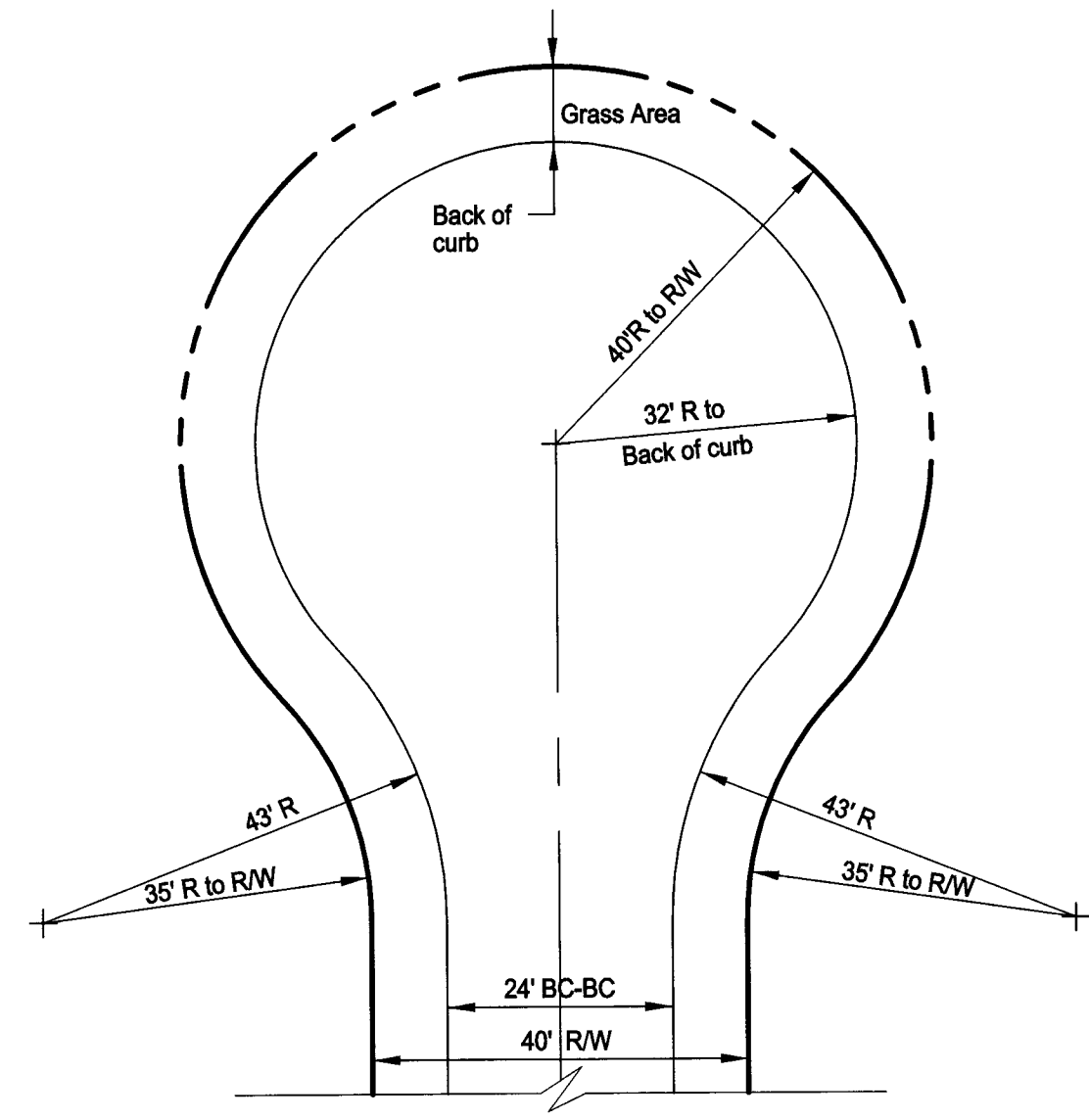


Cul-De-Sac Grading Detail
Scale: 1"=20'-0"

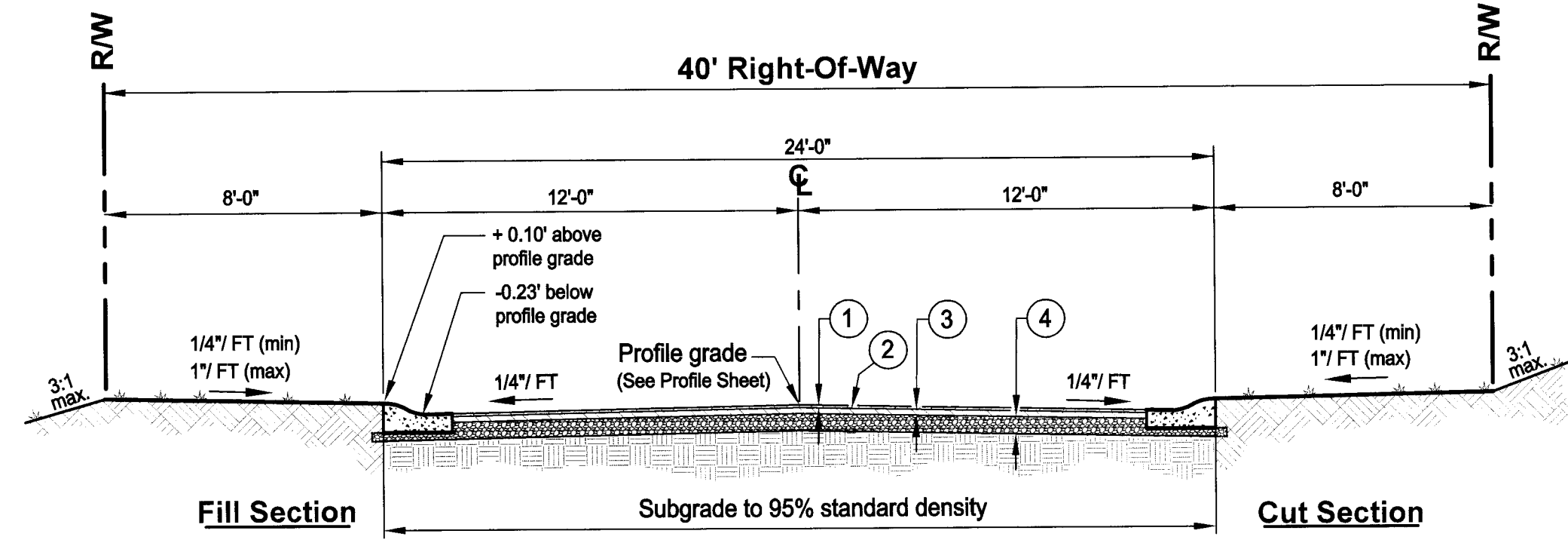


- Notes:
- 1/2" preformed expansion joint material at all P.C. & P.T. of curb radius.
 - Tooled contraction joints at 10'-0" centers. Contraction joints to be minimum 2" deep and 1/8" to 1/4" wide.

Concrete Roll Curb and Gutter
Scale: 1"=1'-0"

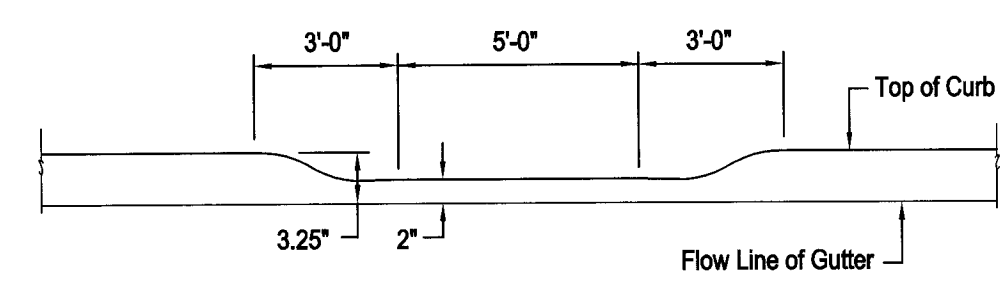


64' BC-BC Street Residential Cul-De-Sac
Scale: 1"=20'



- Asphalt**
- 110 lb./Sy. Hot Mix Asphalt, #11 Surface with P.G. 64 - 22
 - Asphalt Emulsion Tack (AE-T) per INDOT standards applied at rate of 0.05 gal./syd.
 - 220 lb./Sy. Hot Mix Asphalt, #9 Intermediate Binder with P.G. 64-22
 - 6" compacted aggregate base #53 compacted to 98% Standard Proctor ASTM D698

24' Residential Bituminous Pavement Section with Concrete Roll Curb and Gutter
Scale: 1/4" = 1'-0"



Dropped Curb at Emergency Surface Overflow
No Scale

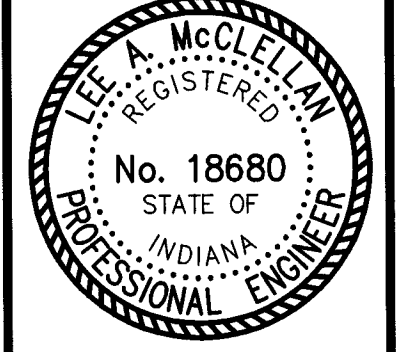
Note:
Dropped Curb and Gutter Required at EX Curb Inlet #1002 Between Lots 10 and 11 and at Curb Inlet #1009 Between Lots 19 and 20.

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Morley and Associates Inc.

4800 Roosevelt Lane
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Revisions		Description	
No.	Date	By	



The Reserve at Hidden Lake
First National Bank of Carmi

Pavement Details

Scale: As Shown

Designed By: LAM
Drawn By: MTC

Job Number: 8716.4.002-B
Date: 09/03/2014

Title: 8716 Civil Base.dwg

Sheet Number: **C501**

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OCT 2 8 2014
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Apron Note:

- Length and width determined according to tailwater conditions.
- Aligned straight with channel flow. If curve is necessary to align apron with the receiving stream, locate the curve in the upstream section of the apron.
- Plunge pool (used with higher velocity flows).
- Thickness
 - 1.2 times the maximum stone diameter for a d_{50} stone size of 15 inches or larger.
 - 1.5 times the maximum stone diameter for a d_{50} stone size of 15 inches or less.

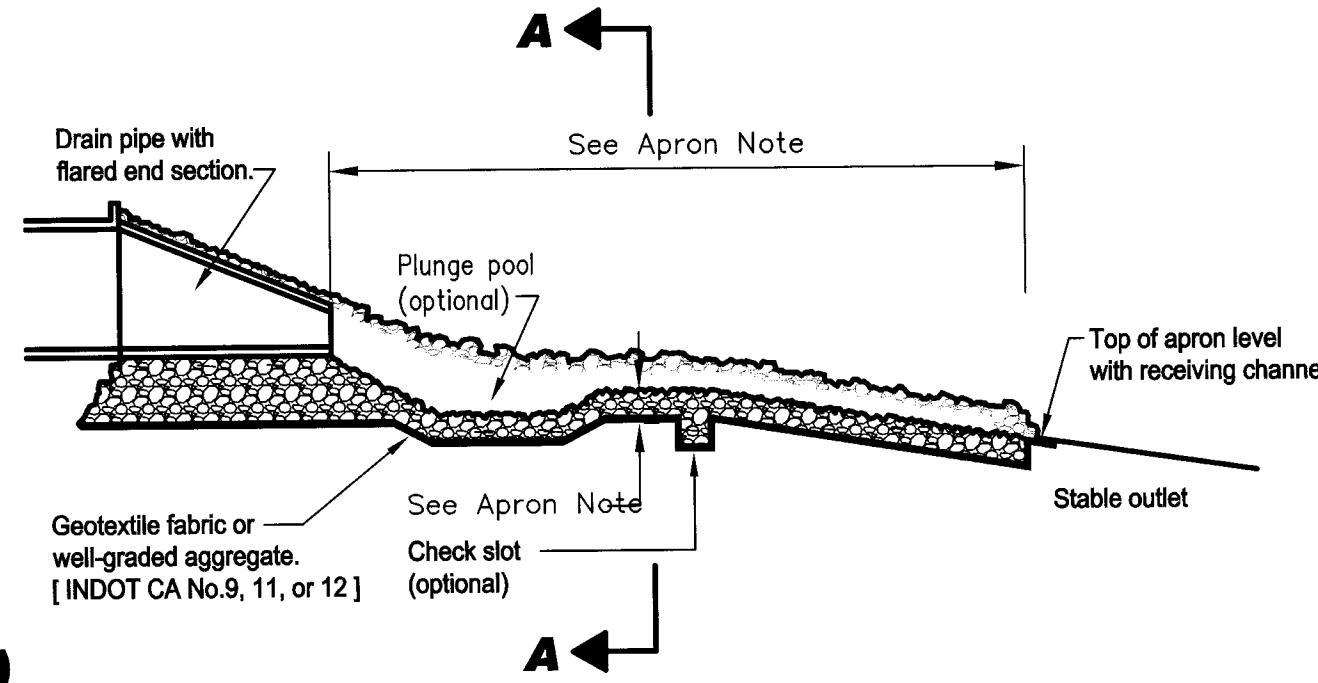
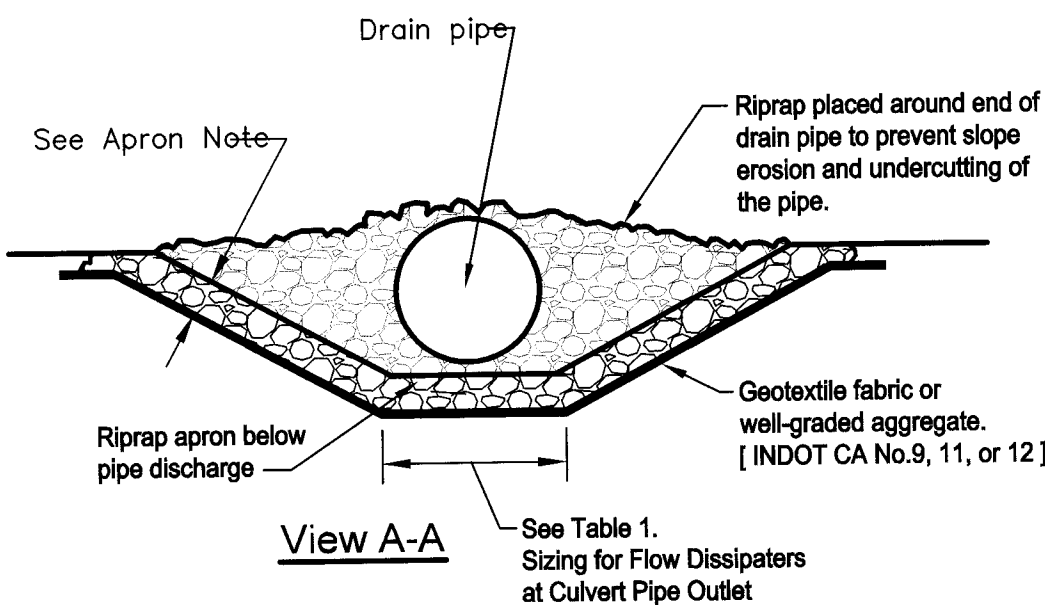
Table 1. Sizing for Flow Dissipaters at Culvert Pipe Outlets

Pipe Size	Average Riprap Diameter	Apron Width ²	Apron Length ³
8 in.	3 in.	2 to 3 ft.	5 to 7 ft.
12 in.	5 in.	3 to 4 ft.	6 to 12 ft.
18 in.	8 in.	4 to 6 ft.	8 to 18 ft.
24 in.	10 in.	6 to 8 ft.	12 to 22 ft.
30 in.	12 in.	8 to 10 ft.	14 to 28 ft.
36 in.	14 in.	10 to 12 ft.	16 to 32 ft.

- For larger or higher flows consult a registered engineer.
- Apron width at the narrow end of apron (pipe or channel outlet).
- Select length taking into consideration the low flow (no pressure head) or high flow (pressure head) conditions of the culvert pipe.

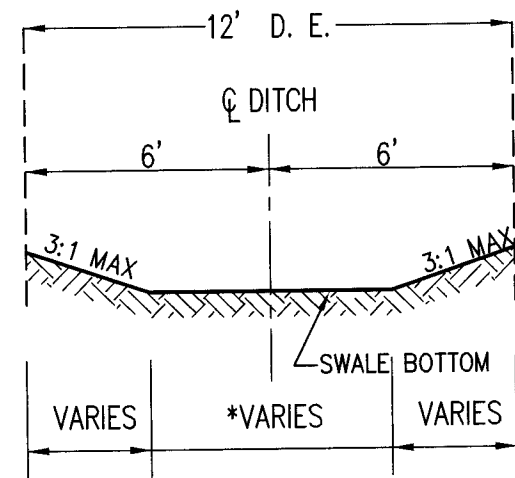
Riprap

- Hard, angular, highly weather resistant.
- Specific gravity of at least 2.5.
- Size and gradation that will withstand velocities of storm water discharge flow design.
- Well-graded mixture of stone with 50 percent of the stone pieces, by weight, larger than the d_{50} size and diameter of the largest stone equal to 1.5 times the d_{50} size.



Energy Dissipater (Outlet Protection)

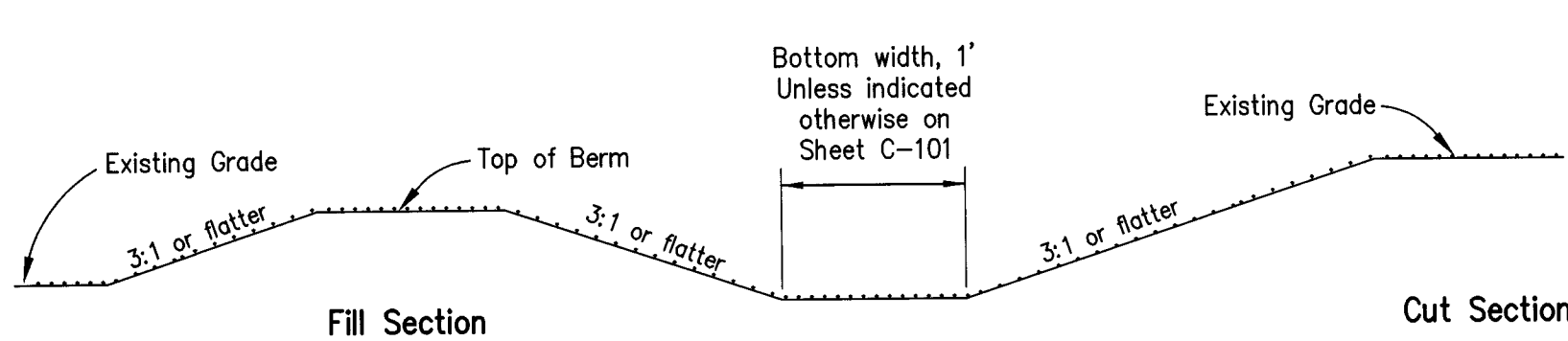
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*See Overflow Swales Table on Sheet C-101

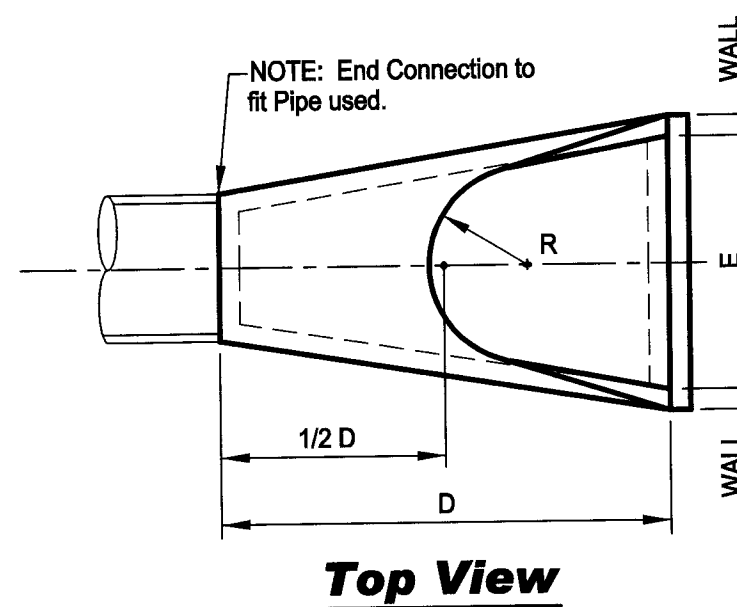
Emergency Overflow Swale

No Scale



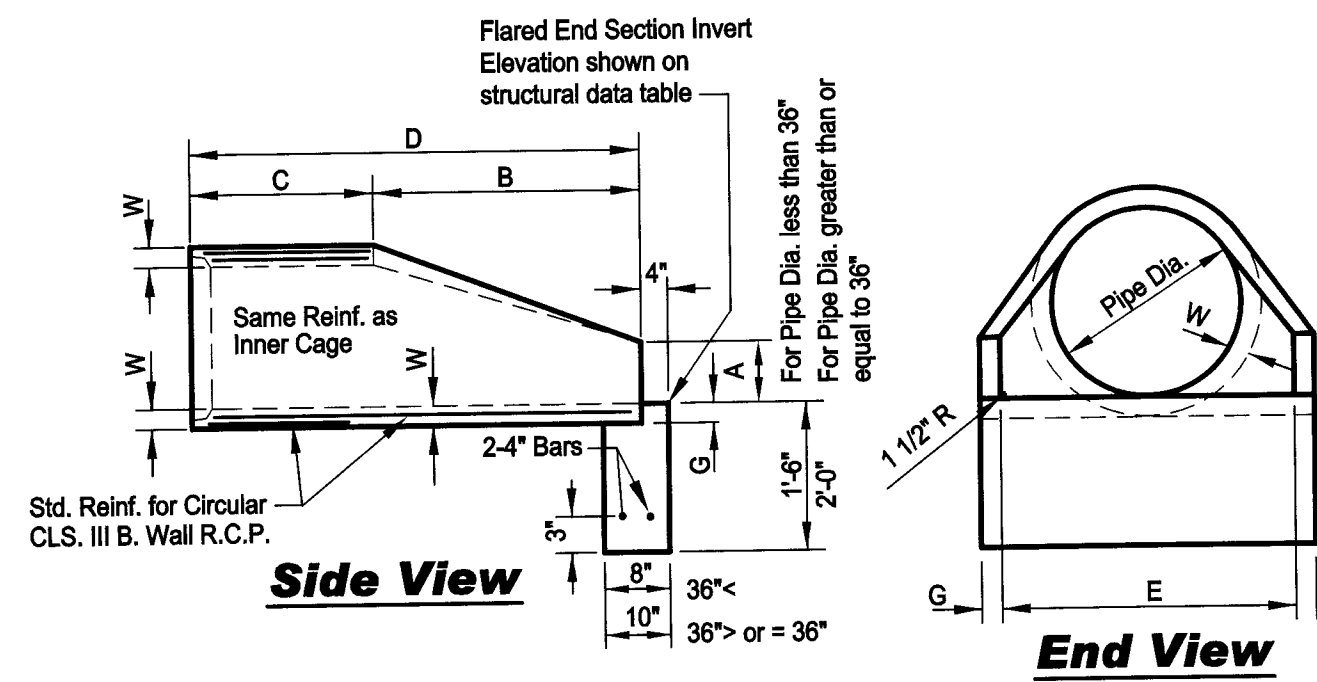
Typical Cross Section of Swales #1 thru #7

No Scale



Top View

PIPE DIA. (LBS)	WGT. (LBS)	WALL	A	B	C	D	E	G	R	SLOPE
12"	830	2 1/4"	8"	2-1/4"	4-1 1/2"	6-1 3/4"	1-11 3/4"	2 1/4"	8"	2:1
15"	900	2 1/4"	9"	2-3"	3-10"	6-1"	2-6"	2 1/4"	11"	2:1
18"	1000	2 1/2"	11 1/2"	2-3"	3-10"	6-1"	3-0"	2 1/2"	9-0"	2:1
24"	1260	2 3/4"	10"	2-11"	3-5"	6-1"	3-6"	2 3/4"	1-1"	2:1
24"	1800	2 3/4"	1-0"	3-8"	2-6"	6-2"	4-0"	2 3/4"	1-2"	2:1
27"	1930	3 1/4"	10 1/2"	4-0"	2-1 1/2"	6-1 1/2"	4-8"	3 1/4"	1-3 1/2"	3:1
30"	2250	3 1/2"	1-0"	4-8"	1-2 3/4"	6-1 3/4"	5-0"	3 1/2"	1-3"	3:1
33"	3000	3 3/4"	1-1 1/2"	4-10 1/2"	3-3 1/4"	6-1 3/4"	5-6"	3 3/4"	1-4 1/2"	3:1
36"	4480	4"	1-4 3/4"	5-3"	2-10 3/4"	6-1 3/4"	6-0"	4"	1-5"	3:1
42"	5380	4 1/2"	1-5"	6-3"	2-11"	6-2"	6-6"	4 1/2"	1-10"	3:1
48"	6650	5"	2-0"	6-0"	2-2"	6-2"	7-0"	5"	1-10"	3:1
54"	8240	5 1/2"	2-3"	6-5"	2-11"	6-4"	7-8"	5 1/2"	2-0"	2:1
60"	8720	6"	2-11"	6-0"	3-3"	6-3"	8-0"	5"	2-4"	2:1
66"	10710	6 1/2"	2-6"	6-0"	2-3"	6-3"	8-6"	5 1/2"	2-4"	2:1
72"	12620	7"	3-0"	6-6"	1-9"	6-3"	8-0"	6"	2-4"	1.86:1
78"	14770	7 1/2"	3-0"	7-5"	1-9"	6-3"	9-0"	6 1/2"	2-4"	1.82:1
84"	18160	8"	3-0"	7-6 1/2"	1-9"	6-3 1/2"	10-0"	6 1/2"	2-4"	1.81:1

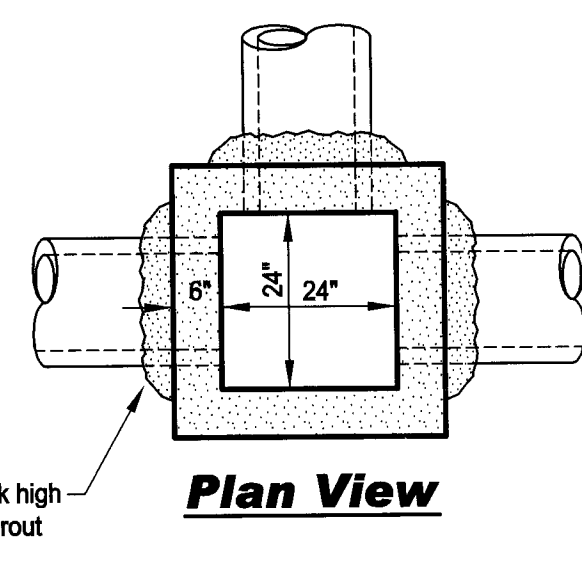


Side View

End View

Concrete End Section

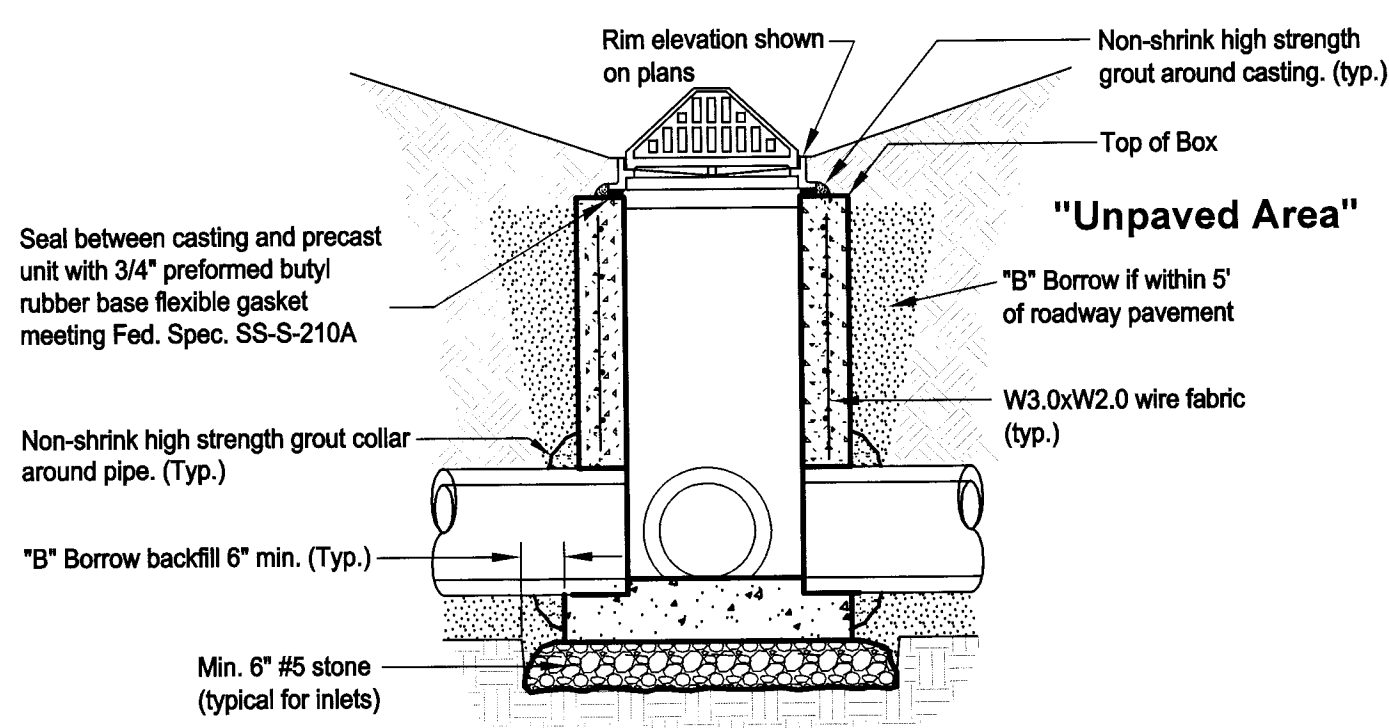
No Scale



Plan View

Notes

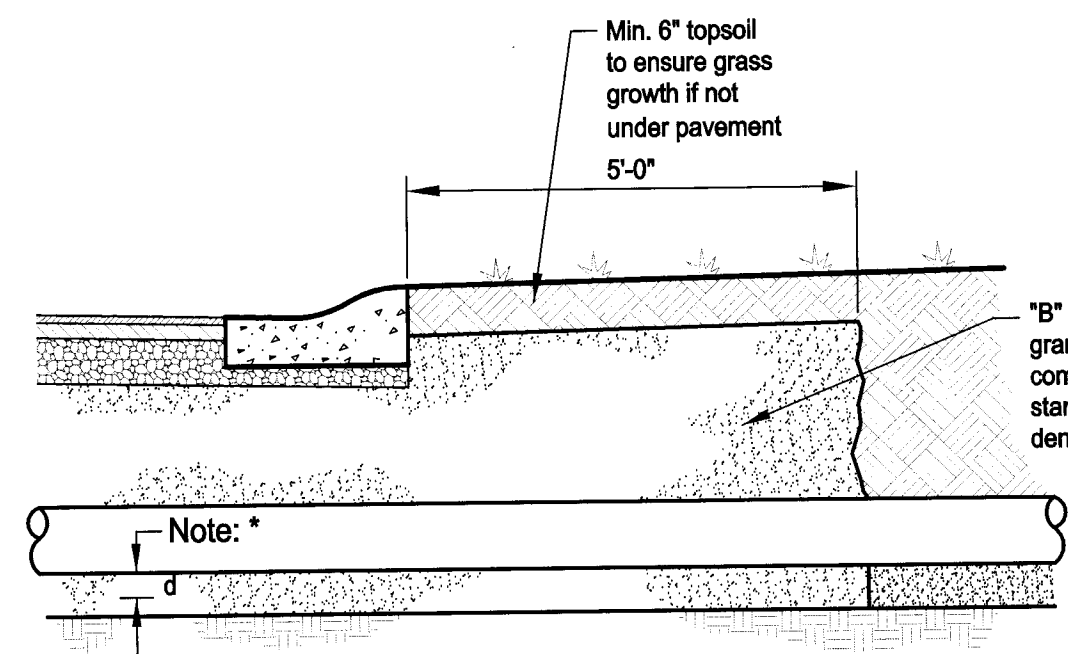
- For area inlet in non-paved areas: East Jordan #6500 casting, or equal, with adapter ring.
- All connecting pipes shall be grouted with a high strength non-shrink grout.
- Precast box shall conform to ASTM C-478
- Reinforcement shall be 3" x 6" W3.0xW2.0 wire fabric for precast units
- The inlet shall be backfilled with "B" Borrow and mechanically compacted in 6" lifts to 95% of standard density ASTM 698



Section

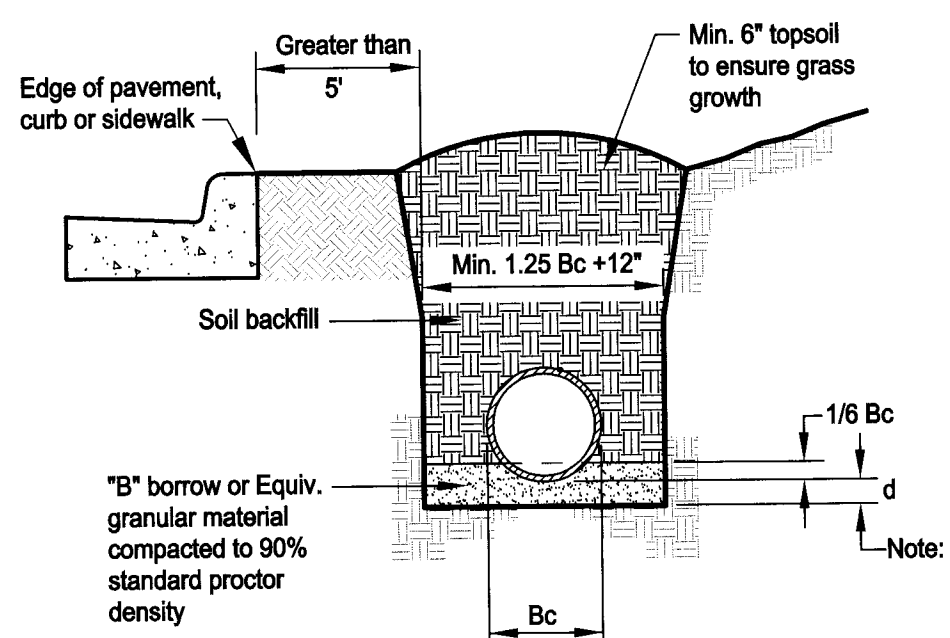
Precast 24" x 24" Box

No Scale



Beneath or within 5' of edge of pavement transversely

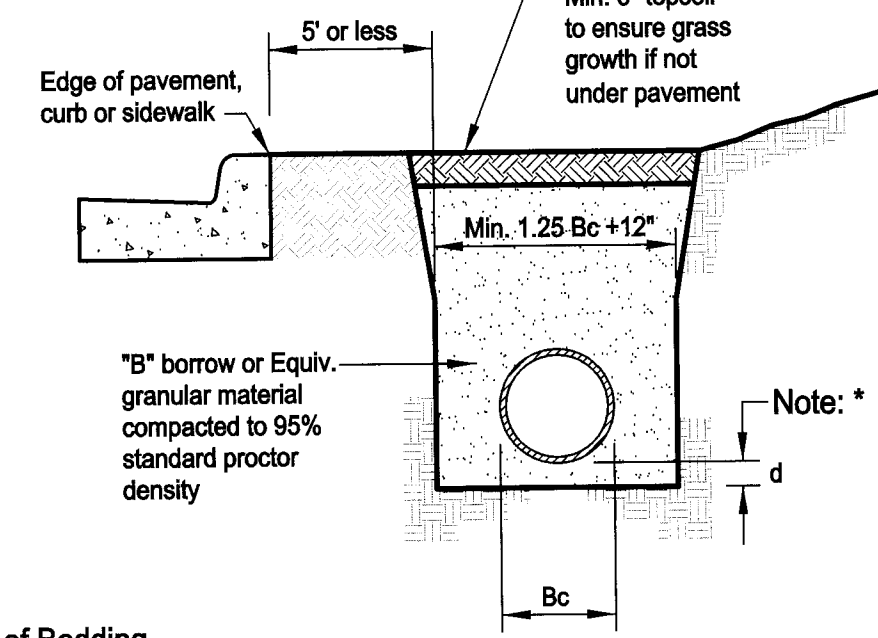
Note: * All bedding & initial backfill shall be installed in 6" to 12" balanced lifts. A minimum 9" of clearance shall be provided on each side of the installed pipe.



Greater than 5' from edge of pavement

Note: * All bedding & initial backfill shall be installed in 6" to 12" balanced lifts.

A minimum 9" of clearance shall be provided on each side of the installed pipe.



Beneath or within 5' of edge of pavement longitudinally

Note: * All bedding & initial backfill shall be installed in 6" to 12" balanced lifts.

A minimum 9" of clearance shall be provided on each side of the installed pipe.

Depth of Bedding Material Below Pipe

D	(d) Min.
27" & Smaller	3"
30" to 60"	4"
66" & Larger	6"

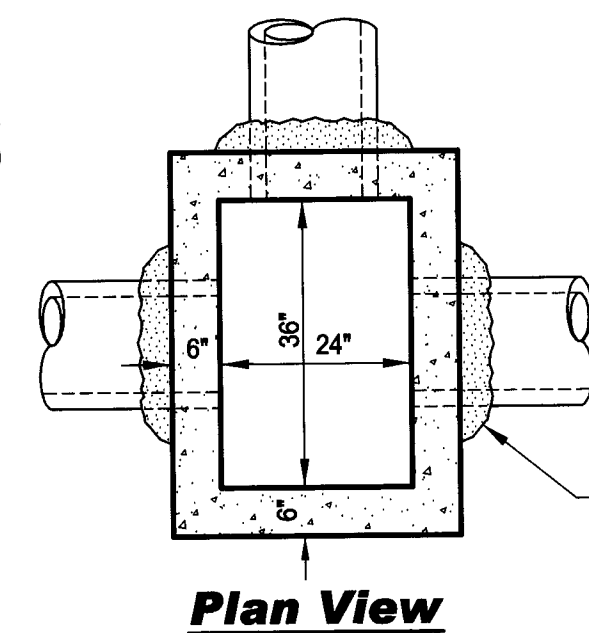
Legend:
 Bc = Outside Diameter
 D = Inside Diameter
 d = Depth of Bedding Material Below Pipe

Reinforced Concrete Pipe Storm Sewer Bedding

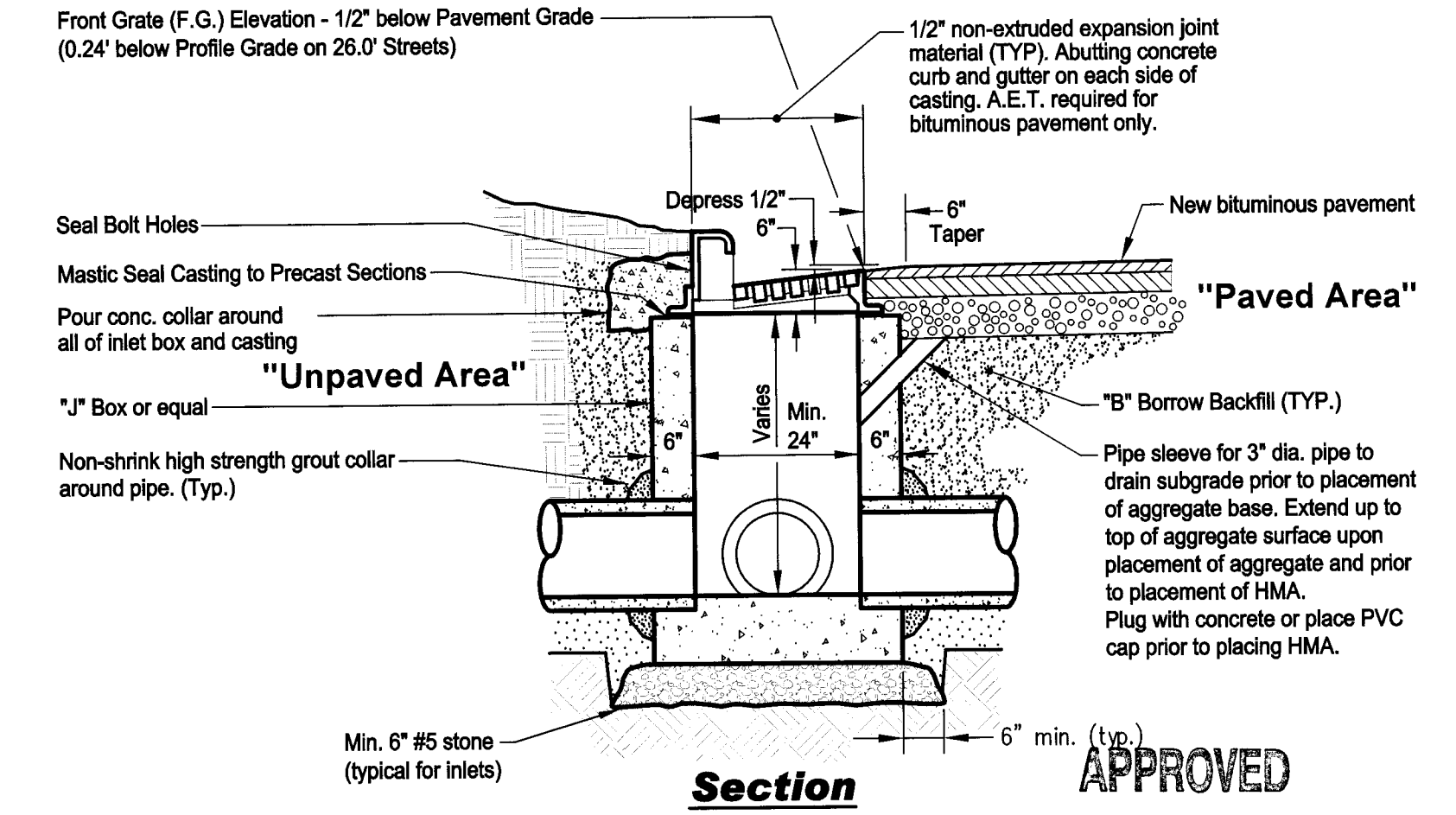
No Scale

Notes

- East Jordan Iron Works, Inc. (or approved equal) NO. 7030 catch basin curb inlet, with M3 grate for valley inlets or M4 grate for slope inlets. Type T-2 back for roll curbs
- All connecting pipes shall be grouted with a high strength non-shrink grout.
- Precast units shall conform to ASTM C-478
- The inlet shall be backfilled with "B" Borrow and mechanically compacted in 6" lifts to 95% of standard density ASTM-698



Plan View



Section

Curb Inlet

No Scale

APPROVED

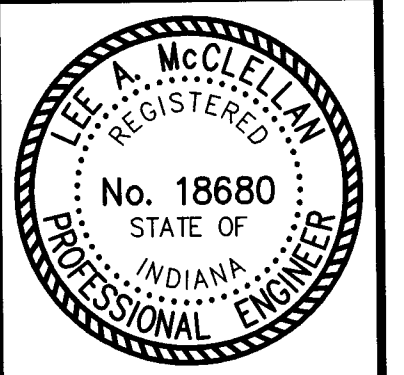
OCT 28 2014

Scale: 1/4" = 1'-0" WASHINGTON COUNTY DRAINAGE BOARD



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No.	By	Date	Description



The Reserve at Hidden Lake
First National Bank of Carmi

Storm Drainage Details

Scale: As Shown

Designed By: LAM Job Number: 8716-A-002-B

Drawn By: DWN Date: 09/03/2014

Filename: 8716\Civil_3D\8716 Civil Details.dwg

Sheet Number: **C502**