Engineering Manual

Effective January 1, 2011

Engineering Manual

INDEX

Section

PLAN SHEETS

Index of Sheets

Obtaining a Construction Number (C#)

Springfield has changed the requirements to obtain a C# from Pam. You will need to have all of the information on the new sheet filled out. You will have one copy for yourself and the other one goes to Pam.

A copy of the sheet is attached, but you may also find it on the Forms site/Bureau of Budget & Fiscal Management (BFM 337).

The new form requires additional information - more than the original information you filled out for Pam.

Filling out the Form:

You do not have to worry about the date at the top

You will check the NEW JOB box

Top portion is information we always filled out except the JOB NUMBER, which will be the C# you get. See other attached sheet for COUNTY CODE No. and MPO No. Not all jobs will have an MPO number. If no MPO number, put N/A. You will need to get the Tip Number from Dan Long. If no TIP number, enter the county name. FY is the year in which the job was set up, so it will be the same as the year in your D#. You will need to know if it is straight state or federal - check the correct box (DO NOT look at the sheet Rick gives you for this). The Federal Project No. can be left blank unless you know it.

The FROM and TO portion needs to be as specific as possible for your job limits, along with the description of the project. (Example: Milling and resurfacing IL 78 from 0.02 mile south of 10th Street to 0.5 mile north of US 34.)

REMARKS – Any other pertinent information needed for this project

All related job numbers also need to be filled in (if they apply).

R – If you have ROW or easement on your job, check with Mary Lou for this number.

P – If you have a P#, put it in there. If not, put N/A, as not all jobs are assigned a P#.

D – Enter your D#

C – Even though it is already listed above for the job number, enter the C# you get from Pam

Initiated by – just your name

Approved by – OK to leave blank

If you have any questions, call Lance at Ext. 407.

Illinois Department of Transportation

Job Authorization

To: Project Control Section
2300 South Dirksen Parkway
Springfield, Illinois 62764

Date _____
Mo. Day Year

☐ New Job

☐ Reopened Job - Previous Completion Date _____

☐ Change Notice (circle changed information in red and under remarks below, indicate what the original information had been.

Contract No. _____

Job Number _____ ☐ Non-Federal-Aid Job

Route _____ ☐ Federal-Aid Job

Section _____ Federal Project No. _____

County Code No. _____

MPO No. _____ _____ _____
(MPO #) (TIP Number) (FY)

From _____ To _____

Remarks: _____

Related Job Numbers:
R- _____
P- _____
D- _____
C- _____

Initiated by: _____

Approved by: _____

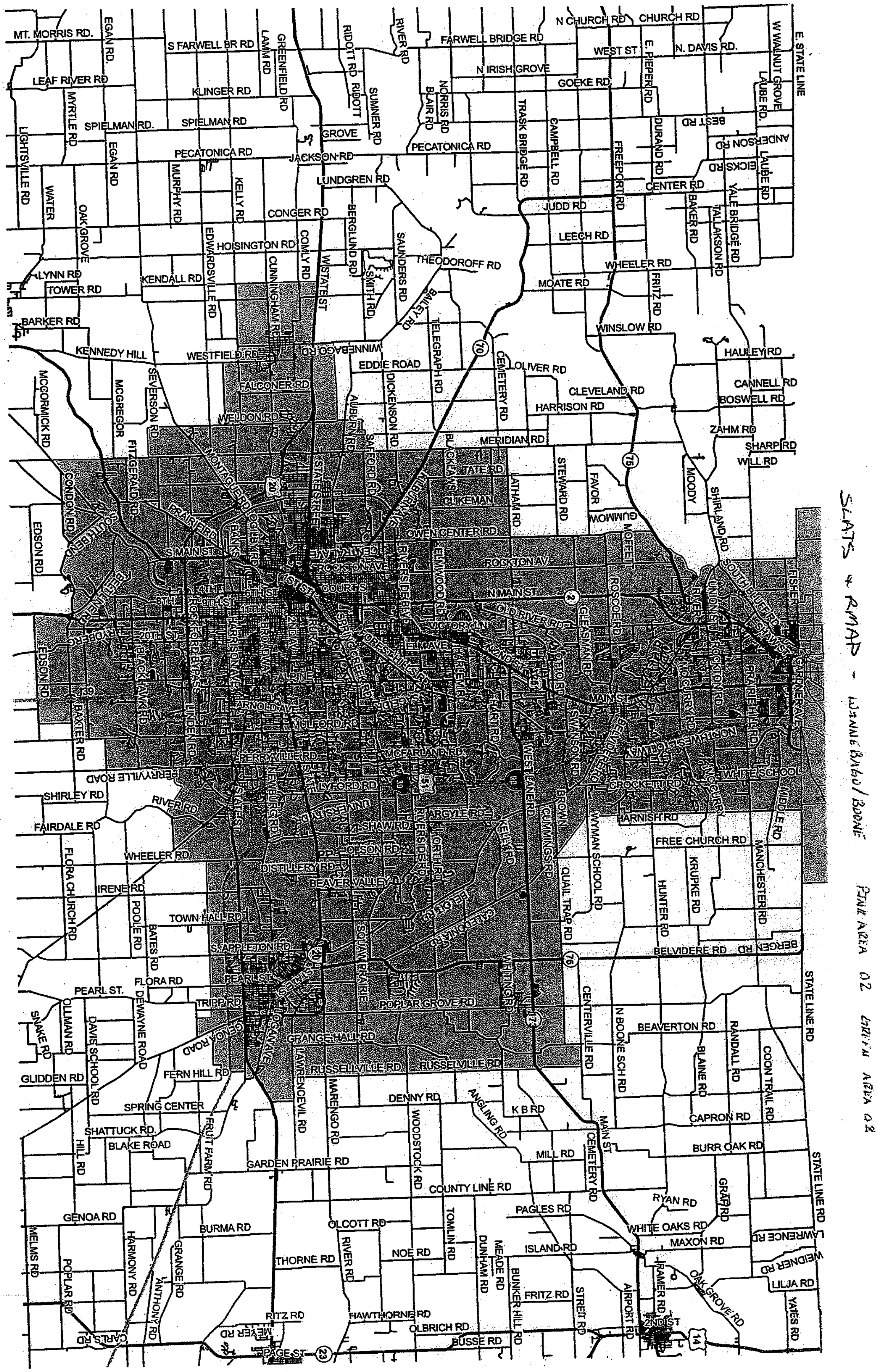
Distribution of Copies:

Original to Bureau of Budget & Fiscal Management Attn: Project Control Section
One copy to Central Bureau of Local Roads & Streets, if applicable.
One copy to Central Bureau of Bridges & Structures when job involves a structure.
One copy to Central Bureau of Land Acquisition, if applicable.
One copy to District Administrative Manager, if needed.
One copy to be retained by originating office.

MPO Code	County
01	JoDaviess
02	Winnebago
03	Winnebago, Boone
06	Rock Island, Henry

The **MPO CODE** does not apply to the whole county. See attached maps for general locations of MPO areas (shaded areas are MPO area). If you are unsure of your area, ask Dan Long for clarification.

County	County Code
Boone	007
Carroll	015
Henry	073
JoDaviess	085
Lee	103
Ogle	141
Rock Island	161
Stephenson	177
Whiteside	195
Winnebago	201


MT. MORRIS RD.
EGAN RD.
S FARWELL BR RD
LAMM RD
GREENFIELD RD
RIDOTT RD
RIDOTT
RIVER RD
FARWELL BRIDGE RD
N CHURCH RD
CHURCH RD
WEST ST
E. PIEPER RD
N. DAVIS RD.
W WALNUT GROVE
E. STATE LINE
LEAF RIVER RD
KLINGER RD
SUMNER RD
NORRIS RD
BLAIR RD
N IRISH GROVE
GOEKE RD
TRASK BRIDGE RD
LAUBE RD.
MYRTLE RD
SPIELMAN RD.
SPIELMAN RD
GROVE
CAMPBELL RD
DURAND RD
BEST RD
ANDERSON RD
LIGHTSVILLE RD
EGAN RD
PECATONICA RD
JACKSON RD
PECATONICA RD
FREEPORT RD
EICKS RD
MURPHY RD
KELLY RD
LUNDGREN RD
CENTER RD
WATER
OAK GROVE
CONGER RD
BERGLUND RD
JUDD RD
YALE BRIDGE RD
BAKER RD
TALLAKSON RD
EDWARDSVILLE RD
HOISINGTON RD
COMLY RD
W STATE ST
SAUNDERS RD
LEECH RD
LYNN RD
TOWER RD
KENDALL RD
CUNNINGHAM RD
SMITH RD
THEODOROFF RD
WHEELER RD
MOATE RD
FRITZ RD
BARKER RD
BAILEY RD
TELEGRAPH RD
WINSLOW RD
KENNEDY HILL
WESTFIELD RD
WINNEBAGO RD
EDDIE ROAD
CEMETERY RD
OLIVER RD
HAULEY RD
MCCORMICK RD
MCGREGOR
SEVERSON RD
FALCONER RD
DICKENSON RD
CLEVELAND RD
CANNELL RD
BOSWELL RD
WELDON RD
AUBURN RD
HARRISON RD
ZAHM RD
MERIDIAN RD
SHARP RD
WILL RD
FITZGERALD RD
MONTAGUE RD
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SAFFORD RD
TATE RD
STEWARD RD
FAVOR
MOODY
CONDON RD
PRAIRIE RD
CLIKEMAN
LATHAM RD
SHIRLAND RD
GUMMOW
EDSON RD
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OWEN CENTER RD
MOFFET
ROCKTON AV
ROCKTON AVE
COURT ST
N MAIN ST
ROSCOE RD
SOUTH BLUFF RD
FISHER
OLD RIVER RD
VICTORY LN
GLEASMAN RD
ELMWOOD RD
20TH ST
ELM AVE
EDSON RD
HARRISON AVE
ARNOLD AVE
MILFORD RD
MAIN ST
BAXTER RD
PERRYVILLE RD
MCFARLAND RD
NORTH SIMMONS
PERRYVILLE ROAD
SHIRLEY RD
LYFORD RD
CROCKETT RD
WHITE SCHOOL
MIDDLE RD
RIVER RD
ARGYLE RD
FAIRDALE RD
SHAW RD
HARNISH RD
FREE CHURCH RD
WHEELER RD
OLSON RD
WYMAN SCHOOL RD
FLORA CHURCH RD
IRENE RD
DISTILLERY RD
BEAVER VALLEY
QUAIL TRAP RD
HUNTER RD
KRUPKE RD
MANCHESTER RD
POOLE RD
BATES RD
TOWN HALL RD
CUMMINGS RD
BROWN
KELLY RD
S APPLETON RD
BELVIDERE RD
BERGEN RD
FLORA RD
PEARL ST.
PEARL ST
TRIPP RD
POPLAR GROVE RD
STATE LINE RD
SNAKE RD
OLLMAN RD
DAVIS SCHOOL RD
DEWAYNE ROAD
GENOA ROAD
GRANGE HALL RD
BEAVERTON RD
RANDALL RD
COON TRAIL RD
CENTERVILLE RD
N BOONE SCH RD
BLAINE RD
GLIDDEN RD
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RUSSELLVILLE RD
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MARENGO RD
DENNY RD
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SPRING CENTER
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BLAKE ROAD
HILL RD
FRUIT FARM RD
WOODSTOCK RD
CEMETERY RD
MILL RD
BURR OAK RD
GARDEN PRAIRIE RD
COUNTY LINE RD
STATE LINE RD
RYAN RD
GRAF RD
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MEADE RD
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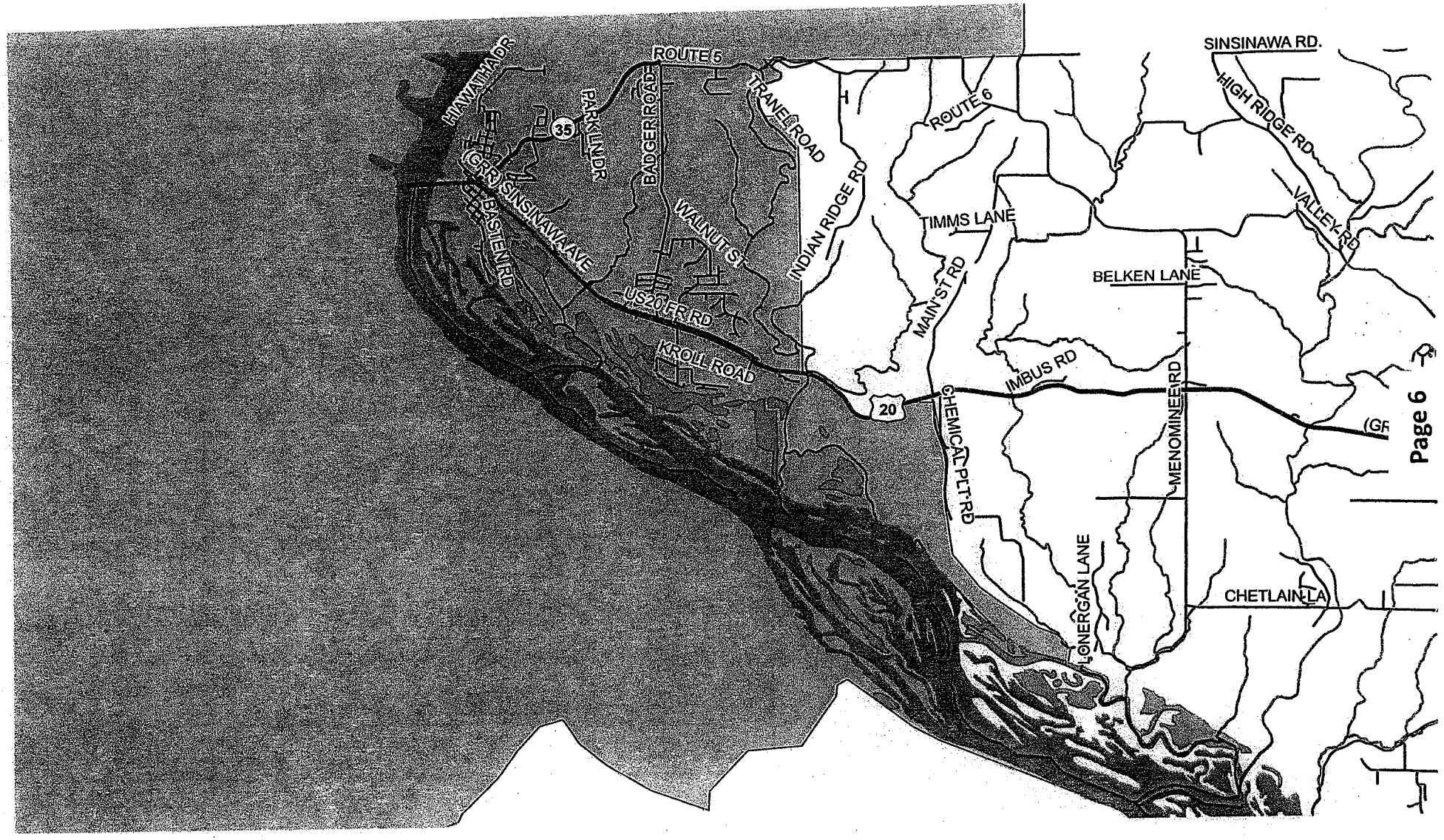
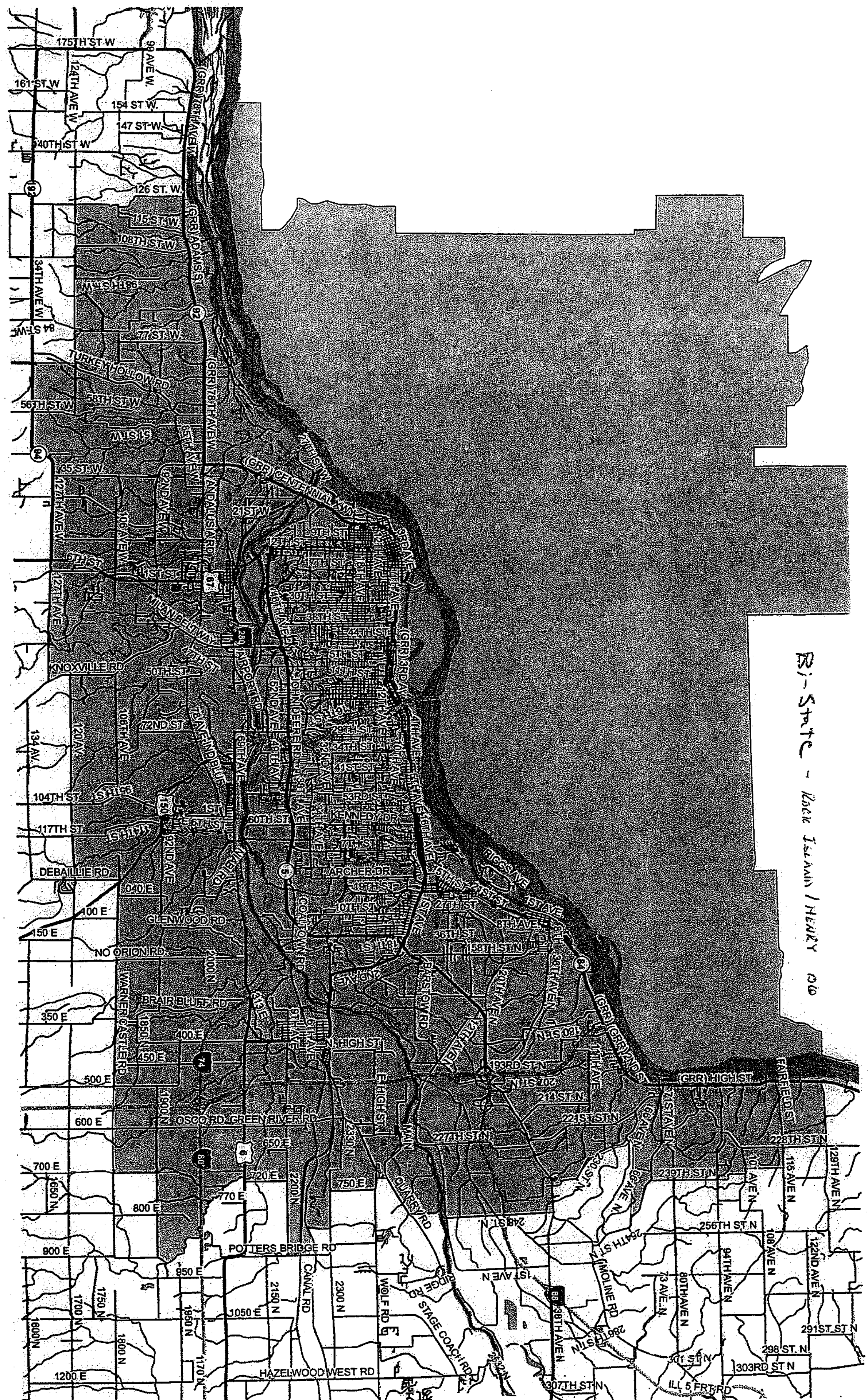
FRITZ RD
STREIT RD
AIRPORT RD
RAMER RD
OAK GROVE RD
LILJA RD
YATES RD
RITZ RD
HAWTHORNE RD
BUNKER HILL RD
2ND ST
CARLS RD
MEYER RD
OLBRICH RD
BUSSE RD
PAGE ST
SLATS + RMAP - WINNEBAGO/BOONE
Final Area 02 Green Area 03

DMATS - JoDAVIESS 01




175TH ST W
161 ST W
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147 ST W.
140TH ST W
126 ST. W.
115 ST W.
108TH ST W
77 ST W.
TURKEY HOLLOW RD
56TH ST W
58TH ST W
35 ST. W.
(GRR) CENTENNIAL AVE
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KNOXVILLE RD
50TH ST
72ND ST
104TH ST
117TH ST
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DEBAILLIE RD
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WARNER CASTLE RD
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E. HIGH ST
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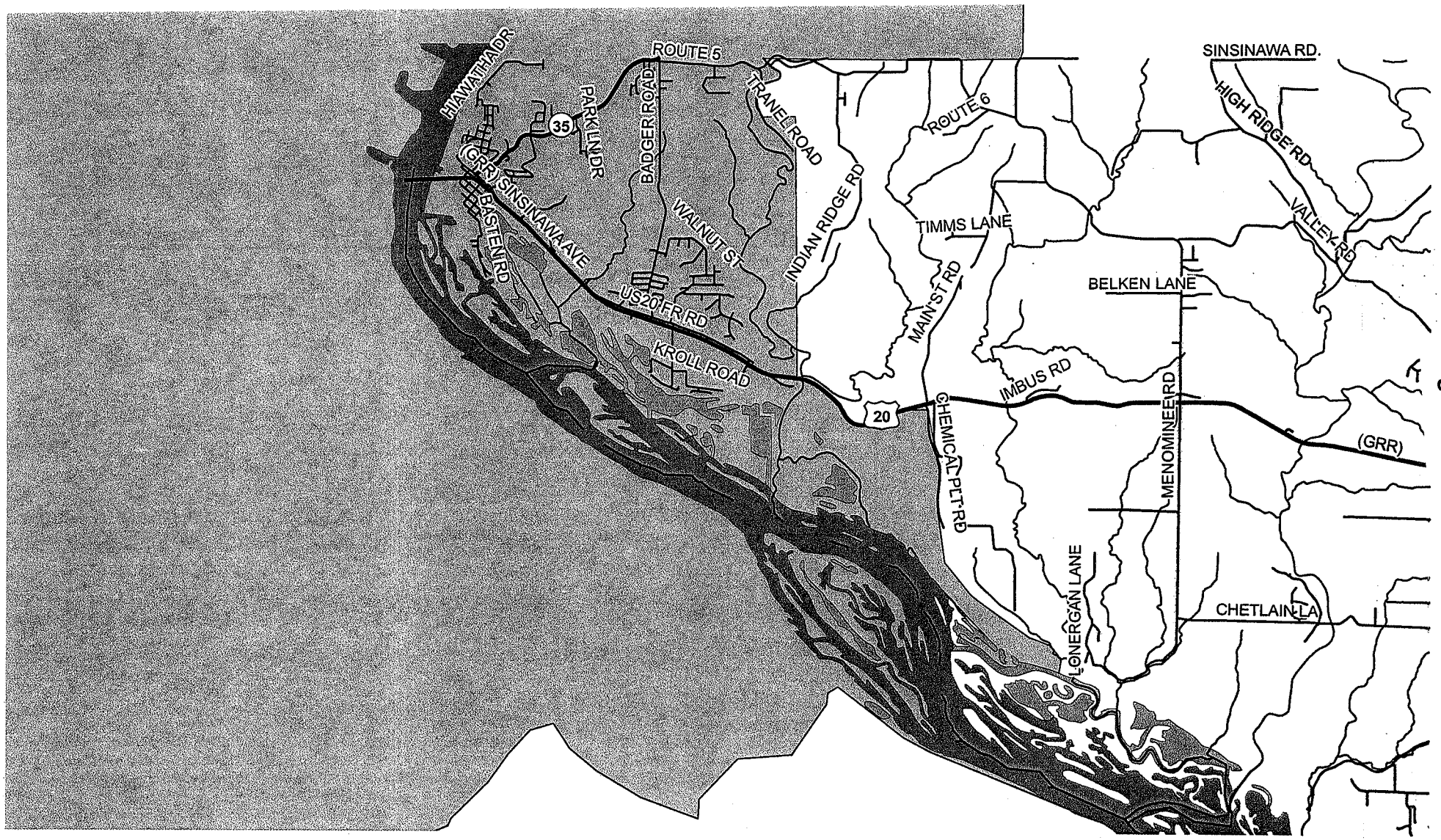
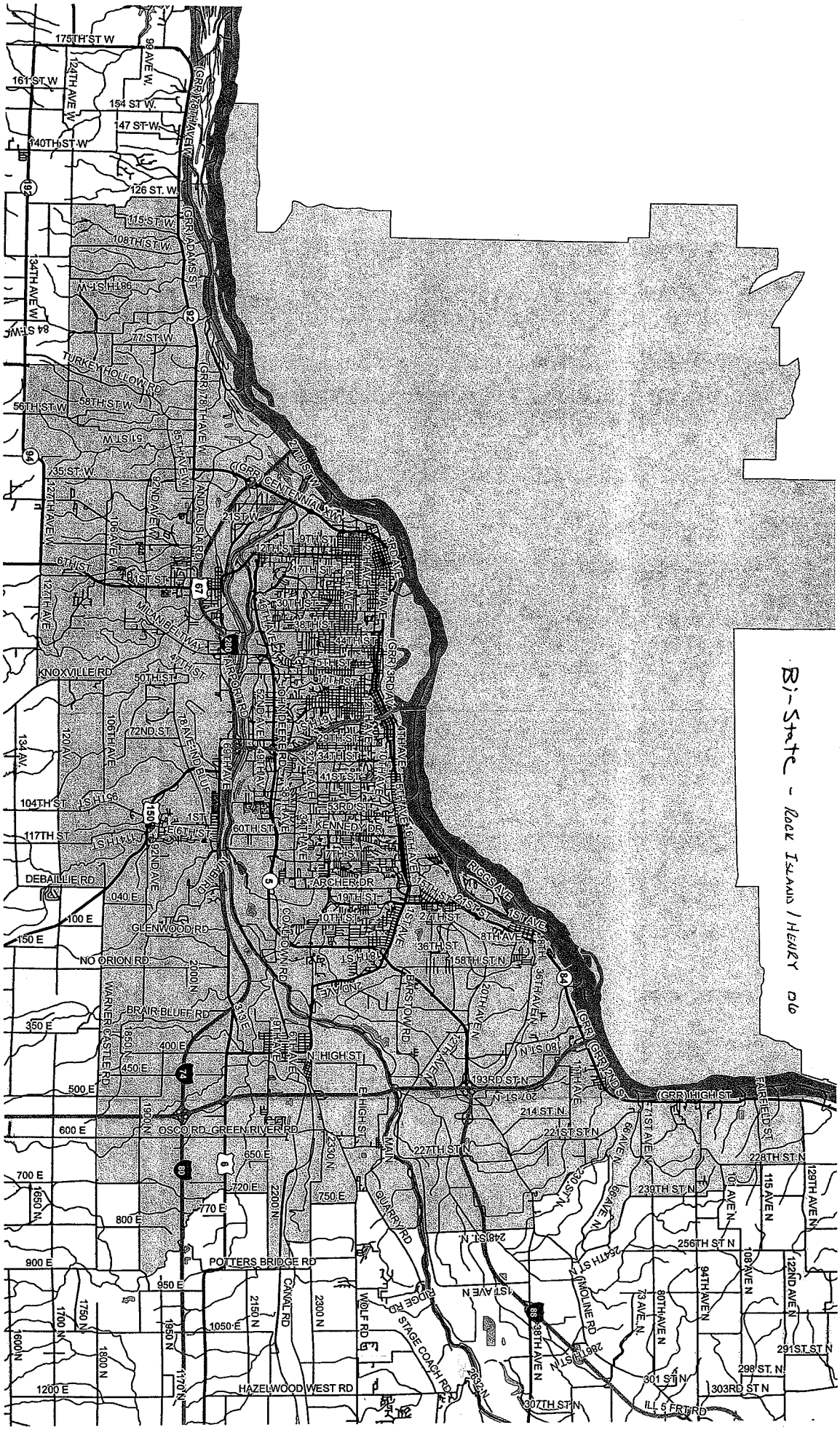
1ST AVE
(GRR) HIGH ST
193RD ST N
214 ST. N
224ST ST N
227TH ST N
228TH ST N
239TH ST N
256TH ST N
OSCO RD GREEN RIVER RD
POTTERS BRIDGE RD
CANAL RD
WOLF RD
STAGE COACH RD
HAZELWOOD WEST RD
MOLINE RD
307TH ST N
291ST ST N
298 ST. N
303RD ST N
ILL 5 FRT RD
Bi-State - Rock Island / Henry Co

DMATS - JoDAVIESS 01

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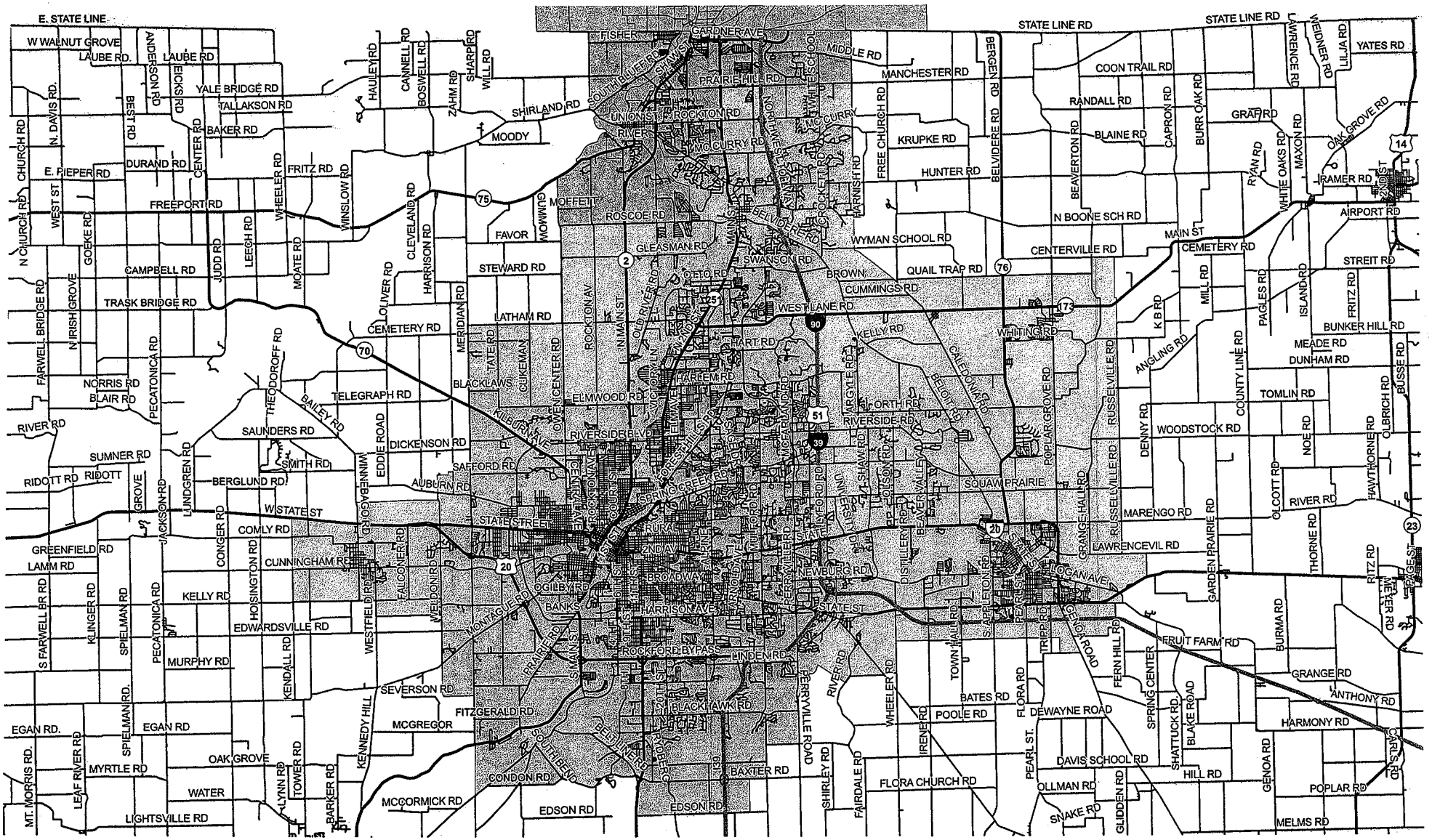
SLATS & RMAP - WINNEBAGO/BOONE PINK AREA 02 GREEN AREA 03



Project, Section & Improvement Notation on Cover Sheets

Use Project begins and ends on all Federal Aid Projects
Use Section begins and ends on all Non-Federal Aid Projects
Improvement begins and ends can be used with either funding

Use **Section/Project Begins and Section/Project Ends** stationing where the full thickness resurfacing begins and ends or where the new pavement begins and ends. Section/Project Begins and Section/Project Ends stationing will be shown on the plan sheet and on the cover sheet. The Section/Project Begins and Ends stationing will be used to determine the net and gross lengths on the cover sheet.

If work is to be done beyond the Project or Section Begins or Ends stations, it will be called **Improvement Begins and Improvement Ends** stations. This also will be shown on the plan sheet and the cover sheet. An example of this is when the grading of ditches goes beyond the resurfacing.

3P jobs which are mostly resurfacing would usually use just Section/Project Begins and Section/Project Ends stationing. 3R jobs and HES projects will generally use both Project Begins and Ends stationing and Improvement Begins and Ends stationing because there will be work outside of the resurfacing limits.

Chapter 1

Information for the Summary of Quantities (SOQ)

1) The most common quantity breakdowns are:

   a) Urban & Rural areas
   b) Local participation (City)
   c) Traffic Signal Improvements
   d) Bridge or Box Culvert of bridge length
   e) Two- or four-lane through lanes

2) Do not add a pay item or code number for Trainees. Springfield will add this if necessary

3) There should be a breakdown of the urban and rural quantities for projects that cross urban boundaries with populations of 5,000 or more. If you are working on a project that is anywhere within the proximity of the four (4) MPO's within our District, be aware that, just because your project has corn fields all around, it may not be a rural classification. The MPO's have pushed miles beyond any corporate city limit, so any project in the Rock Island, Henry, JoDaviess, Winnebago and Boone Counties could actually be classified as urban instead. The MPO's adjust their boundaries every few years or so and the next update may actually extend the RMAP boundary line (south of the Rockford area) far enough that it reaches into Ogle County.

   If you plan to break the SOQ down into urban and rural columns, you need to verify with the Estimator in the Programming Section where the rural and urban limits actually begin and end whenever you are around Rockford, Machesney Park, Loves Park, South Beloit, Belvidere, Winnebago, East Dubuque, the Quad Cities, or any other small town in the surrounding areas.

4) Non-participating Items: On projects with Federal monies, any maintenance work (like mowing and culvert cleaning), and salvage items worth $5,000 or more, the Feds will not participate.

5) Add this at the end of the Summary "*Specialty Item".
   Add an asterisk in front of the Code Number for Specialty Items.

6) Leave a blank line in between each pay item.

7) When doing a cost estimate, add a column for the percentage of the contract for each pay item.

8) Be sure the font is large enough to be legible. Quality Control has examples of approved SOQ's.

9) See Section 64-1.04 of the BDE Manual for proper rounding criteria.

Specialty Items

Certain items of work require specialized knowledge, skills, or equipment which are typically outside the general contractor's expertise (e.g. electrical work, traffic signals or pavement markings on a paving contract, blasting on a bridge contract, paving work on an electrical contract, etc.). Clearly mark Specialty Items in the Summary of Quantities.

By definition, a Specialty Item is any pay item or group of pay items that can be subtracted from the total estimated value of a contract. The prime contractor must only prove able to perform 50% of the remainder of the contract with his/her own forces. This allows the contractor the option of either sub-contracting out the balance of the contract or performing the work himself, if he has a pre-qualified rating to perform the remainder of operations.

Specialty Items are determined based on the primary type of work that the contract consists of. For example, if the bulk of work to be done is paving, then items associated with other operations would be considered Specialty Items, such as striping, electrical work, landscaping, lighting, signing, sanitary sewers, water mains and asbestos removal. If the primary work to be done is any of the aforementioned items, they would no longer be considered Specialty Items. Another example would be an intersection improvement contract. In many cases the paving and electrical work that is performed will be nearly equal; therefore, the only Specialty Items that are marked would be perhaps striping or signing.

Most often a paving contract will have minor landscaping work that can be done by the paving contractor, such as seeding or erosion control, and in this case these items cannot be deducted from the total value of the contract. If the contract includes planting trees, shrubs, vines or evergreens, then all pay items associated with landscaping should be marked as Specialty Items, including seeding, sodding and other related pay items.

When plans are being reviewed by the Central Bureau of Design and Environment, special attention is paid to which items, if any, should be considered Specialty Items. Included is the list that we use as a guideline:

Lighting (unless it is a lighting job--then other items are specialty)
Traffic Signals (unless its traffic signal job--then other items are specialty)
Landscaping (not seeding or sodding)
Signing
Permanent Pavement Markings
Water mains and appurtenances (not adjusting)(including fire hydrants)
Sanitary Sewers & appurtenances
Holes Drilled
Dry Grout Solids
Friable & Non-Friable Asbestos Removal
Items associated with Tieback Retaining Walls
Treated or Un-treated Timber
Soil Anchor or Rock Anchor
Setting Soldier Piles in rock or soil
Instrumentation work
Pavement Markers (raised reflective)
Guardrail improvements
Permanent Survey Markers

Illinois Department of Transportation

Memorandum

To:	HIGHWAYS BUREAU CHIEFS, REGIONAL ENGINEERS PROGRAM DEVELOPMENT ENGINEERS
From:	Scott E. Stitt Scott E Stitt
Subject:	Construction Type Codes
Date:	January 6, 2011

The Bureau of Design and Environment has revised the construction type codes that were implemented for the November 5, 2010 Letting. (memorandum dated July 14, 2010)

The following is the list of construction type codes that will be incorporated into the Design Manual. Please distribute this information to all designers, estimators, coders, consultants and any other staff involved in plan preparation.

This revision clarifies existing codes as well as adding new codes.
Please contact Vince Sternitzke at 217-782-2817 with any question.

Construction Type Code	Description
0001	New Construction Roadway
0003	Reconstruction, Capacity Added (through lanes only)
0004	Reconstruction, No Capacity Added (full depth, rubblizing, 3R)
0005	System Preservation & Resurfacing (SMART, 3P, surface treatments, patching, crack sealing)
0008	Bridge, New Construction
0010	Bridge Replacement, Added Capacity (through lanes only)
0011	Bridge Replacement, No Capacity Added
0013	Bridge Rehabilitation, Added Capacity (through lanes only)
0014	Bridge Rehabilitation, No Capacity Added (deck sealing, painting, washing, wearing surface, expansion joints)
0020	Environmental Only (wetland mitigation, erosion control)
0021	Safety (traffic signals, lighting, sidewalks, EVPs, shoulders, rumble strips, guardrails, pavement markings, signage, turn lanes)
0028	Facilities for Bicyclist/Pedestrian Trails
0031	Landscaping & Other Scenic Beautification (weed spraying, tree removal)
0040	Special Bridge (structures < 20', retaining walls, overhead sign structures, pump stations, storm sewers, noise barriers)
0042	Trainees
0043	Utilities
0044	Other (building demolition, drainage improvements, weigh stations)

SUMMARY OF QUANTITIES

CODE NUMBER	ITEM	UNITS	URBAN TOTAL	80% FED - 20% STATE 0014	80% FED 20% STATE RDWAY 0005	Spring Creek 80% FED 20% STATE 0011	Forest Hills 80% FED 20% STATE 0014
20200100	EARTH EXCAVATION	CU YD	2481		2481		
X2070304	POROUS GRANULAR EMBANKMENT, SPECIAL	CU YD	695			608	87
21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	5880		5880		
25000200	SEEDING, CLASS 2	ACRE	1.50		1.50		
25100630	EROSION CONTROL BLANKET	SQ YD	6065		6065		
25100900	TURF REINFORCEMENT MAT	SQ YD	246		246		
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	750		750		
28000305	TEMPORARY DITCH CHECKS	FOOT	30		30		
28000400	PERIMETER EROSION BARRIER	FOOT	2678		2678		
28000500	INLET AND PIPE PROTECTION	EACH	35		35		
31100910	SUB-BASE GRANULAR MATERIAL, TYPE A 12"	SQ YD	5789		5789		
40600535	LEVELING BINDER (HAND METHOD), N70	TON	2		2		
40600635	LEVELING BINDER (MACHINE METHOD), N70	TON	35		35		
40600735	POLYMERIZED LEVELING BINDER (HAND METHOD), N70	TON	49	49			
40600837	POLYMERIZED LEVELING BINDER (MACHINE METHOD), N70	TON	969	969			
40600990	TEMPORARY RAMP	SQ YD	639	639			
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	244		244		
40603340	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	53		53		
40603565	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "E", N70	TON	1453	1453			
42001200	PAVEMENT FABRIC	SQ YD	496		496		
42001420	BRIDGE APPROACH PAVEMENT CONNECTOR (PCC)	SQ YD	1816	1782	34		
42400200	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	6930	6930			
42400800	DETECTABLE WARNINGS	SQ FT	80	80			
44000100	PAVEMENT REMOVAL	SQ YD	1535		1535		
44000159	HOT-MIX ASPHALT SURFACE REMOVAL, 2 1/2"	SQ YD	17382		17382		
44000300	CURB REMOVAL	FOOT	117		117		
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	3281		3281		
44000600	SIDEWALK REMOVAL	SQ FT	4666	4666			
X0601662	APPROACH SLAB REMOVAL	SQ YD	1402		1402		
44001980	CONCRETE BARRIER REMOVAL	FOOT	2788		2788		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.* RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	1-HBR & 1-2HB-D	WINNEBAGO	216	5
		CONTRACT NO. 64B79		
		ILLINOIS FED. AID PROJECT		

* F.A.P. 301 & F.A.I. 5145

SUMMARY OF QUANTITIES

100% STATE
0005

CODE NO.	ITEM	UNIT	QUANTITY	CARROLL COUNTY	
				FAP 545 (IL 72)	FAP 654 (IL 73)
40600200	BITUMINOUS MATERIALS (PRIME COAT)	TON	3.10	2.30	0.80
40600300	AGGREGATE (PRIME COAT)	TON	16	12	4
40600525	LEVELING BINDER (HAND METHOD), N50	TON	15	10	5
40600625	LEVELING BINDER (MACHINE METHOD), N50	TON	457	317	140
40600982	HOT-MIX ASPHALT SURFACE REMOVAL – BUTT JOINT	SQ YD	1,105	833	272
40600990	TEMPORARY RAMP	SQ YD	185	139	46
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	697	522	175
40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	81	54	27
48101200	AGGREGATE SHOULDERS, TYPE B	TON	325	256	69
67100100	MOBILIZATION	L SUM	1	0.5	0.5
70100460	TRAFFIC CONTROL AND PROTECTION, STANDARD 701306	L SUM	1	0.5	0.5
70300100	SHORT-TERM PAVEMENT MARKING	FOOT	1,222	962	260
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	136	107	29
* 78001110	PAINT PAVEMENT MARKING – LINE 4"	FOOT	29,630	23,040	6,590

Sumqtymrs2011-7

*SPECIALTY ITEM

LOCAL AGENCY - DIVISION OF COSTS

PARKING LANES

A. New Parking Lanes ADT > 5,000	50% Local and 50% State, if constructed equivalent to adjacent traffic lanes 100% Local, if constructed of a design less than adjacent traffic lanes
ADT < 5,000	100% Local
B. Existing Parking Lanes	100% Local for resurfacing full thickness, less the cost of a full-width taper equal to the width of the parking lanes 50% Local and 50% State for milling and resurfacing existing parking lanes 100% Local for base repair and patching existing parking lanes 100% Local for curb and gutter along existing parking lanes if requested by the Local and beyond the scope of project
C. Replacement Parking Off System	The State will be responsible for all costs to construct alternate parking on a 1:1 ratio(See BDE Manual Ch. 5-8 Ex.5 Memo)

SIDEWALKS

A. New sidewalk, due to IDOT project (should be addressed In Phase I coordination)	80% State / 20% Local
B. Removal of existing deteriorated sidewalks not impacted by IDOT project (should be addressed in Phase I coordination)	100% Local
C. Replacement of the deteriorated Sidewalk	80% State / 20% Local
D. Cost difference between Standard and decorative sidewalk	100% Local

E. Removal and replacement of existing sidewalk due to IDOT project	100% State
F. If "E" from above is a request or initiated by the Local	100% Local
G. ADA Curb Ramps	Cost Share same as Sidewalks

Sidewalk can now be considered for federal aid participation. On a project with an 80% Fed and 20% State split – the cost breakdown would be 80% Fed and 20% Local

H. Decorative (Brick) Crosswalk	100% Local of the difference above Standard sidewalk 100% local for removal of decorative

BICYCLE & PEDESTRIAN ACCOMMODATIONS (Multi-use Path)

(Items c. & e. the local agency must agree to maintain or do not construct)

A. New on-road bicycle lanes (If Federal Funds then 80% Fed / 20% Local)	80% State 20% Local
1. Wide outside lane/widened shoulder	100% State
2. New or deteriorated side path – warranted	80% State 20% Local
3. Old path removal & replacement – if caused by IDOT project	100% State
4. Side path – not warranted	Local 100% of the difference above what selection criteria indicated (difference between on-road/widened lanes or shoulder –vs- side path)
5. Existing Path Adjustment	
• If caused by IDOT project	100% State
• If due to local agency work request	100% Local

BICYCLE & PEDESTRIAN ACCOMMODATIONS ON STRUCTURES

New or replacement structures (Local 100% of cost difference for a separate accommodation structure if accommodations could have been provided on the roadway structure.	100% State

Reconstructed or rehabilitated structures (Local 100% of cost difference for a separate accommodation structure if accommodations could have been provided on the roadway structure or if request grade separation when at-grade crossings are safe)	100% State

RETAINING WALLS

• New (necessitated by IDOT project) on IDOT Rural ROW	100% State
*Exception, if on private property or requested by the Local Agency or property owner	100% Local or Property owner
• New or decorative (request from LA)	100% Local
• New (necessitated by IDOT project) on Urban ROW (should be addressed in Phase I coordination)	100% State, but 100% local for maintenance
• Replacing of existing wall/block within Urban area	80% State and 20% Local
• If a retaining wall has Structure No.	100% State

❖ If replacing wall(s) or block(s) in an Urban area, future maintenance responsibilities are 100% local

HIGHWAY LIGHTING

New or Modernization -100% Local

Relocation – utility adjustment - See BDE Manual Chapter 5-5.02(f) – (depends on defined ROW limits)

If not on State ROW – State relocates as a utility adjustment

TRAFFIC SIGNALS

- Please contact Operations early during Phase I when setting ROW limits
- Local should participate in modernization costs – See Scott Kullerstrand or Kris Hill in Operations.

- Federal Funds (Minimum 80%) are first deducted before determining financial responsibility for all traffic signals regardless of funding (90% on Safety Projects)

A. Intersection of two State highways	100% State
B. Ramp terminals connecting to or from State highways	100% State
C. Intersection of State highways and other public streets & roads	Cost to each agency in proportion to number of approaches that it maintains
D. Traffic signals relocated only due to highway improvement	100% State
E. School Signals	
• New installation (Meets warrants)	50% Local 50% State
• New installation (Doesn't meet warrants)	100% Local
F. Commercial or private benefit signals	100% Private Agency/Local
G. Emergency Vehicle Pre-emption Equipment or Emergency Vehicle Signal System Controls	100% Local
• Relocates of the system type	100% Local
H. Detector Loops	100% Local
I. Special Painting	100% Local
• Powder coated finish	100% Local
J. Pedestrian Flashing Beacon	100% Local (and they maintain it and Supply power. However, it can be an 80/20 split if participating in other items.)

STORM SEWERS

100% State for highway drainage
100% Local for increase in capacity

Storm Sewer Manhole Adjustments
100% State (even in parking lanes)

Inlet Adjustments
100% State If No Parking
100% Local If RS Parking Lanes

UTILITIES

A.	Watermain	100% Local*
B.	Sanitary sewer	100% Local*
C.	Fire hydrants	100% Local
D.	Manhole adjustments for water or sanitary Sewer	100% Local
E.	Landscaping (other than normal seeding, sodding, and tree replacement)	100% Local

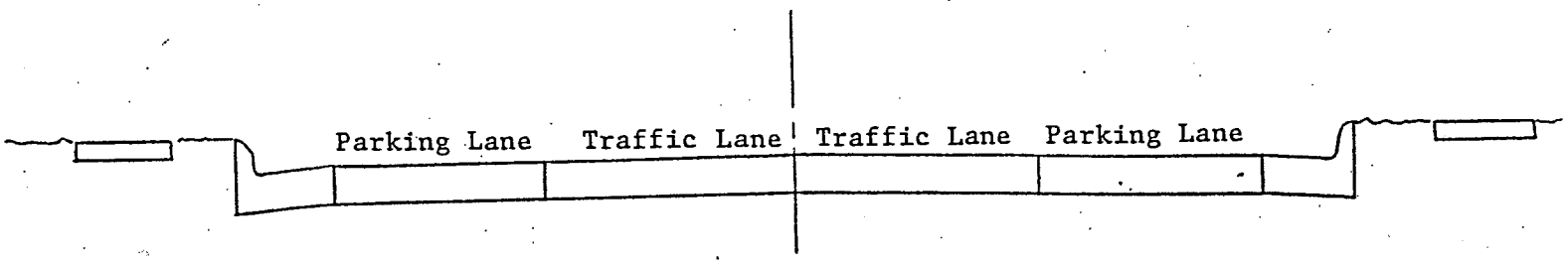
*For Items a. and b. see BDE Manual Chapter 5-5.02(f) dependents on “who was there first”.

District procedures have been that the **State will assume costs for 5 or less items** requiring adjustment or relocation if that is all the local agency would have for participation on the project. If there are any other items for local participation that require an agreement, the local agency will be required to pay for all of their required adjustments regardless of how many.

5 or less items requiring adjustment or relocation is the total for all types of adjustments, i.e., manholes for watermain or sanitary, valve vaults, fire hydrants, etc. – not 5 or less of each one

Keep in mind – if on State’s ROW (whether in travel lanes or parking lanes) – 100% Local
If on Local’s ROW – 100% State

COST PARTICIPATION - NEW CONSTRUCTION



STATE RESPONSIBLE FOR:
- Traffic Lanes, Medians
- Left- and Right-Turn Lanes
- 50% of Parking Lanes
- Curbs and Gutters
- Storm Sewers and Drainage Appurtenances
- 80% of Sidewalks

MUNICIPALITY RESPONSIBLE FOR:
- 50% Parking Lanes
- 20% Sidewalks
- Additional Storm Sewer Capacity
- Lighting

MAINTENANCE RESPONSIBILITIES

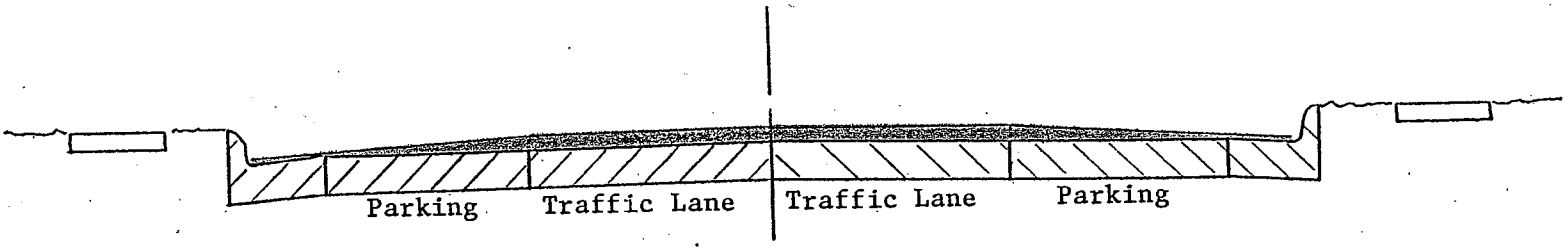
STATE:
- Through Traffic Lanes
- Medians
- Left- and Right-Turn Lanes
- Curbs and Gutters adjacent to traffic lanes or turn lanes

MUNICIPALITIES:
- Parking Lanes
- Curbs and Gutters adjacent to parking lane
- All ROW outside ROW maintained by the State
- Sidewalks
- Utilities - Water and Sanitary Lines
- Storm Sewers and Appurtenances
- Trees and Landscaping Features
- Highway Lighting

RESURFACING PROJECTS (3P & SMART)

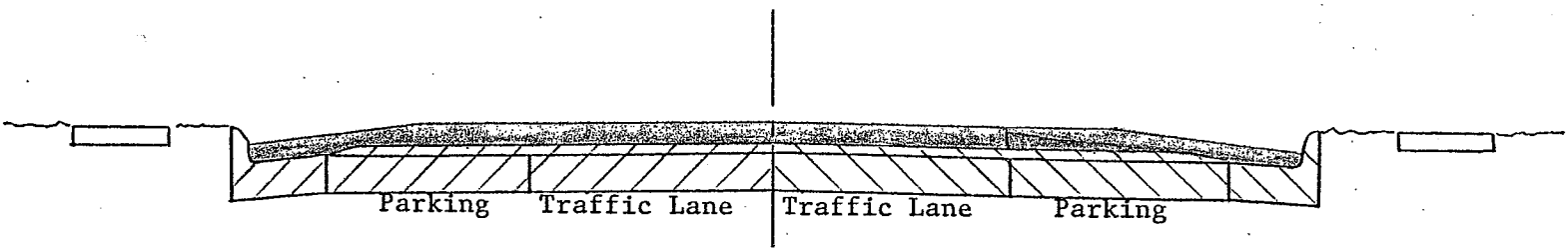
As a rule, the State will improve those portions which it maintains. In most cases, the State is responsible for the traffic lanes, adjacent curbs and gutters, and for a full-width taper over parking lanes equal to the width of the adjacent traffic lane.

CASE #1 Resurface traffic lanes and taper from full thickness to 1/2".



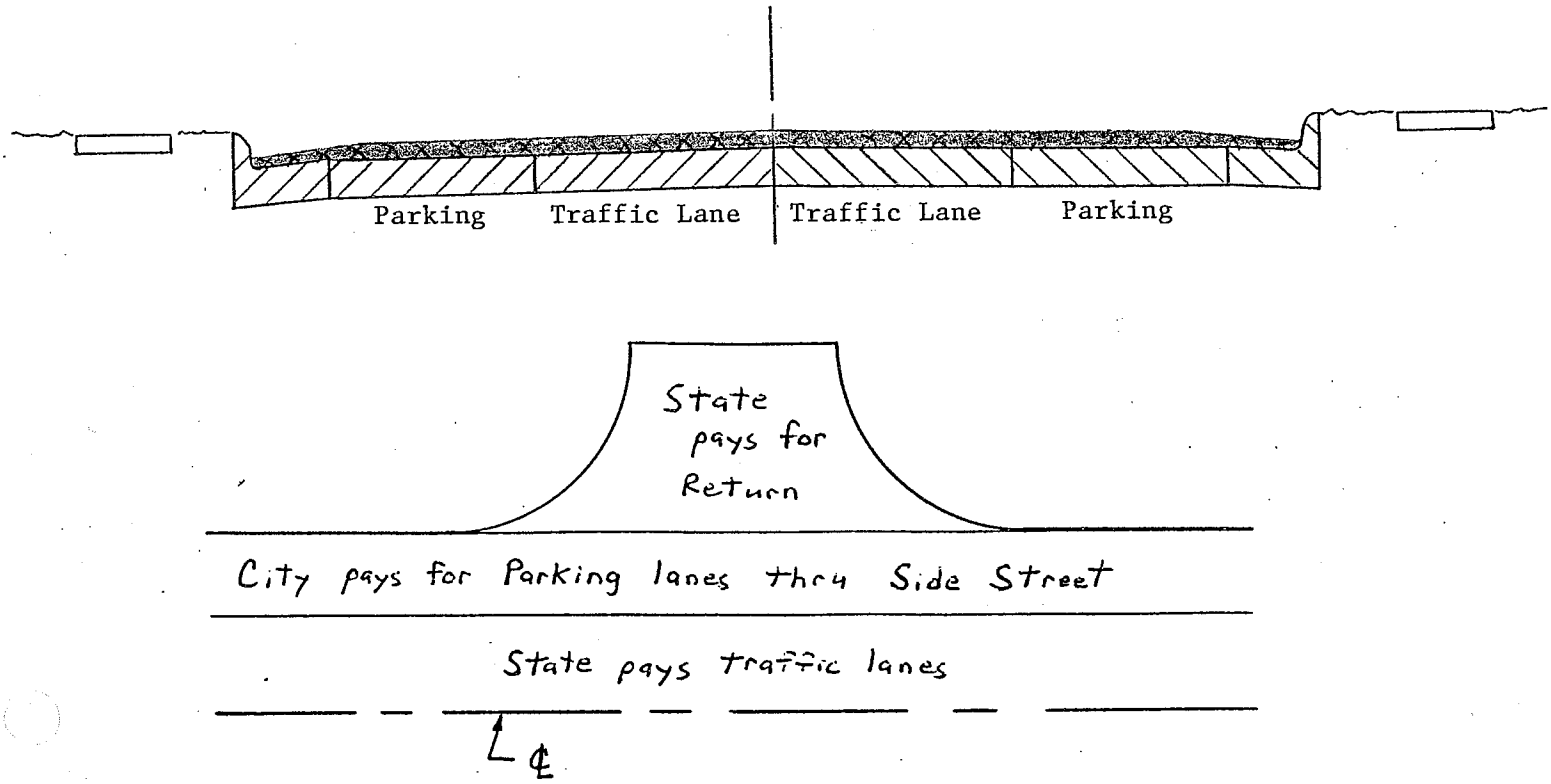
- Resurfacing – 100% State
- Repair or patching of parking lanes – 100% local, if they request it. If not, don't include any repair.
- Repair or replacement of curb & gutter along existing parking lanes – 100% local
- Additional repair requested by the local beyond what we have scheduled – 100% local
- Replacing grates with bicycle-safe grates – 100% State
- Storm Sewer Manhole adjustment (even in parking lanes) – 100% State
- Adjustment of sanitary & water manholes and water valves. Replacement of broken or damaged frame & lids – 100% local (if 5 or more)
- Adjust or reconstruct inlets, and replace broken or damaged inlet frames & grates – 100% local
- Adjust utility manholes – by the utility company

CASE #2 Resurface Traffic Lanes and Parking Lanes Full Thickness.



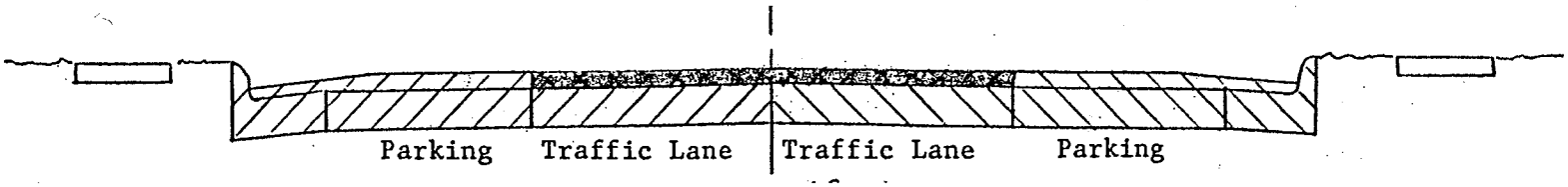
- Resurfacing traffic lanes – 100% State
- Resurfacing parking lanes – 50% State & 50% local
- Resurfacing that portion of existing on-system parking greater than the width of the adjacent travel lane – 100% local
- Repair or patching of parking lanes – 100% local
- Repair or replacement of curb & gutter along existing parking lanes – 100% local
- Additional curb & gutter repair requested by the local beyond what we have scheduled – 100% local
- Replacing grates with bicycle-safe grates – 100% State
- Storm Sewer Manhole adjustment (even in parking lanes) – 100% State
- Adjustment of sanitary & water manholes and water valves. Replacement of broken or damages frame & lids – 100% local (if 5 or more)
- Adjust or reconstruct inlets, and replace broken or damaged inlet frames & grates – 100% local
- Adjust utility manholes – by the utility company

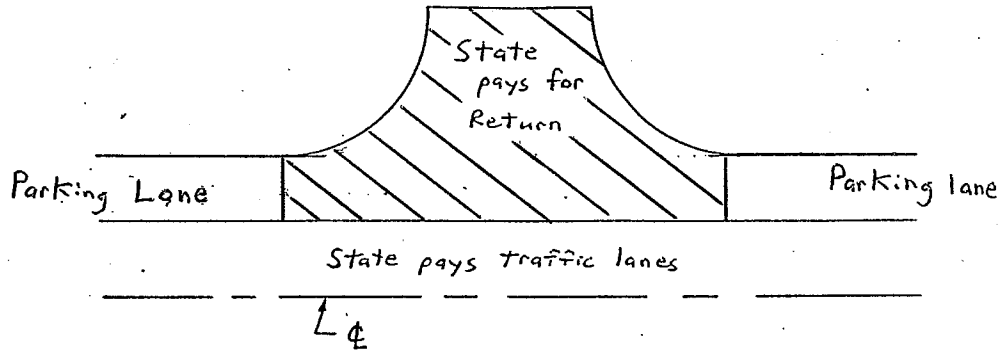
CASE #3 Mill Entire Pavement Width. Resurface Full Thickness Traffic and Parking Lanes



- Milling and resurfacing traffic lanes and side street returns – 100% State
- Milling and resurfacing parking lanes – 50% State & 50% local
- Milling and resurfacing that portion of existing on-system parking greater than the width of the adjacent travel lane – 100% local
- Repair or patching of parking lanes – 100% local
- Repair or replacement of curb & gutter along existing parking lanes – 100% local
- Additional curb & gutter repair requested by the local beyond what we have scheduled – 100% local
- Replacing grates with bicycle-safe grates – 100% State
- Storm Sewer Manhole adjustment (even in parking lanes) – 100% State
- Adjustment of sanitary & water manholes and water valves. Replacement of broken or damaged frame & lids – 100% local (if 5 or more)
- Adjust or reconstruct inlets, and replace broken or damaged inlet frames & grates – 100% local
- Adjust utility manholes – by the utility company

CASE #4 Mill and Resurface Traffic Lanes Only





- Milling and resurfacing traffic lanes and side street returns – 100% State
- Repair or replacement of curb & gutter along existing parking lanes – 100% local
- Additional curb & gutter repair requested by the local beyond what we have scheduled – 100% local
- Replacing grates with bicycle-safe grates – 100% State
- Storm Sewer Manhole adjustment – 100% State
- Adjustment of sanitary & water manholes and water valves. Replacement of broken or damaged frame & lids – 100% local (if 5 or more)
- Adjust or reconstruct inlets, and replace broken or damaged inlet frames & grates – 100% local
- Adjust utility manholes – by the utility company

INFORMATION ON TYPICAL SECTIONS

1. Structural Design Information is required on state highways designed for a 20-year design period.

2. Full-depth aggregate shoulders adjacent to HMA shoulders 8" should be 8" thick. Full-depth aggregate shoulders shall be Type A, except when there is less than 1,500 tons--then use Type B. HMA shoulder is paid for by the Square Yard. Aggregate Shoulder is paid for by the Ton.

3. The cross slope on resurfacing should be labeled Maintain Existing Cross Slope (Min. 1/8" per foot).

4. Cross slope for all shoulders (PCC, HMA, aggregate and turf) shall be 4%.

5. All wedge aggregate shoulders shall be Type B and be paid for by the Ton.

6. Include note for shoulder slopes on superelevations.

7. Use 6" deep aggregate Type A when placed adjacent to pavement. Use Type B if there is less than 1,500 tons. Pay for by the Ton.

8. On superelevation corrections use HMA Leveling Binder (Machine Method), use 3/4" thickness on low side and note it is variable on high side.

9. When removing and replacing curb and gutter either note the thickness to be paid for or use the standard thickness and pay for aggregate under the curb and gutter. See State Standard 606001 for the standard gutter flag thickness.

10. Use Strip Reflective Crack Control on longitudinal joints on widening. Place on the existing surface if smooth. Otherwise, place on top of the binder course. Strip Reflective Crack Control is 2' wide.

11. If you anticipate the curb and gutter or PCC pavement will be constructed after October 15th and the road will be open to traffic prior to the following April 15th, include Protective Coat pay item. Also include this note on the typicals.

12. If existing fill material will not support vegetation, use Topsoil Placement 4" or 6". Check soils report and with Materials section.

13. In rock excavation, use 4:1 slope in deep cut. If rock cuts are 10' or more than pre-drilled rock, add district special provision.

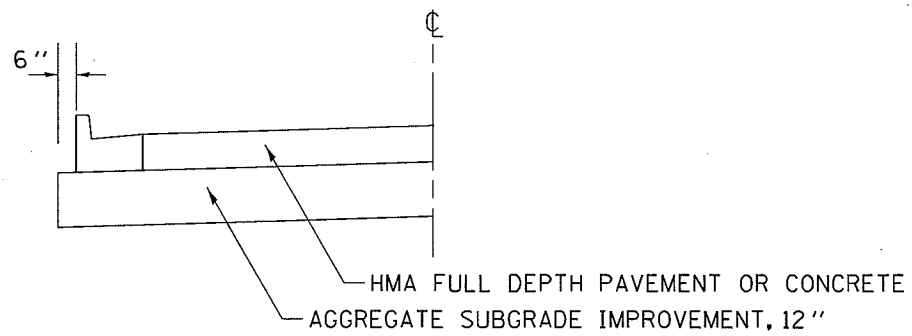
14. All gutter shall be Concrete Gutter Type A (Special), this has a flat bottom (see District Standard 36.4).

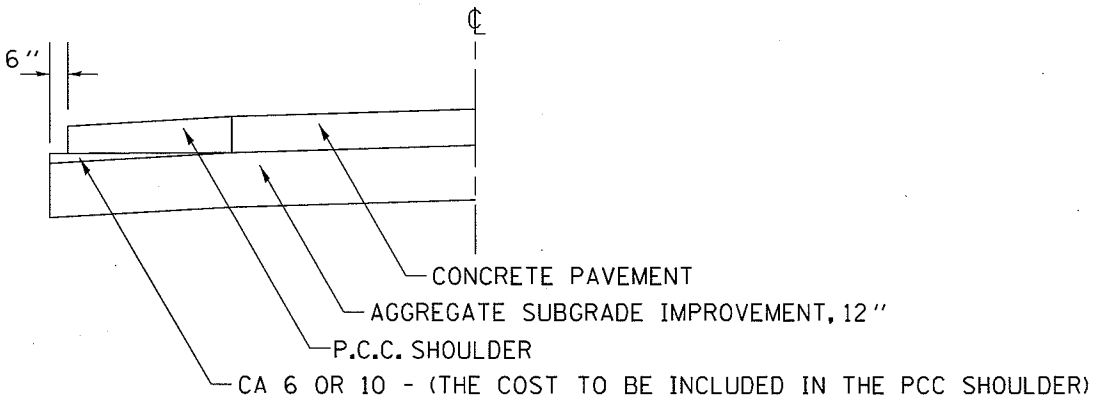
15. On 13' wide pavement, show pavement striping 1' in from the edge.

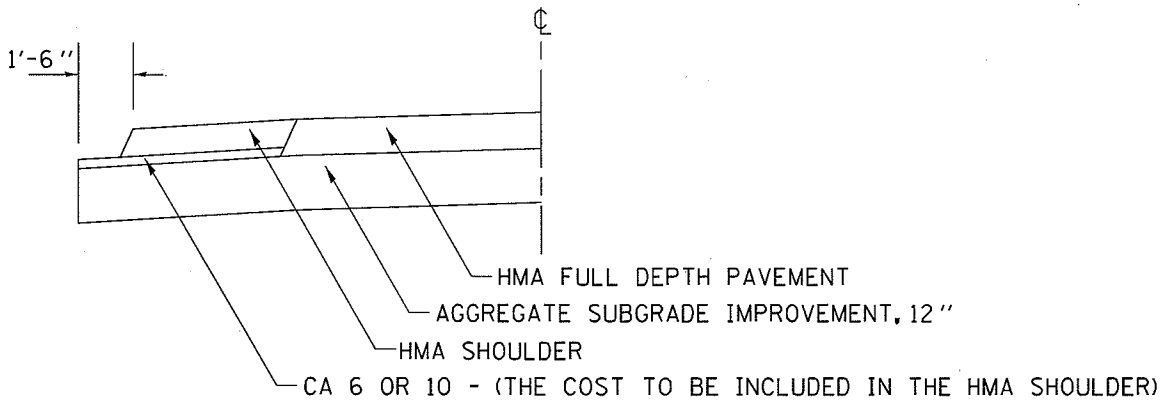
16. Top lift on HMA shoulders to be HMA Surface Course, Mix C, N50 paid for by the Ton. The HMA shoulders will be paid for in Square Yards, but reduce thickness by the surface course.

TYPICAL SECTION DETAILS FOR SUBGRADE

(FOR NEW CONCRETE OR HMA MECHANISTIC PAVEMENT DESIGN)

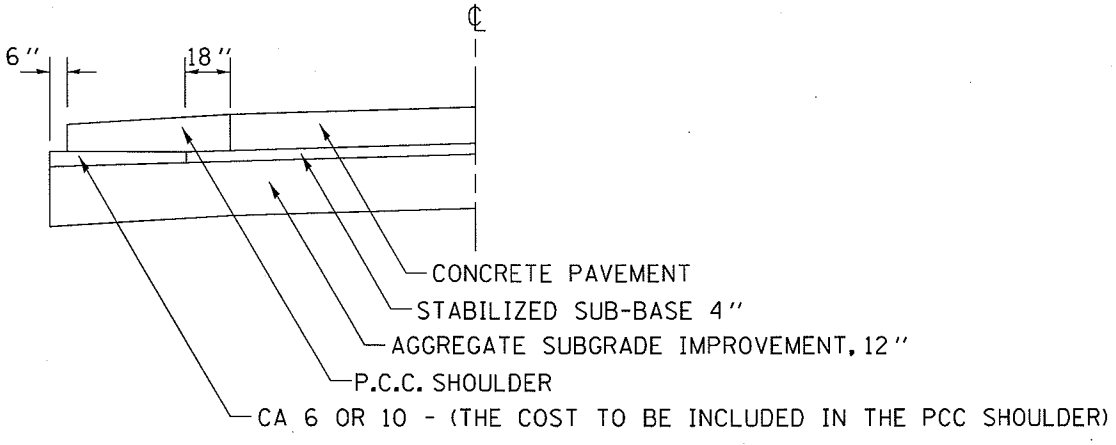


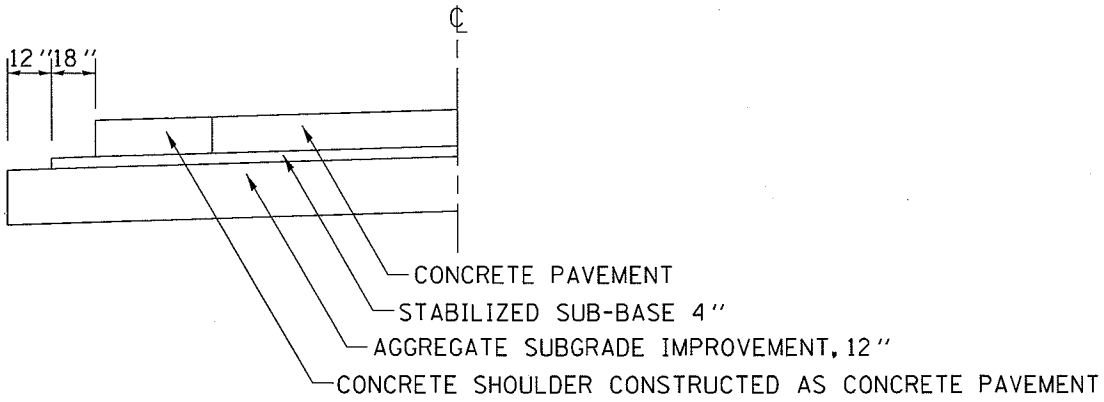




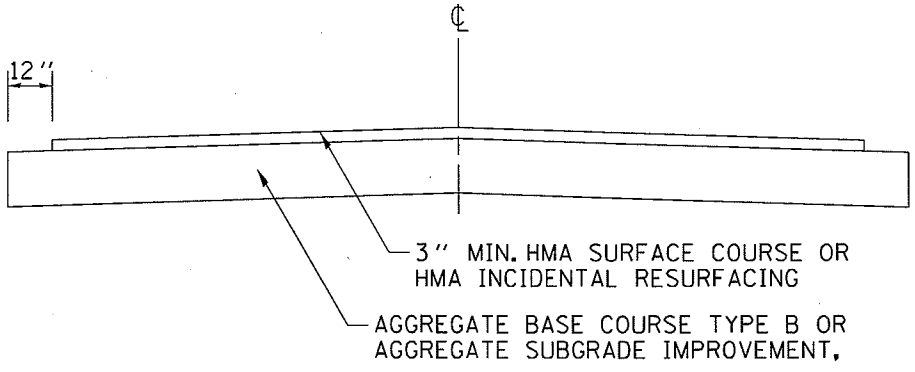
TYPICAL SECTION DETAILS FOR SUBGRADE

(FOR NEW CONCRETE OR HMA MECHANISTIC PAVEMENT DESIGN)



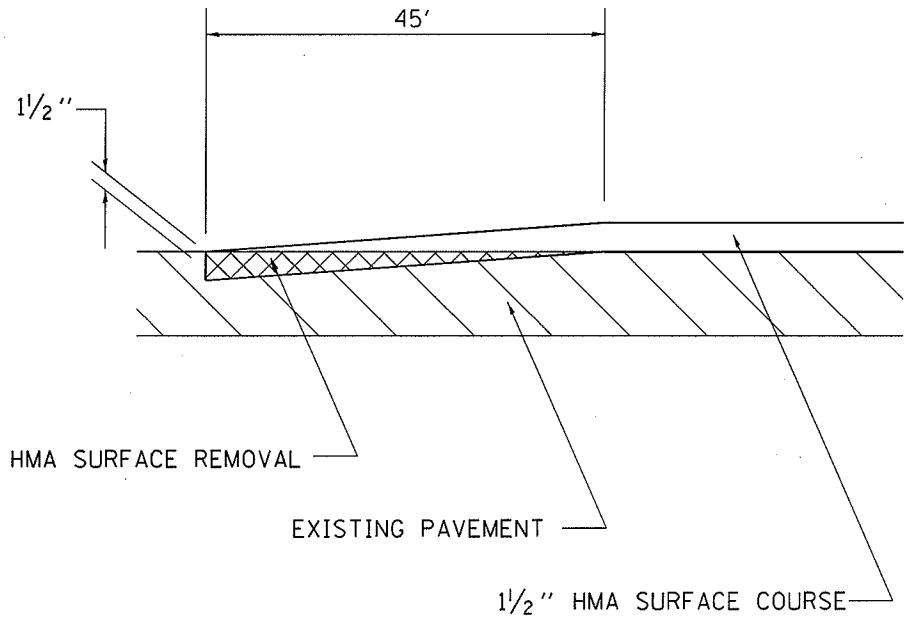


AGGREGATE BASE COURSE WITH HMA SURFACE



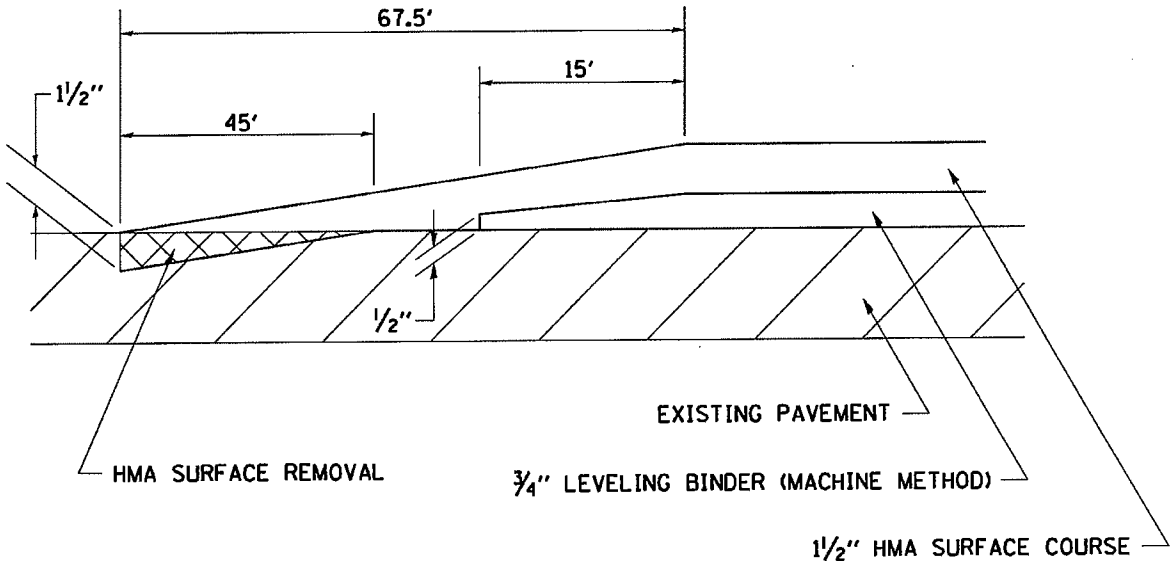
1:30 TAPER FOR 1 1/2 " RESURFACING

TYPICAL TAPER



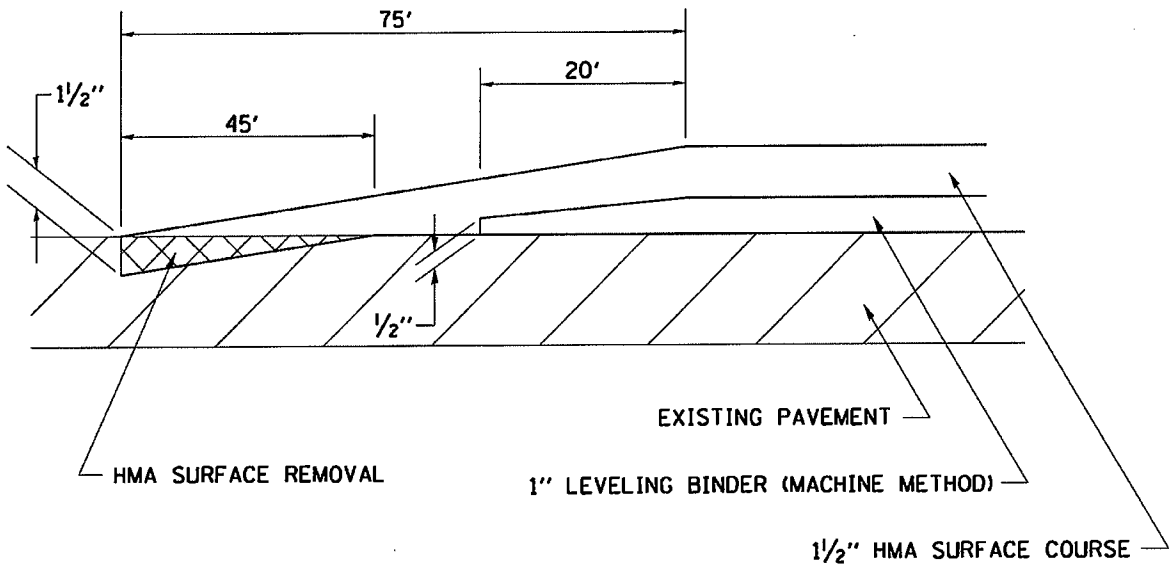
1:30 TAPER FOR 2 1/4" RESURFACING

TYPICAL TAPER



1:30 TAPER FOR 2 1/2" RESURFACING

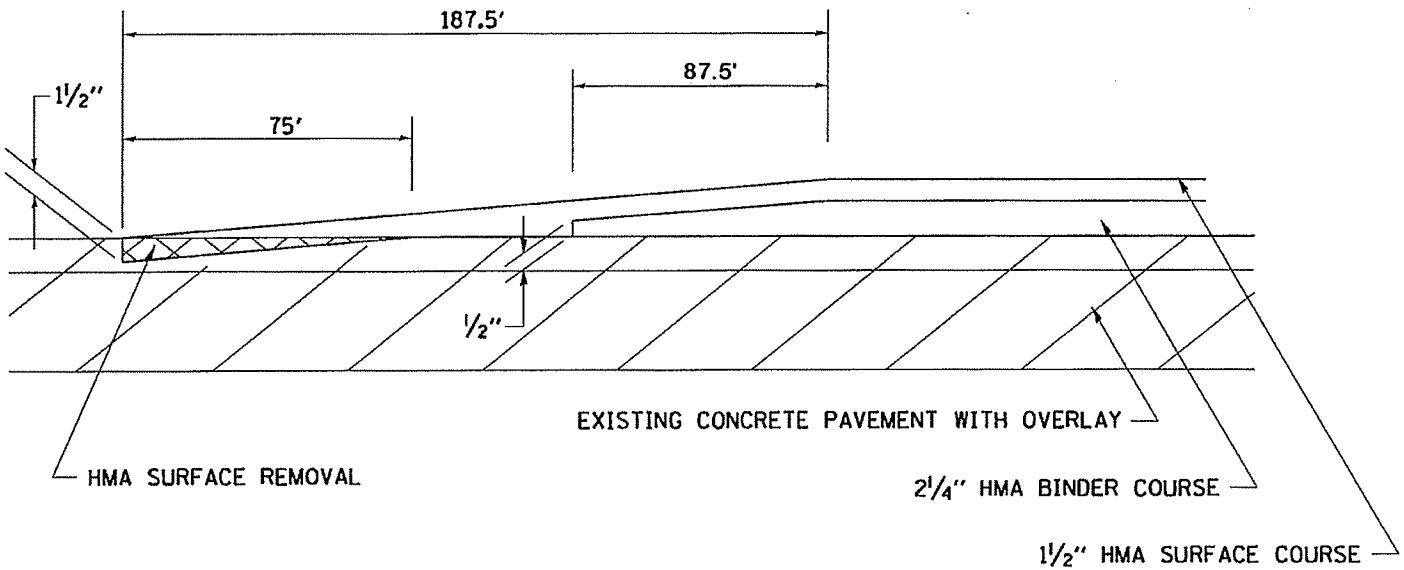
TYPICAL TAPER



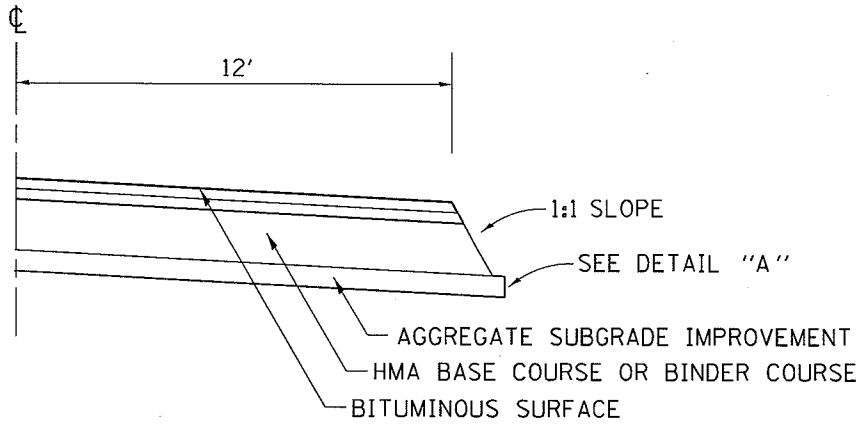
1:50 TAPER FOR 3 3/4" RESURFACING

(INTERSTATE)

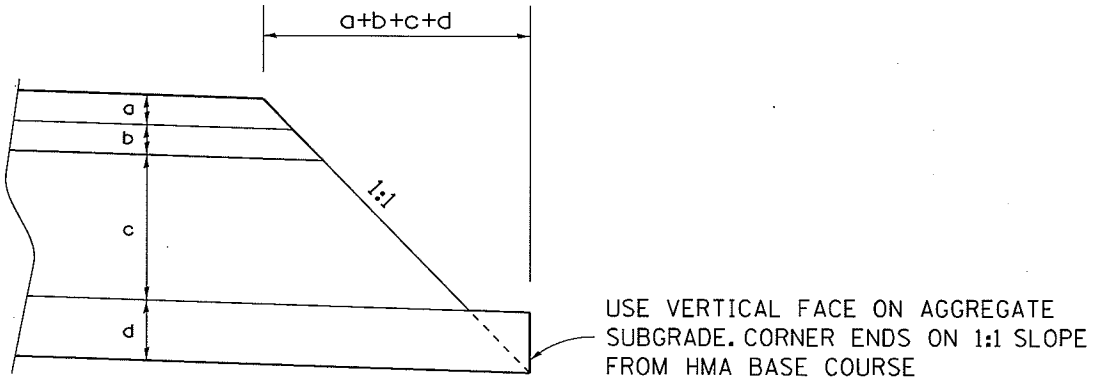
TYPICAL TAPER



HOW TO DETERMINE WIDTH OF SUB-BASE GRANULAR MATERIAL ON HMA PAVEMENTS



DETAIL "A"



(Used for excessively thick HMA pavement)

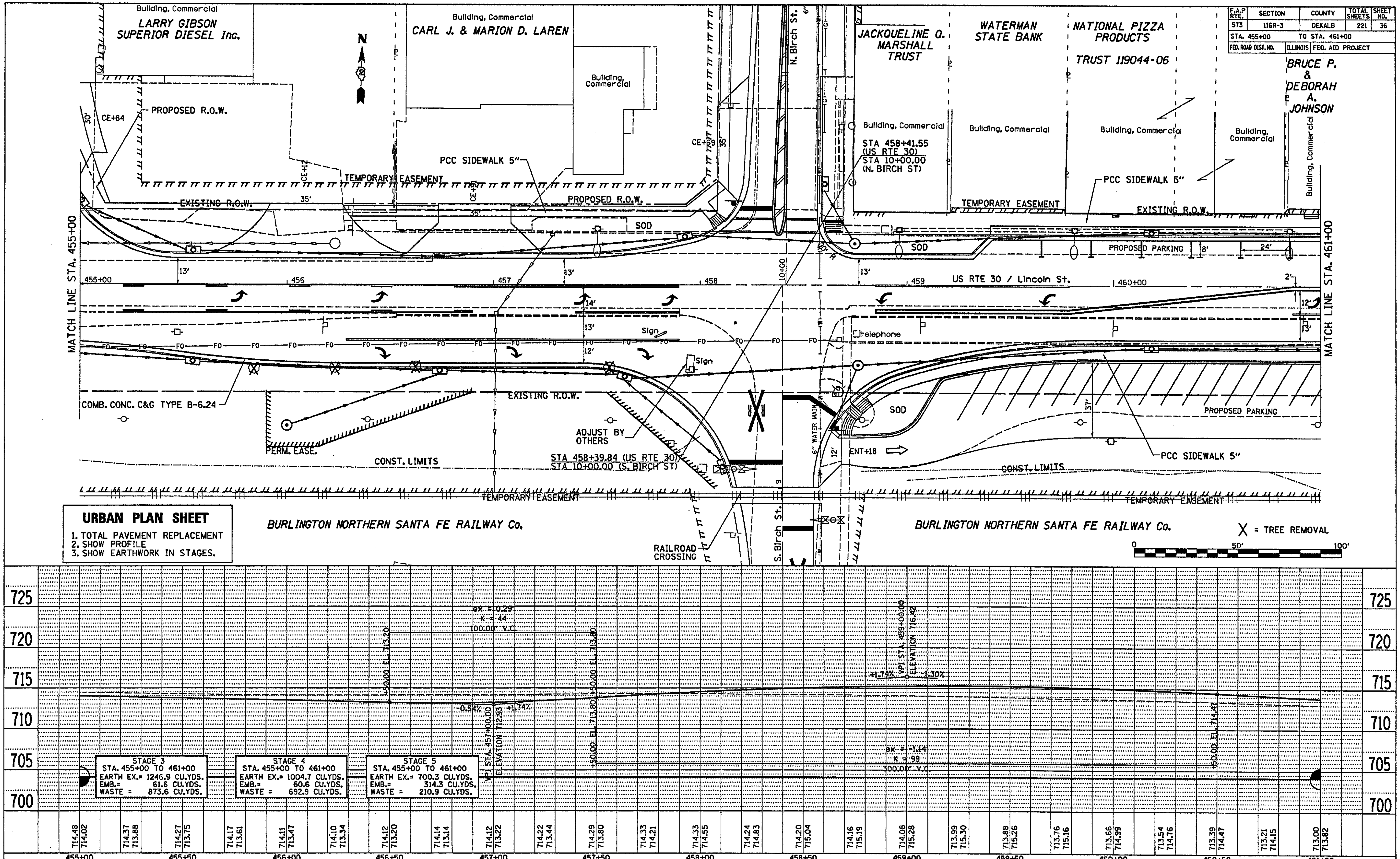
Chapter 1

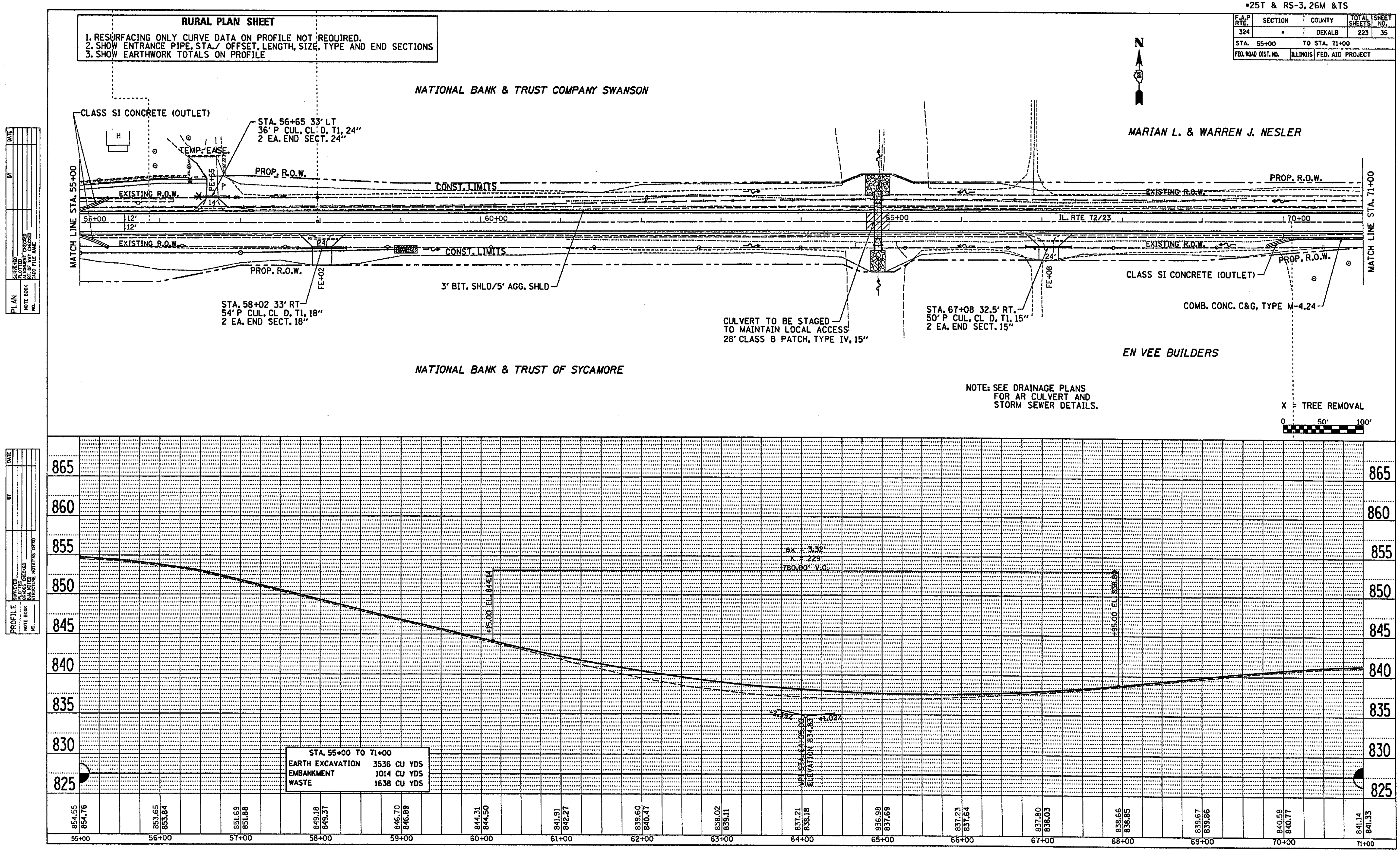
Schedule of Quantities

1) Organize the Schedule of Quantities in order of the pay code numbers. Include the pay code numbers on the Schedule of Quantities

2) The following pay items shall not be included on the Schedule of Quantities:

- Leveling Binder (Hand Method)
- Traffic Control items
- Traffic Control Surveillance
- Engineer's Field Office
- Mobilization
- Construction test strip
- All items that are shown on the Bill of Materials on the bridge plans, culvert plans, retaining wall plans, traffic signal plans, and lighting plans.
- Construction Layout


F.A.P. RTE. 573
SECTION 116R-3
COUNTY DEKALB
TOTAL SHEETS 221
SHEET NO. 36
STA. 455+00 TO STA. 461+00
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT
Building, Commercial
LARRY GIBSON SUPERIOR DIESEL Inc.
CARL J. & MARION D. LAREN
JACKQUELINE Q. MARSHALL TRUST
WATERMAN STATE BANK
NATIONAL PIZZA PRODUCTS
TRUST 119044-06
BRUCE P. & DEBORAH A. JOHNSON
PROPOSED R.O.W.
EXISTING R.O.W.
TEMPORARY EASEMENT
PCC SIDEWALK 5"
SOD
PROPOSED PARKING
STA 458+41.55 (US RTE 30)
STA 10+00.00 (N. BIRCH ST)
STA 458+39.84 (US RTE 30)
STA 10+00.00 (S. BIRCH ST)
N. Birch St.
S. Birch St.
US RTE 30 / Lincoln St.
MATCH LINE STA. 455+00
MATCH LINE STA. 461+00
COMB. CONC. C&G TYPE B-6.24
PERM. EASE.
CONST. LIMITS
ADJUST BY OTHERS
Sign
Telephone
6" WATER MAIN
RAILROAD CROSSING
BURLINGTON NORTHERN SANTA FE RAILWAY Co.
X = TREE REMOVAL
URBAN PLAN SHEET
1. TOTAL PAVEMENT REPLACEMENT
2. SHOW PROFILE
3. SHOW EARTHWORK IN STAGES.
STAGE 3 STA. 455+00 TO 461+00 EARTH EX.= 1246.9 CU.YDS. EMB.= 61.6 CU.YDS. WASTE = 873.6 CU.YDS.
STAGE 4 STA. 455+00 TO 461+00 EARTH EX.= 1004.7 CU.YDS. EMB.= 60.6 CU.YDS. WASTE = 692.9 CU.YDS.
STAGE 5 STA. 455+00 TO 461+00 EARTH EX.= 700.3 CU.YDS. EMB.= 314.3 CU.YDS. WASTE = 210.9 CU.YDS.
ex = 0.29 K = 44 100.00' V.C.
ex = -1.14 K = 99 300.00' V.C.
-0.54% +1.74% -1.30%
PVI STA. 457+00.00 ELEVATION 712.93
PVI STA. 459+00.00 ELEVATION 716.42
455+00 455+50 456+00 456+50 457+00 457+50 458+00 458+50 459+00 459+50 460+00 460+50 461+00
725 720 715 710 705 700



*25T & RS-3, 26M &TS
F.A.P. RTE. 324 | SECTION * | COUNTY DEKALB | TOTAL SHEETS 223 | SHEET NO. 35
STA. 55+00 TO STA. 71+00
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT
RURAL PLAN SHEET
1. RESURFACING ONLY CURVE DATA ON PROFILE NOT REQUIRED.
2. SHOW ENTRANCE PIPE, STA./ OFFSET, LENGTH, SIZE, TYPE AND END SECTIONS
3. SHOW EARTHWORK TOTALS ON PROFILE
NATIONAL BANK & TRUST COMPANY SWANSON
MARIAN L. & WARREN J. NESLER
CLASS SI CONCRETE (OUTLET)
STA. 56+65 33' LT
36' P CUL, CL D, T1, 24"
2 EA. END SECT. 24"
TEMP. EASE.
PROP. R.O.W.
CONST. LIMITS
EXISTING R.O.W.
MATCH LINE STA. 55+00
MATCH LINE STA. 71+00
IL. RTE 72/23
3' BIT. SHLD/5' AGG. SHLD
STA. 58+02 33' RT
54' P CUL, CL D, T1, 18"
2 EA. END SECT. 18"
CULVERT TO BE STAGED
TO MAINTAIN LOCAL ACCESS
28' CLASS B PATCH, TYPE IV, 15"
STA. 67+08 32.5' RT.
50' P CUL, CL D, T1, 15"
2 EA. END SECT. 15"
COMB. CONC. C&G, TYPE M-4.24
EN VEE BUILDERS
NATIONAL BANK & TRUST OF SYCAMORE
NOTE: SEE DRAINAGE PLANS
FOR AR CULVERT AND
STORM SEWER DETAILS.
X = TREE REMOVAL
0 50' 100'
PLAN
PROFILE
865 860 855 850 845 840 835 830 825
+15.00 EL. 844.14
+95.00 EL. 838.80
780.00' V.C.
-2.392
+1.027
VPI STA. 64+05.00
ELEVATION 834.83
STA. 55+00 TO 71+00
EARTH EXCAVATION 3536 CU YDS
EMBANKMENT 1014 CU YDS
WASTE 1638 CU YDS
854.55 854.76
853.65 853.84
851.69 851.88
849.18 849.37
846.70 846.89
844.31 844.50
841.91 842.27
839.60 840.47
838.02 839.11
837.21 838.18
836.98 837.69
837.23 837.64
837.80 838.03
838.66 838.85
839.67 839.86
840.58 840.77
841.14 841.33
55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	116R-3	DEKALB	221	52
STA. 455+00	TO STA. 465+00			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PLAN — SURVEYED / PLOTTED / DRAWN / CHECKED / AUTHENT CHECKED / R.T. OF WAY CHECKED / CADD FILE NAME / NOTE BOOK / NO.

PROFILE — SURVEYED / PLOTTED / DRAWN / CHECKED / DUAL NOTED / STRUCTURE NOTATIONS TYPED / NOTE BOOK / NO.

Fri Sep 12 11:26:44 2003
c:\projects\1420r3\d0818828a\1.dgn
D0818828, PLN
D0818828, PRO1

Building, Commercial

Building, Commercial

Building, Commercial

11 N. Birch St.

PARKING

Building, Commercial

Building, Commercial

Building, Commercial

Building, Commercial

Building, Commercial

N

STA. 455+00 40.54' LT
INLET SPECIAL NO.5
WEIR ELEV.= 712.55

54'-SS-CLA-T1-12"
℄ 710.89 - 710.62

STA. 455+55 45' LT
INLET SPECIAL NO.5
WEIR ELEV.= 712.96

114'-SS-CLA-T1-12"
℄ 710.52 - 709.72

STA. 456+73.87 13' LT
INLET SPECIAL
GRATE ELEV.= 712.88

STA. 457+93.00 22' LT
INLET SPECIAL NO.6
WEIR ELEV.= 713.43

116'-SS-CLA-T2-15"
℄ 709.62 - 709.21

EXISTING R.O.W.

INLET REMOVAL

SS REMOVAL

MH REMOVAL

SS REMOVAL

78'-SS-WM-REQ.-15"
℄ 709.11 - 708.64

STA. 10+50 16.7' RT
INLET SPECIAL NO.5
WEIR ELEV.= 713.73

STA 458+41.55
(US RTE 30)
STA 10+00.00
(N. BIRCH ST)

30'-SS-WM-REQ.-12"
℄ 710.00 - 709.79

STA. 458+75 20.4' LT
MH-TA-5' DIA.-T1F-CL
LID ELEV.= 715.74

140'-SS-CLA-T2-15"
℄ 708.44 - 707.46

STA. 460+18 24.5' LT
INLET SPECIAL NO.5
WEIR ELEV.= 713.88

EXISTING R.O.W.

106'-SS-CLA-T2-18"
℄ 707.36 - 706.83

MATCH LINE STA. 455+00

455+00 | 456 | 457 | 458 | 10+00 | 459 | US RTE 30 / Lincoln St. | 460+00

MATCH LINE STA. 461+00

INLET REMOVAL

SS REMOVAL

114'-SS-CLA-T1-12"
℄ 710.74 - 710.34

84'-SS-CLA-T2-12"
℄ 708.83 - 708.41

Sign

Sign

Telephone

STA. 458+76.53 39.92' RT
MH-TA-5' DIA.-T1F-CL
LID ELEV.= 714.13

STA. 455+55 36.21' RT
INLET SPECIAL NO.5
WEIR ELEV.= 712.50

EXISTING R.O.W.

STA. 457+64.29 44' RT
INLET SPECIAL NO.5
WEIR ELEV.= 712.90

STA. 456+74 41' RT
INLET SPECIAL NO.5
WEIR ELEV.= 711.86

78'-SS-CLA-T1-12"
℄ 709.50 - 709.03

FH TO BE MOVED

110'-SS-WM-REQ.-12"
℄ 708.21 - 707.39

6" WATER MAIN

138'-SS-CLA-T2-15"
℄ 707.19 - 706.71

108'-SS-CLA-T2-15"
℄ 706.61 - 706.36

STA. 460+18 29' RT
INLET SPECIAL NO.5
WEIR ELEV.= 713.79

28'-SS-WM-REQ.-12"
℄ 710.00 - 709.66

STA. 456+00 69.6' RT
INLET TA W/T8 GRATE
GRATE ELEV.= 711.21
INLET & PIPE PROTECTION

64'-SS-CLA-T1-12"
℄ 711.00 - 710.04

STA 458+39.84 (US RTE 30)
STA 10+00.00 (S. BIRCH ST)

TEMPORARY EASEMENT

TEMPORARY EASEMENT

STA. 9+11.00 27.4' LT
INLET SPECIAL NO.5
WEIR ELEV.= 712.79

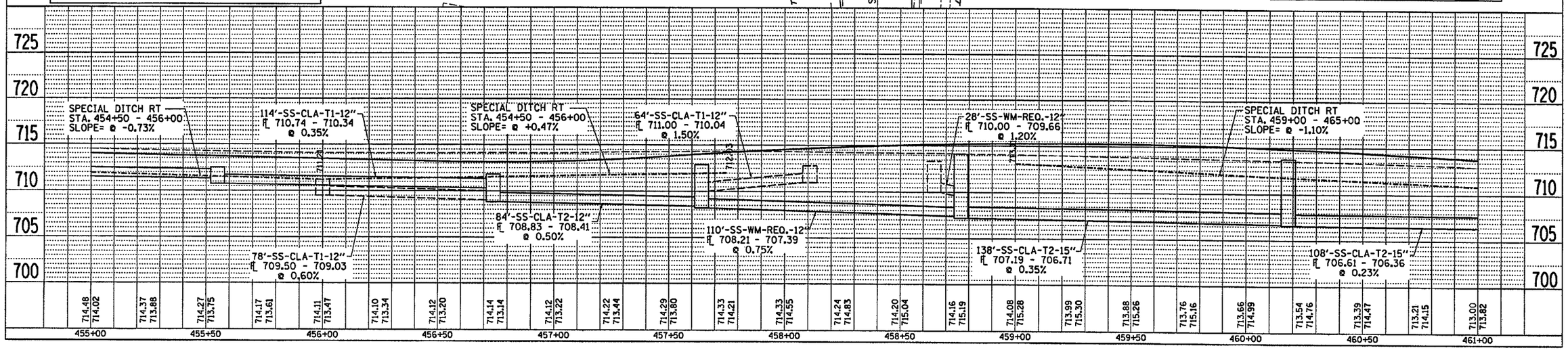
S. Birch St.

STA. 9+31 24.14' RT
INLET SPECIAL
GRATE ELEV.= 713.36

0 50' 100'

URBAN DRAINAGE SHEET

1. SHOW SS ON PROFILE
   SHOW LENGTH, SIZE, TYPE, FLOWLINE & GRADES.
2. SHOW UTILITIES
3. SHOW EXISTING SS



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
324	*	DEKALB	223	55
STA. 55+00		TO STA. 70+00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

* 25T&RS-3, 26M&TS

RURAL DRAINAGE SHEET

1. AR CULV. SHOW STA./ OFFSET & FLOWLINES
2. SHOW WATERWAY INFO. ON CULVERTS WITH 36" OR GREATER DIA.

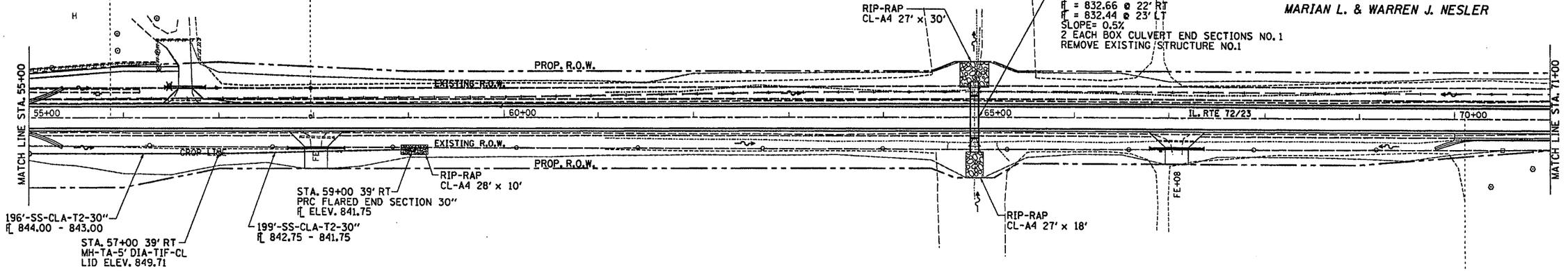
PLAN — SURVEYED / DRAWN / ALIGNMENT CHECKED / GRADES CHECKED / QUAD FILE NAME / NOTE BOOK / NO. / BY / DATE

NATIONAL BANK & TRUST COMPANY SWANSON

MARIAN L. & WARREN J. NESLER

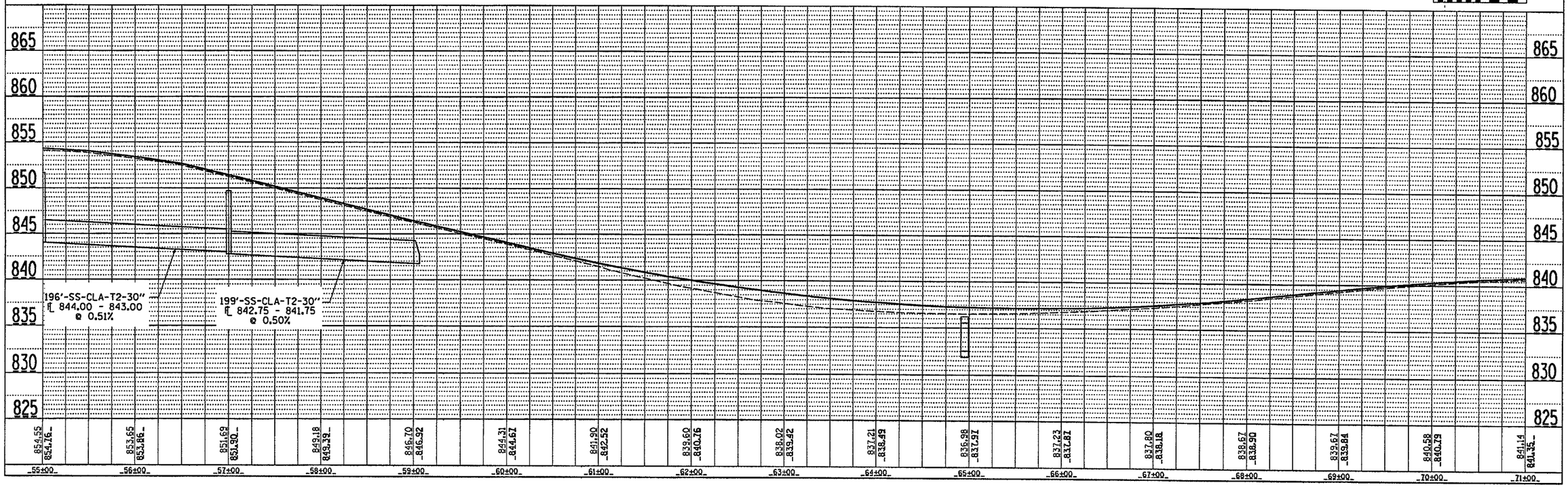
NATIONAL BANK & TRUST OF SYCAMORE

EN VEE BUILDERS



DRAINAGE AREA 0.53 SQ MI LOW GRADE ELEV (FT) 836.98 (EXIST) @ STA 64+95, 837.86 (PROPOSED) @ STA. 66+00									
FLOOD	FREQUENCY (YEAR)	Q C.F.S.	OPENING (SQ FT) EXIST.	OPENING (SQ FT) PROP.	NAT. H.W. ELEV. (FT)	HEAD (FT) EXIST.	HEAD (FT) PROP	HEADWATER EXIST.	ELEV. (FT) PROP.
DESIGN	50	177	4.00	17.68	834.39	3.09	2.13	837.48	836.52
BASE	100	207	4.00	18.16	834.45	3.15	2.89	837.60	837.34
OVERTOP EX	2	40	3.44		833.90	3.13		837.03	
OVERTOP PR	143	226		18.48	934.49		3.37		837.86

PROFILE — SURVEYED / DRAWN / ALIGNMENT CHECKED / GRADES CHECKED / QUAD FILE NAME / NOTE BOOK / NO. / BY / DATE



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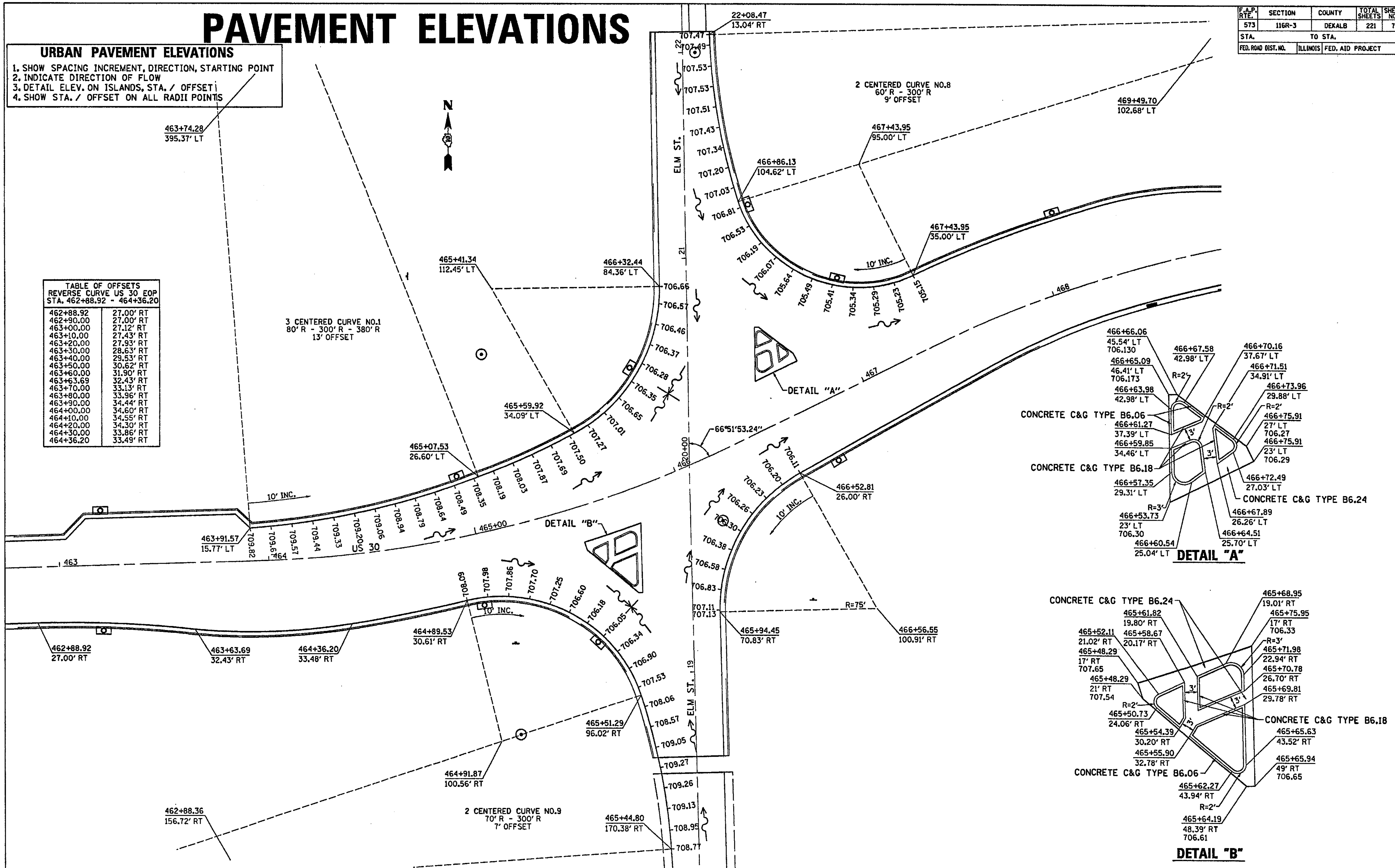
PAVEMENT ELEVATIONS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	116R-3	DEKALB	221	79
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

URBAN PAVEMENT ELEVATIONS

1. SHOW SPACING INCREMENT, DIRECTION, STARTING POINT
2. INDICATE DIRECTION OF FLOW
3. DETAIL ELEV. ON ISLANDS, STA. / OFFSET
4. SHOW STA. / OFFSET ON ALL RADII POINTS

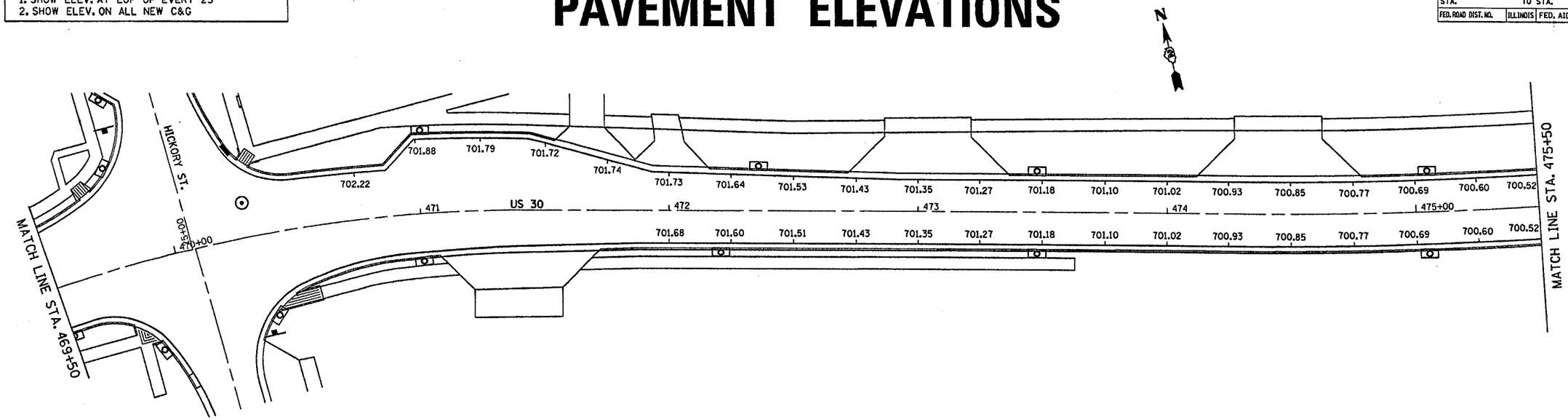
TABLE OF OFFSETS REVERSE CURVE US 30 EOP STA. 462+88.92 - 464+36.20	
462+88.92	27.00' RT
462+90.00	27.00' RT
463+00.00	27.12' RT
463+10.00	27.43' RT
463+20.00	27.93' RT
463+30.00	28.63' RT
463+40.00	29.53' RT
463+50.00	30.62' RT
463+60.00	31.90' RT
463+63.69	32.43' RT
463+70.00	33.13' RT
463+80.00	33.96' RT
463+90.00	34.44' RT
464+00.00	34.60' RT
464+10.00	34.55' RT
464+20.00	34.30' RT
464+30.00	33.86' RT
464+36.20	33.49' RT

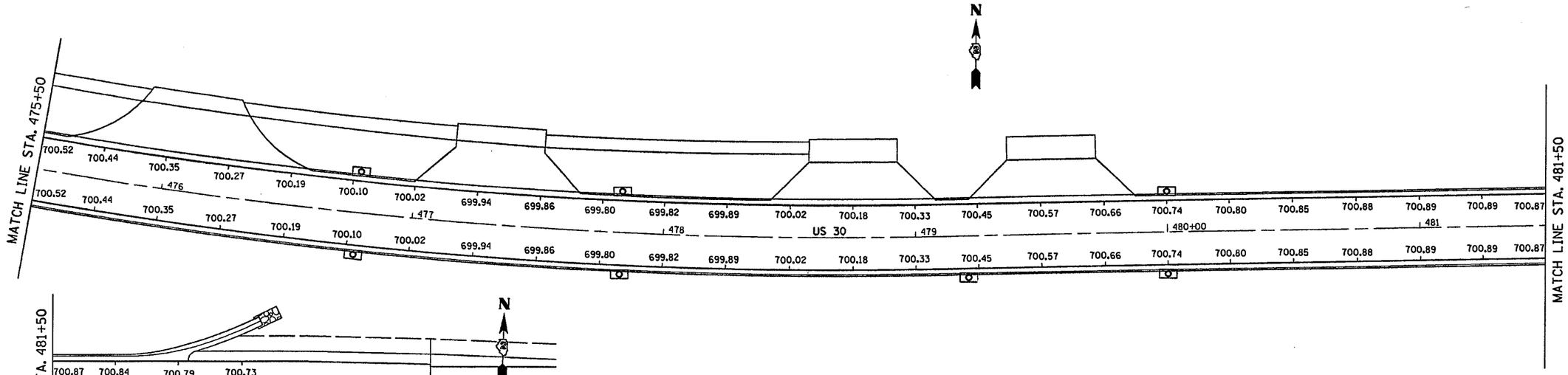


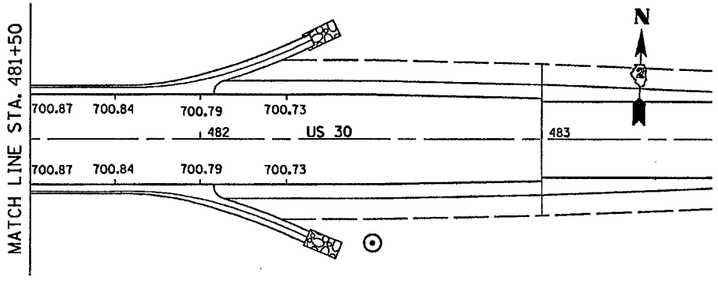
URBAN PAVEMENT ELEVATIONS
1. SHOW ELEV. AT EOP OF EVERY 25'
2. SHOW ELEV. ON ALL NEW C&G

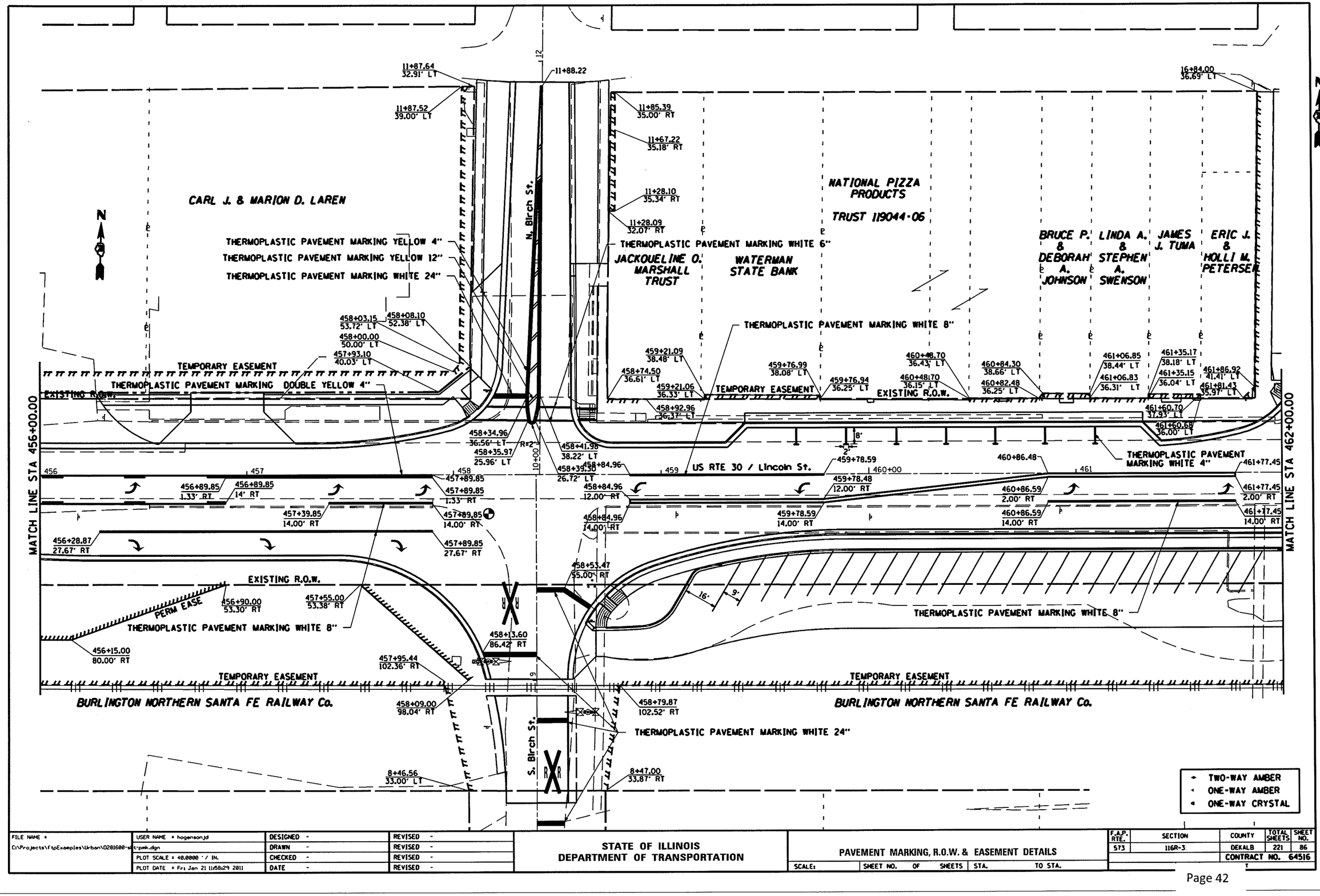
PAVEMENT ELEVATIONS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	116R-3	DEKALB	221	83
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		









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	PLOT SCALE = 40.0000 ' / IN.	CHECKED -	REVISED -
	PLOT DATE = Fri Jan 21 11:58:29 2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING, R.O.W. & EASEMENT DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	116R-3	DEKALB	221	86
		CONTRACT NO. 64516		

PROJECT ENDS
STA 7+33.84

CONCRETE CURB & GUTTER REMOVAL

FIRST NATIONAL BANK OF LOCKPORT
TRUST No. 72-11490

CARL J. & MARION D. LARSEN

LARRY GIBSON
SUPERIOR DIESEL Inc.

PARKING

N. Pine St.

N

MATCH LINE STA 450+00.00

450+00

451

452

453

454

455+00

MATCH LINE STA 456+00.00

BURLINGTON NORTHERN SANTA FE RAILWAY Co.

PAVEMENT REMOVAL

EARTH EXCAVATION

SIDEWALK REMOVAL

DRIVEWAY PAVEMENT REMOVAL

FILE NAME = C:\Projects\ftpExamples\Urban\D281600-st-removal.dgn	USER NAME = hogensonjd	DESIGNED -	REVISED -
		DRAWN -	REVISED -
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	PLOT DATE = Fri Jan 21 13:14:58 2011	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REMOVAL DETAILS

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	116R-3	DEKALB	221	146
		CONTRACT NO. 64516		
		ECT		

FINALIZING PLANS
Index

PREFINAL PLAN ACTIVITIES

In your prefinal plan activities you will need to complete an Estimate of Time (see pages 4 and 5) and the CA form (see pages 6 to 10). These should be done the month before plan submittal at the very latest, but can be done earlier.

If your job has a project report, you will need a final field check that will involve you, your Project Engineer, Maintenance and Construction field engineers and City, County or Township Officials. Schedule this as soon as your plans are 50% to 75% complete, because it can be difficult to get the 3 engineers available on a given day. There is a sign off sheet that must be signed by the participants after the field check. The second sheet of the sign off has questions that the Construction Field Engineer needs to answer.

The prefinal plans and special provisions must be reviewed in-house by:

Operations	Kristie Nyderek
Materials	Jan Twardowski, Steve Hefel and Kevin Tressel
Land Acquisition	Chip Cordell
Construction	Field Engineer
Project Support	Brian Mayer

After review, give the plans, special provisions, interim special provisions, supplement specifications, recurring special provisions, CA form, and estimate of time to Quality Control for final design review.

After you have made any changes necessary from the review, assemble your plans. See pages 15 and 16 for submittal of plans to Springfield.

Section 2

INFORMATION ON THE ESTIMATE OF TIME

1. An Estimate of Time should be done when your Summary of Quantities is complete. See page 5 for an example.

2. Use the Construction Production Rates (see Figure 66-2.B of the BDE Manual) and see Sheet 9.

3. The minimum number of Working Days per job is 15. Also the total must be an increment of 5. Example: If there are 38 working days, add 2 days for cleanup and miscellaneous to get a total of 40 working days.

4. If you have 25 or more working days, you should include the pay item ENGINEER'S FIELD OFFICE.

5. The bridge office has the working days for bridge construction.

6. Put the number of working days on the CA form.

ROUTE: _____

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SECTION: _____
COUNTY: _____

ESTIMATE OF TIME REQUIRED

ITEM	UNIT	QUANTITY	RANGE OF RATE PER DAY	RATE PER DAY	DAYS PER ITEM	TIME CRITICAL DAYS
PROTECTIVE COAT	SQ YD		3000-7000			
BRIDGE DECK GROOVING	SQ YD		500-800			
EARTH OR BORROW EXCAVATION	CU YD	1061	750-10000	750	1.4	1.5
CONCRETE WEARING SURFACE	SQ YD		200-500			
FORMED CONCRETE REPAIR	SQ FT		50-100			
PRECAST DECK BEAMS	SQ FT		1000-3000			
TEMPORARY CONCRETE BARRIER	FOOT		500-1500			
RELOCATE TEMPORARY CONCRETE BARRIER	FOOT		500-1500			
PAINT PAVEMENT MARKING LINE	FOOT	181693	10000-20000	20000	9.1	5
STRIP REFLECTIVE CRACK CONTROL	FOOT	6092	10000-20000	10000	0.6	1
BASE CSE WIDENING (BIT OR P.C.)	SQ YD		500-2500			
BITUMINOUS MATERIALS (PRIME COAT)	TONS	47				
LEVEL BINDER	TONS	4626	50-1600	1000	4.6	5
BITUMINOUS RESURFACING	TONS	7699	500-1600	1000	7.7	8
FULL DEPTH PAV'T (BIT OR P.C.)	SQ YD		1500-6000			
PCC DRIVEWAY PAV'T	SQ YD		100-150			
PCC SIDEWALK 5"	SQ FT		1000-1500			
BITUMINOUS SURFACE REMOVAL	SQ YD	26119	2000-10000	5000	5.2	5
PCC PAVEMENT & MEDIAN GRINDING	SQ YD		1000-2000			
PAVEMENT REMOVAL	SQ YD		1000-2000			
PAVEMENT PATCHING (PARTIAL DEPTH)	SQ YD		60-80			
PAVEMENT PATCHING (CLASS C OR D)	SQ YD	2776	60-80	215	12.9	13
CLASS A OR B PATCHES	SQ YD		50-100			
AGG. SHOULDERS	TON	6161	500-1200	1200	5.1	5
BITUMINOUS SHOULDERS 8"	SQ YD	161	1500-4500	1500	0.1	
REMOVAL OF EXISTING STRUCTURES	EACH		0.1-4			
CONCRETE STRUCTURES	CU YD		10-25			
CONCRETE SUPER STRUCTURES	CU YD		10-30			
REINFORCEMENT BARS	LBS		3000-15000			
PRECAST CONC. BOX CULVERTS	LIN FT		75-250			
PIPE CULVERTS	LIN FT		100-300			
MANHOLES AND INLETS	EACH		2-5			
MANHOLES AND INLETS ADJUSTED	EACH		5-10			
CURB AND GUTTER OR TYPE A GUTTER	FOOT		300-1200			
STORM SEWERS	FOOT		75-300			
GUARDRAIL	FOOT		300-600			
GUARDRAIL TERMINAL END SECTION	EACH		4-10			
FURN AND ERECTING R.O.W. MARKERS	EACH		10-30			
TREE REPLACEMENT	EACH		10-20			
THERMOPLASTIC PAVEMENT MARKING - SYMBOL	SQ FT		450-900			
THERMOPLASTIC PAVEMENT MARKINGS (TRUCK)	FOOT		10000-20000			
THERMOPLASTIC PAVEMENT MARKINGS (HAND)	FOOT		500-1000			
RAISED REFL. PAVEMENT MARKERS	EACH	331	100-200	200	1.7	2
TRAFFIC CONTROL, CLEAN-UP, AND MISC.	L SUM				4.5	4.5
TOTAL CRITICAL WORKING DAYS REQUIRED						50

CREATED BY: _____
DATE: _____

CHECKED BY: _____
DATE: _____

CONSTRUCTION PRODUCTION RATES

(See BDE Ch. 66-2.03)

Item	Unit	Rate per Day	
Grading & Shaping Roadway	Unit	10	
Cracking & Seating Pavement	Sq. Yd.	10,000	
Micro Surfacing	1 mile in 3 hours	(one lane)	
Bituminous Concrete Surface Removal 1½"	Sq. Yd.	20,000	
Profiling (1-12' or 2-6' machines)	Sq. Yd.	40,000	(3,000 ft./hour for a 12' lane)
Partial Depth Patches 30 to 50 patches/day	6' wide = 240 to 400 Sq. Yd./day		
Paint Pavement Marking Line 4"	Foot (±20 to ±40 miles)	100,000 to 200,000 ft./day	

This is for Estimate of Time and for Quantity

Pilot Car

Length of job in miles times $\frac{2 \text{ (lanes)}}{3 \text{ (miles of prime per day)}}$ = days for pilot car

INFORMATION ON FILLING OUT THE CA FORM

District
Contract Number
Functional Classification – Principle Arterial, Minor Arterial, Major Collector, etc. - Get from Project Detail Sheet
Route – FAI, FAP, FAS, FAU, SBI, etc.
Marked Route – US, IL or name
Project – If it is a federal project, leave it blank. If it is a state project, write in state
Section – Maximum of 30 characters
County – Enter County(ies). If more than 3 counties, enter as "various"
State Job Number – C#
Submittal Date – Date mailed to Springfield Central Office
Recommended Letting Date – Show letting date it is being submitted for
Annual Program Number – Get from Project Detail Sheet. It will be a 10 digit number
Program Cost – Get from Project Detail Sheet
Congressional District/Legislative District - Get from Project Detail Sheet
Maintenance Responsibility – Use what it is at the time of letting
Population of Urban(ized) Area – Show population for all urban areas over 5,000 population. If population is over 200,000, enter "> 200,000".
Length, Type & Location of Work – Include mileage, municipality, location identified by road to road or street to street. On bridge jobs, state what the structure is over. The location must be able to be found on either the state map or the Tribune Map. Include a brief description of the type of work. This information will be used for the service bulletin. The location and length is obtained from the Project Detail Sheet.

1.) Always mark approved unless there are deviations which have not been approved. If there are deviations, explain under remarks.
2.) Estimate of time – Use a minimum of 15 working days and use multiples for 5 days
Completion Date – Show date
Completion Date with Working Days – Show date and under remarks, show the working days
3.) Design Approval – Circle RE, Central Office, or FHWA and include date. For contract maintenance and other small projects, use RE approval and enter the date he signs the CA Form as the design approval date. On SMART & 3P jobs, use the Bi-Monthly date.
4.) Environmental Signoff – Circle the one that applies and include the date. If it is a Categorical Exclusion, circle Group I or II and include the date.
5.) P.M.A. Sequence Number (Project Monitoring Application, a number from the Environment Section).
6.) TIP – Show TIP number for all projects that are in an urbanized area.
The areas that apply are South Beloit, Dubuque, East Dubuque, Rock Island/Moline, Rockford/Belvidere.
- The project must be in the approved TIP with the funding source and dollar amount before it will go on the letting. If it is not in the TIP, it must be amended into the TIP before it will go on the letting.
- If there is a change in the scope of work that would increase the dollar amount substantially, the TIP must be amended to reflect this.
7.) Right-of-Way Status – If ROW is clear, circle "A" and show the number of parcels.
- All parcels must be clear to circle ROW as "A". Clear means that we have paid owner and have the title.
- If ROW is not clear, circle "R" and show total number of parcels along with number of parcels clear & not clear.
8.) Relocation Status – If clear, circle "A"
- If not clear, circle "R" and indicate type of relocation, i.e. business, person, etc.

9.) Joint Agreement – Show who the Agreement is with on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. If there is no agreement required, circle "E".
- Clear means signed by the Local Agency and the Regional Engineer or Central Office. Also must have a plan approval signed by the Local Agency.
- Send a copy of the Agreement along with plan submittal. If it is not clear, send a copy of the current draft copy.

Letter of Understanding – Show who it is with on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. If there is no Letter of Understanding required, circle "E".
- Clear means that it is signed by the Local Agency.

Letter of Intent/Information – Show who it is with on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- Clear means that it has been sent to the Local Agency

10.) Railroad Agreement – Show name of railroad on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- Clear means signed by the railroad and the Central Office.
- Also must have a plan approval signed by the railroad.

11.) Utility Adjustments – show name of utility on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- Add a special provision for status of utilities to be adjusted showing the name and address of utility, location, and when the adjustment is to be done.

Utility Agreements – For reimbursable work only.
- Show name of utility on the line provided and circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.

12.) Permits – 404 – Circle either nationwide, individual or regional
-If it is clear, circle "A" and show date. Circle "R" if it is not clear. Circle "E" if it is not required.
- If there is more than one permit required, show number on line provided.
- Submit a copy with the plan submittal to the Central Office.

Coast Guard – Circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required
- Submit a copy with the plan submittal to the Central Office.

Water Resources – Circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- Submit a copy with the plan submittal to the Central Office.

EPA – Circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- If there is more than one permit required, show number on the line provided.
- Specify the type of permit, i.e. 401 Water Quality, Sanitary Sewer, or Water Line.
- Submit a copy with the plan submittal to the Central Office.

FAA – Circle "A" if it is clear. Circle "R" if it is not clear. Circle "E" if it is not required.
- Submit a copy with the plan submittal to the Central Office.

NPDES – Circle "A" if it is clear. Circle "E" if it is not required.
- Submit a copy with the plan submittal to the Central Office.

13.) Existing Structure Number – Show in space provided
- If there is more than one, put a note to see remarks and show them on the line provided at the bottom of the sheet.

14.) Soils Report – If required and not yet reviewed by the soils committee, circle "R"; otherwise circle "A" or "E".

15.) Detour Report – Circle "A" if approved, "R" if required but not approved, or "E" if not required.

16.) Wet Weather Accident Location Involved – These locations are addressed in the Design Report. Show locations under remarks or supplemental sheet. Circle “A” if approved, “E” if exempt.
17.) Endangered Special Consultation Complete – IDNR sign-offs for threatened and endangered species consultation are good for 3 years. If this date is more than 3 years old, the project must be resubmitted to IDNR for renewal.
18.) Waste Assessment/Management – Call Steve Gobelman (217/785-4246) with any questions.
19.) Cultural Resources – This covers any historical and archaeological sign-offs outside the normal sign-offs. Circle “A” if approved, “R” if required, “E” if not required.
20.) Special Mitigation – Check Design Report
- Circle Biological Resources or Wetlands. If it is something other than those 2 items, show what it is on the line provided.
- Circle “A” if approved, “R” if required, “E” if not required.
- Add Special Provision.
21.) Experimental Features Work Plan – Required on all federally funded projects which have any type of experimental procedures.
- If a work plan is required, the District must submit it to the Bureau of Materials and Physical Research and they will submit it to FHWA for approval. This must be approved before the project will go on the letting. Identify the feature on the CA Form.
- Circle “A” if approved, “R” if required, “E” if not required.
22.) Construction Engineering – Circle either state, local or consultant
- If it is done by local agency or consultant, show name on the line provided.
23.) DBE Requirements – For submittal purposes, mark it “R”. The Contract Compliance Officer will determine the DBE goal and inform the Central Office themself. After the project has been submitted, provide the Contract Compliance Officer a copy of the final Summary of Quantities along with a copy of the CA Form.
24.) Pavement Design Approval – put date approval received.

Remarks – Show any commitments, any additional information and/or clarifications for the above items, and the funding source and percentages (taken from the Project Detail Sheet).

INFORMATION ON FILLING OUT THE CA FORM

1. The Squad Leader fills these in. If you don't know the maintenance responsibility—check with Operations.

   After filling out the top of the form, e-mail it to the following:

   Your Project Engineer

Kris Tobin	Mark Nardini
Jan Twardowski	Brian Mayer
Rich Guise	Dan Long
Mary Lou O'Brien	Deana Hermes

   Programming will verify on the top of the CA form Federal or State, which refers to the funding type. If your job has Federal Funds, leave PROJECT _____ blank, Central Office will fill it in. If it is State Funds Only, write State in the blank for PROJECT _____.

2. Kris Tobin (Programming) will review the top part.

3. Mark Nardini (Studies) will fill in #4, #5, #17, #18, #19, #20.

4. Dan Long (Programming) will fill in #6, and Population of Urban Area.

5. Your Project Engineer (Studies & Plans) will fill in #1, #3, #15, #16, #21, and #22.

6. Mary Lou O'Brien (Land Acquisition) will fill in #7 and #8.

7. Brian Mayer (Project Support Engineer) will fill in #9, #10 and #11.

8. Hydraulics Engineer will fill in #12.

9. Jan Twardowski (Materials) will fill in #14.

10. Kayla McCoy will complete #23 (See instructions on Page 8).

11. Deana Hermes will fill in #12 (FAA).

cc: T. Walschleger J. South C. Puzey P. Wagner D. Lippert J. Mann

Illinois Department of Transportation

Certification Acceptance/ Project Status

District 2 / Dixon Contract No. _____ Submittal Date _____
Functional Classification _____ Recommended Letting Date _____
Route _____ Marked Rte. _____ Annual Program No. _____
Project _____ Program Cost _____
Section _____ Congressional District _____
County _____ Maintenance Responsibility _____
State Job No. C- _____ Population of Urban(ized) Area _____
Length, Type & Location of Work: _____

		A	R	E
1.	Plans and Special Provisions are in accordance with current Policies, Procedures, Design approval and are available for advancement to Letting (explain exceptions under Remarks)	☐	☐	
2.	Estimate of Time or Completion Date — W.D or Date	☐	☐	
3.	Design Approval R.E. ☐ Central Office ☐ FHWA ☐ — Date	☐	☐	
4.	Environmental Sign Off EIS ☐ EA/FONSI ☐ Categorical Exclusion - Group I ☐ Group II ☐ — Date	☐	☐	
5.	P.M.A. Sequence Number			
6.	Tip (Urbanized Area) — No.	☐	☐	☐
7.	Right-of-Way Status	☐	☐	☐
8.	Relocation Status	☐	☐	☐
9.	Joint Agreement (Local Agency)/ Letter of Understanding / Letter of Intent/Information	☐	☐	☐
10.	Railroad Agreement (Railroad)	☐	☐	☐
11.	Utility Adjustment	☐	☐	☐
	Agreements (Utility Company)	☐	☐	☐
12.	Permits – Corps. of Eng. 404 Nationwide ☐ Individual ☐ Regional ☐ — Date	☐	☐	☐
	– Coast Guard — Date	☐	☐	☐
	– Water Resources — Date	☐	☐	☐
	– EPA — Date	☐	☐	☐
	– FAA — Date	☐	☐	☐
	– NPDES — Date	☐	☐	☐
13.	Existing Structure No. — No.	☐	☐	☐
14.	Soils Report	☐	☐	☐
15.	Detour Report	☐	☐	☐
16.	Wet Weather Accident Location Involved	☐	☐	☐
17.	Endangered Species Consultation Complete — Date	☐	☐	☐
18.	Waste Assessment/Management — Date	☐	☐	☐
19.	Cultural Resources — Date	☐	☐	☐
20.	Special Mitigation _____ Biological Resources ☐ Wetlands ☐	☐	☐	☐
21.	Experimental Features Work Plan	☐	☐	☐
22.	Construction Engineering State ☐ Local Agency ☐ Consultant ☐	☐	☐	☐
23.	DBE Requirements DBE % _____	☐	☐	☐
24.	Pavement Design Approval — Date	☐	☐	☐

Remarks _____

Code A = Approved, Clear, or Yes
R = Required but Not Clear
E = Exempt or Not Applicable

The above information is certified to be true and correct.

Prepared By: _____ Name _____ Telephone No. _____ Regional Engineer _____ Date

Printed 8/27/2013

BDE 488 (Rev. 04/04/13

FINAL PLAN ACTIVITIES

1. On the day you submit plans to Springfield, you must get the Cover Sheet and CA Form signed by the District Engineer and if more than 1 acre is disturbed on your project, have the Storm Water Pollution Prevention Plan signed (See Page 23).

   a. Take the required sheets to Peggy Kingry (District Engineer's Secretary) and she will give to the Regional Engineer for signature. She will call you when they are signed. Note: Do this early in the morning as it could take all day to get the signature.

   b. Also note the Date of the Regional Engineer's signature must match the submittal date on the CA Form.

2. Special Provisions, Recurring Special Provision check sheet, BDE Special Provision check sheet, and the Guide Bridge Special Provision check sheet to be typed and placed in the submittal folder by the Secretary.

3. Follow the steps on Finalizing Plans and Supporting Data, page 13.

4. Make copies as shown on pages 15 and 16 for Final Routing for Plans. (Make sure 2 copies of the Project Report go to Construction.)

5. E-mail the contract number and date you submitted plans to Springfield to the Studies & Plans Engineer, your Project Engineer, and the Quality Control Engineer.

6. On consultant designed jobs, request two original 11x17" sealed & signed cover sheets, including structure cover sheets. One will be kept in the job files. The other is to be mailed to the Central Office.

7. Submit the original signed sheets (typically the cover sheet and the first sheet of structure plans) to BDE. BDE will then replace the blank sheets with the signed versions. Mail the paper copy down.

ITEMS REQUIRED FOR R.E. SIGNATURE ON DAY OF PLAN SUBMITTAL

Projects with new "PROJECT COMMITMENT FORM"

Take to Peggy:

1. Plan Cover Sheet
2. Certification Acceptance Form
3. Storm Water Pollution Prevention Plan (If more than 1 acre is disturbed on your project)
4. * Project Commitment form

* The Project Commitment form must have Phase II signatures by:

- Studies & Plans Engineer
- Program Development Engineer and
- Land Acquisition Manager

FINALIZING PLANS AND SUPPORTING DATA

(Use with Project Commitment Form)

1. Glean working files, place in pocket folder with correspondence file, and then place in "PLANS SUBMITTED" drawer. Also clean plan drawer.

2. Has pavement design (see BDE Chapter 54-8) been sent to Springfield (required on all projects other than RS & W&RS under 6')?

   A pavement design is required if any of these conditions are met:
   - more than 4,750 sq. yds.
   - more than $500,000 in pavement costs
   - high stress intersections, experimental pavements, or special designs
   - requests for design exceptions or
   - an expired pavement design (BDE Ch 54-8.03)

3. Before sending originals to Springfield, check with Utility Engineer for number of prints and/or CD's needed.

4. If consultant prepared plans, check if survey book or disks has been received and labeled, and if working files have been stored.

5. Place design report in design file.

6. Letters for Detour Coordination (see pages 18 – 22).

7. Put Fiscal Year on upper right corner of correspondence file.

_____
Squad Leader

_____
Date

TO BE PLACED IN CORRESPONDENCE FILE

Illinois Department of Transportation

Project Commitment

Route: _____ Section: _____ County: _____

Job Numbers:

Preliminary Engineering: P-92-
Land Acquisition: R-92-
Construction: C-92-

PPS: _____ Design Report: ☐ Yes or ☐ No

Project Contract Number: _____

Project Description: _____

_____

Program: ☐ Multi-Year ☐ FY _____

	Signature	Date
Phase I:		
Studies and Plans Engineer		
Engineer of Program Development		
Recorded		
Phase II:		
Studies and Plans Engineer		
Land Acquisition Manager		

☐ Land Acquisition complete.
☐ Land Acquisition not complete. Any additional commitments will be forwarded to Project Implementation.

Engineer of Program Development		
Recorded		
Phase III:		
Engineer of Project Implementation		
Recorded		
Phase IV:		
Engineer of Operations		
Recorded		

Return to Studies & Plans after Phase IV is recorded.

The Studies and Plans Engineer and the Land Acquisition Engineer certify that they have added a list of commitments made regarding the above project during the phase of work under their particular responsibility. The Engineer of Program Development, Project Implementation, and Operations certify that they have reviewed the commitments made by their bureaus, reviewed commitments made prior to their bureau's responsibility, and taken the necessary action to assure that those commitments impacting their bureau's activities were fulfilled. The Engineer of Operations also certifies that the commitments affecting long-range highway operational activities were entered into the MMIS and has notified the Regional Engineer by copy of the PCF to that latter activity. The Studies and Plans Engineer shall insert the final signed original of this commitment form into the Library copy of the Project Report.

D2 PD1032

INFORMATION FOR FINAL ROUTING OF PLANS

See page 17 for Routing of Plans

A. Full Size Plans (11” x 17”)

B. Proposal Size Plans (8½" x 11")

Proposal Size Plans will be placed in the submittal folder (see below).

SUBMITTING PLANS

For full size and proposal size plans, scan in CA Form, agreements and any permits you may have for the job (such as SWPPP or 404). For proposal size plans, also scan in the set of plans.

In the submittal folder, see if a folder has been created for your letting date. If not, create a new folder for the letting date. Within that folder, create another folder named as your job’s contract number (i.e. Contract #64000). Place all your scanned documents into this folder and let the secretary know the folder has been created. She will place your special provisions into that folder for you.

After all documents have been placed into the folder, send an email to DOT.CO.D&E-Plans&SpecSubmittal. Also cc: the Studies & Plans Engineer and your Project Engineer with the following information:

Example

FAP Route 310 (US 20)
Section (1,2,3)RS-5
Winnebago County
Contract #64000
Job description as it appears on the card received from the estimator and on the CA Form.

CA Form, Plans (for proposal size only), Special Provisions, and list any other documents that have been placed in the submittal folder for your letting date under the above contract number.

If there is an agreement that has not been signed, you can include the draft and state that the signed agreement will be sent later.

NOTE: Each document must be scanned in separate. If there is more than one page for the document, all pages will be one pdf document. When these documents are saved, rename them with what they are and the contract number (i.e. Contract #64000FUP or CA Form).

Electronic Plan Submission Requirements

- The districts will submit plan sheets as 11" x 17" PDFs. There will be one PDF for each individual plan sheet along with one multi-page PDF containing all sheets, up to 100 sheets. If there are more than 100 sheets, then multiple multi-page PDFs will be required.

  ** **Note for Fold Up Plans**: Submit only one combined 8½" x 11" PDF containing all plan sheets. Individual sheet PDFs for Fold Up Plans are not required **

- The file naming convention for individual plan sheets shall be *Contract Number – plan sheet number.pdf*, example: **72111-0001.pdf**
  For a, b, c…sheets use the following format:

Sheet number	PDF name
50a	72111-050abc1.pdf
50b	72111-050abc2.pdf
50c	72111-050abc3.pdf

- The file name convention for multi-page PDF is as follows:

  For sets of 100 or fewer sheets: Create one PDF containing a sheet for every plan sheet named: *PLcontract#.pdf*, example: **PL72111.pdf**.

  For sets of more than 100 sheets: Create multiple group files of at most 100 sheets each. Try to break the group files at logical points by sheet content – use the Index of Sheets to help determine break points. Naming: *PLcontract#-beginSheetNo-endSheetNo.pdf* example: **PL72111-001-100.pdf; PL72111-101-180; PL72111-181-222.pdf.**

- PDFs are to be exactly 11" x 17" (8½" x 11" for Fold Up Plans).

- PDFs must be grayscale only, NO COLORS.
  Note: Grayscale is to be used for area fill only. All line work must be black.

- PDFs must NOT have layers.

- All 11" x 17" PDFs must have landscape orientation.

- Signed sheets should be submitted both as a PDF and as a paper document. The signed paper sheet must also be 11" x 17" (8½" x 11" for Fold Up Plans).

- Each District has a folder on Cosep1\Letting with sub-folders for each letting date. Within each letting folder, there will be a folder for each job on that letting named with the contract number. Create a sub-folder for the plan sheets within the job folder. The job folder should contain files for the CA sheet, special provisions, other various scanned permits and documents, and the sub-folder for the plan sheets. When all contract documents and plans are ready in the Letting folder, send the notification email to the group: **DOT.CO.D&E-Plan&SpecSubmittal**. The group email notification is for the original submittal only.

- Revisions and Addendums: PDFs for revisions and addendums should NOT be placed on Cosep1. These PDFs must follow the same naming convention as the original submittal. Email the revised PDFs directly to Dan Byers, Dan.Byers@illinois.gov or Mike Senalik, Michael.Senalik@illinois.gov.

  Revisions for Structure Plans must be submitted through the Bridge Office

Print styles, .pltcfgs and pen tables are available in the IDOT CADD Standards Folder on every District CADD server to assist the Districts in creating PDF's in MicroStation that meet these requirements.

FINAL ROUTING FOR PLANS

Full size plans shall be scanned and submitted as outlined on page 16. All signed Cover Sheets shall also be mailed as 11 x 17.

	SPRINGFIELD	OFFICE FILE	ESTIMATOR (Rick)	CONSTRUCTION	TOTAL COPIES	
SOQ, General notes, Cover sheet	☐		**			
ESTIMATE OF TIME		*	1		1	
SPECIAL PROVISIONS	☐	*	**		1	
UTILITY REPORT		*				
CA FORM (with RE signature)	☐	*	1		2★	
8.5 X 11 PLANS	☐	*				+UTILITY COMPANY
PAVEMENT DESIGN APPROVAL	☐	1			1	
FULL-SIZE PLANS (See note above)	☐					+UTILITY COMPANY
AGREEMENT OR LETTER OF UNDERSTANDING	☐					
404 PERMIT				1		
404 PERMIT APPROVAL LETTER	☐	*				

☐ **Submitted in district's electronic folder**

*** = ORIGINAL**

** 1 hard copy of SOQ, general notes, Cover sheet, and special provision, but no recurring or BDE special provisions. Do not e-mail this.

All supporting information, CA form, special provisions, etc, will be submitted in district's electronic folder.

★ Copy of CA form to: Jim Allen (Give to Mary Lou O'Brien)

If the project is resubmitted for another letting give Rick the new SOQ and Special provisions.

PLAN CHANGES

When you have plan changes after the plans have been submitted, send the changes listed in a memo to:

To: John Baranzelli Attn: Mike Senalik

For changes on the plans, also send a copy of the old sheets with the changes highlighted.

If you have changes on the SOQ give a copy to Rick Gualandi

SPECIAL PROVISION CHANGES

When you have Special Provision changes after the plans have been submitted, have the Secretary type the changes. After the provision is proofed and ready to be submitted, tell the Secretary. She will put the provisions in the submittal folder. The Squad Leader will e-mail Mike Senalik and describe the changes to the special provisions. Do not mail a hard copy to Springfield.

Illinois Department of Transportation

To: Plans

From: John Wegmeyer

Subject: Detour Coordination

Date: May 20, 1998

This is further in line with the previous information circulated regarding detour coordination. It appears that we will not be able to rely on the State Police to provide us with the appropriate addresses for local law enforcement, fire, ambulance, postal services and schools. Therefore, the following guidelines should be used to forward detour notices.

Postal Service
Send one letter (Form de0001a) to: Postmaster _____, IL _____

The blanks can be filled in with the same city and zip code listed for the property owners living along the route upon which the project is located. If none of the owners actually live along the route, it will be necessary to contact the most likely post office to make sure that the notice is sent to the appropriate postmaster.

Local Law Enforcement, Fire & Ambulance
For all counties, except Carroll and portions of Whiteside, three copies of the letter (see attached Form de0001b) are to be sent to the Sheriff's Department and they in turn will forward a copy to the appropriate law, fire and ambulance agencies. The addresses for the various county sheriff's departments are shown on the attached list.

For Carroll County, the Sheriff's Department has asked that we call them (7-642) to get the address for the appropriate fire protection and ambulance district. Individual letters (Form de001a) are then to be sent to the Sheriff's Department, as well as the fire and ambulance districts.

The Whiteside County Sheriff's Department does not dispatch for Sterling and Rock Falls. For any projects within Sterling or Rock Falls jurisdiction (see attached maps), three copies of the letter (Form de001b) are to be sent to the appropriate Police Department. The addresses are:

Rock Falls Police Department
Attn: Chief of Police
1013 – 7th Avenue
Rock Falls, IL 61071

Sterling Police Department
Attn: Chief of Police
212 - 3rd Avenue
Sterling, IL 61081

Schools
Send one letter (see attached Form de0001c) to the appropriate Regional Office of Education. The addresses are shown on the attached list.

Illinois Department of Transportation
Division of Highways / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois / 61021-3500
Telephone 815/284-2271

PROGRAM DEVELOPMENT
_____ Route _____ (_____)
Section _____
_____ County
Contract _____

_____ (date)

_____
_____
_____

Dear _____:

The Illinois Department of Transportation is currently preparing the construction plans for _____.
The improvement consists of _____
_____.

To complete the project it is necessary to close _____ to through traffic while construction is in progress. [The proposed detour reroutes traffic onto _____ (see attached map).]
[It is the Department's policy that, due to the local nature of the traffic that utilizes this route, a formal detour route will not be marked. It appears, however, that _____ would be a viable route to bypass the proposed construction (see attached map).]

This highway project is scheduled to be let for bids on _____.
Based on that letting date, work should begin approximately _____. It is anticipated that the entire project will require approximately _____ days to complete.

If you have any questions regarding this matter, please contact _____ at (815) 284-5_____.

Sincerely,

George F. Ryan, P.E.
Deputy Director of Highways,
Region Two Engineer

By: Jay P. Howell
Acting Engineer of Program Development

de0001a

Illinois Department of Transportation
Division of Highways / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois / 61021-3500
Telephone 815/284-2271

PROGRAM DEVELOPMENT
_____ Route _____ (_____)
Section _____
_____ County
Contract _____

_____ (Date)

_____
_____
_____
_____

PLEASE FORWARD TO APPROPRIATE LAW ENFORCEMENT, FIRE & AMBULANCE SERVICES

Dear _____:

The Illinois Department of Transportation is currently preparing the construction plans for _____.
The improvement consists of _____
_____.

To complete the project it is necessary to close _____ to through traffic while construction is in progress. [The proposed detour reroutes traffic onto _____ (see attached map).]
[It is the Department's policy that, due to the local nature of the traffic that utilizes this route, a formal detour route will not be marked. It appears, however, that _____ would be a viable route to bypass the proposed construction (see attached map).]

This highway project is scheduled to be let for bids on _____.
Based on that letting date, work should begin approximately _____. It is anticipated that the entire project will require approximately _____ days to complete.

If you have any questions regarding this matter, please contact _____ at (815) 284-5_____.

Sincerely,

George F. Ryan, P. E.
Deputy Director of Highways,
Region Two Engineer

By: Jay P. Howell
Acting Engineer of Program Development

de0001b

Illinois Department of Transportation
Division of Highways / Region 2 / District 2
819 Depot Avenue / Dixon, Illinois / 61021-3500
Telephone 815/284-2271

PROGRAM DEVELOPMENT
_____ Route _____ (_____)
Section _____
_____ County
Contract _____

_____ (Date)

_____
_____
_____
_____

PLEASE FORWARD TO APPROPRIATE SCHOOL DISTRICTS

Dear _____:

The Illinois Department of Transportation is currently preparing the construction plans for _____.
The improvement consists of _____
_____.

To complete the project it is necessary to close _____ to through traffic while construction is in progress. [The proposed detour reroutes traffic onto _____ (see attached map).]
[It is the Department's policy that, due to the local nature of the traffic that utilizes this route, a formal detour route will not be marked. It appears, however, that _____ would be a viable route to bypass the proposed construction (see attached map).]

This highway project is scheduled to be let for bids on _____. Based on that letting date, work should begin approximately _____. It is anticipated that the entire project will require approximately _____ days to complete.

If you have any questions regarding this matter, please contact _____ at (815) 284-5_____.

Sincerely,

George F. Ryan, P. E.
Deputy Director of Highways,
Region Two Engineer

By: Jay P. Howell
Acting Engineer of Program Development

de0001c

BOONE

Communications
Boone County Sheriff's Department
615 North Main Street
Belvidere, IL 61008

Regional School Superintendent
Boone-Winn Regional Office of Educ.
300 Heart Boulevard
Loves Park, IL 61111

BUREAU

Leads Supervisor
Bureau County Sheriff's Department
22 Park Avenue West
Princeton, IL 61356

Regional School Superintendent
Regional Office of Education
313 North Canal Street
Annawan, IL 61234

CARROLL

Carroll County Sheriff's Dept
301 North Main Street
Mt. Carroll, IL 61053

Regional School Superintendent
Regional Office of Education
500 North Rush Street
Stockton, IL 61085

DEKALB

Communications
DeKalb County Sheriff's Dept
500 North Rush Street
Stockton, IL 61085

Regional School Superintendent
Regional Office of Education
245 West Exchange, Suite 2
Sycamore, IL 60178

HENRY

Sheriff of Henry County
Henry County Sheriff's Department
316 West Court Street
Cambridge, IL 61238

Regional School Superintendent
Regional Office of Education
313 North Canal Street
Annawan, IL 61234

JODAVIESS

JoDaviess County Sheriff's Department
330½ North Bench
Galena, IL 61036

Regional School Superintendent
Regional Office of Education
500 North Rush Street
Stockton, IL 60185

LEE

Lee County Sheriff's Department
309 South Galena Avenue
Dixon, IL 61021

Regional School Superintendent
Regional Office of Education
772 Clinton Street
Dixon, IL 61021

OGLE

Communications
Ogle County Sheriff's Department
103 Jefferson Street
Oregon, IL 61061

Regional School Superintendent
Regional Office of Education
772 Clinton Street
Dixon, IL 61021

ROCK ISLAND

Patrol Division Commander
Rock Island County Sheriff's Department
1317 Third Avenue
Rock Island, IL 61201

Regional School Superintendent
Regional Office of Education
3430 - 23rd Avenue
Moline, IL 61265

STEPHENSON

Sheriff of Stephenson County
Stephenson County Sheriff's Department
15 North Galena
Freeport, IL 61032

Regional School Superintendent
Regional Office of Education
500 North Rush Street
Stockton, IL 61085

WHITESIDE

Communications
Whiteside County Sheriff's Department
400 North Cherry
Morrison, IL 61270

Regional School Superintendent
Regional Office of Education
1001 West 23rd Street
Sterling, IL 61081

WINNEBAGO

Sheriff of Winnebago County
Winnebago County Sheriff's Department
420 West State Street
Rockford, IL 61101

Regional School Superintendent
Bo-Winn Regional Office of Educ.
300 Heart Boulevard
Loves Park, IL 61111

Illinois Department of Transportation

Storm Water Pollution Prevention Plan

Route _____ Marked Rte. _____

Section _____ Project No. _____

County _____ Contract No. _____

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____

Print Name Signature

_____ _____

Title Date

_____

Agency

I. Site Description:

A. The following is a description of the project location:

B. The following is a description of the construction activity which is the subject of this plan:

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

D. The total area of the construction site is estimated to be _____ acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is _____ acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

GLEANING FILES

The following information should be saved when gleaning files for microfilming:-
The fiscal year should be noted on the gleaned package

- **All drainage computations**
  - ☐ Culvert Sizing
  - ☐ Ditch lining computations
  - ☐ Storm sewer sizing and inlet spacing

- **CA forms**
  - ☐ Final CA form as sent to Springfield
  - ☐ Copy of submittal package as sent to Springfield including special provisions

- **Correspondence with any outside agencies**
  - ☐ Detour coordination letters
  - ☐ Letters to property owners
  - ☐ Correspondence with consultants
  - ☐ Correspondence with outside agencies e.g. IDNR, Corp, etc.

- **Agreements**
  - ☐ with consultants
  - ☐ with other jurisdictions

- **Estimate of cost**
  - ☐ as prepared by the estimator

- **Permits for structures**
  - ☐ 404 permits & all other permits needed from an outside agency

- **Damages calculation sheets**
  - ☐ Incentive / disincentive calculations
  - ☐ Liquidated damages calculations

- **Storm water pollution prevention plan**
  - ☐ Erosion control plan
  - ☐ Copy of the cover sheet signed by the D.E.

- **Roadside safety items**
  - ☐ Guardrail length of need calculations
  - ☐ Any other permanent roadside safety measures e.g. impact attenuators

- **Correspondence & calculations for environmental issues addressed**
  - ☐ Contaminated soils
  - ☐ Underground storage tanks

- **Special design features / elements addressed**
  - ☐ Water overtopping road
  - ☐ Excessive scouring / erosion
  - ☐ Highway lighting calculations

GLEANING FILES

- **Pavement Design**
  - ☐ Calculations
  - ☐ Springfield Approval

When in doubt, save it if the answer is yes to any of the following questions:

☐ Will it be useful when the project is reconstructed 20 years down the road e.g. culvert sizing, storm sewer calculations, pavement design, etc.

☐ Will it be needed in case of litigation e.g. agreements, correspondence with property owners, outside agencies, consultants, etc.

☐ Will it be required in case of an audit e.g. incentive / disincentive calculations

☐ Is it a special design feature / element

☐ Is this the original / only copy that the Department has

To avoid duplication, do not save memos & item that you only have a copy of, the bureau that has the original is responsible for having it microfilmed e.g. soil reports, Phase I project reports, hydraulic reports, etc. Be sure that the Phase I Project Report is placed in the District Library and a .pdf copy is saved on the network under S:Project Reports under the proper County, etc.

BDE SPECIAL PROVISIONS & RECURRING SPECIAL PROVISIONS

1. The BDE Special Provisions & Recurring Special Provisions, check sheets only, must be attached to the Special Provisions and included with the plans for submittal to Springfield.

2. Add the Route, Section and County in the upper right corner of each sheet.

3. Use the Designer Notes indicated on the sheets of the check sheet to determine which Recurring Special Provisions and BDE Special Provisions should be included in your job.

4. On the Recurring Special Provision and BDE Special Provision check sheets, place an "X" adjacent to the appropriate numbers that apply to your project.

5. Note: Do not add the BDE special provisions to the index of the special provisions. Also, do not send copies of the BDE special provisions when submitting the special provisions to the Central Office. The Central Office will add the BDE special provisions to the index of the special provisions and add copies of the BDE provisions to the contract.

6. Some BDE special provisions require additional information from the designer. These are listed at the end of the check sheet. If using these, check the appropriate box and include the additional information.

GUIDE BRIDGE SPECIAL PROVISIONS

1. If any of the Guide Bridge Special Provisions apply to your project, include the check sheet with the plans for submittal to Springfield.

2. On bridge projects, the Bridge Office or Consultant will send a copy of the check sheet to you.

3. Note: On projects without a bridge, the Guide Bridge Check Sheet could still be required. For example, on a culvert project with temporary sheet piling the check sheet would apply. Also, when constructing small retaining walls with segmental concrete blocks the check sheet would apply.

POLICY SECTION

DISTRICT DESIGN POLICY

Drainage: Storm Sewer, Culvert, Misc.

1 Use 15" Minimum Corrugated Steel culvert replacements at entrances, and 18" Minimum Corrugated Steel culvert replacements at side roads.

2 Place end sections on all entrance culvert replacements.

3 Increase field tile intercepts with storm sewer 2" larger than existing tile.

4 Use Field Tile Junction Vaults at right-of-way limits when intercepting field tile in a fill condition.

5 Manholes should normally be built without sumps unless there is an extremely large drop that requires energy dissipation. The district Hydraulics staff should be consulted before utilizing a sump in a manhole. Do not use the pay item Catch Basins (602 - - - - -).

6 The minimum slope for storm sewer is the slope that maintains a minimum velocity of 3'/second and an absolute minimum velocity of 2'/second. This is based on the pipe flowing full.

7 The common sizes to be used for storm sewer are 12", 15", 18", 21", 24", 30", and 36". Note that 27" and 33" may be used (if not sufficient depth to use next larger common size) on runs of 250' or more.

8 Culvert liners: The O.D. of the liner pipe is usually sized from five to ten percent less than the I.D. of the existing culvert. Check with Hydraulics for proper size.

9 Check the hydraulic report for a structure number. If not there, contact the District Hydraulics staff for a structure number for each AR culvert. Hydraulics will obtain the structure number. If a seven digit NBIS structure number is provided, include the following: a pay item for a name plate, Highway Standard 515001, and a detail for the text to be displayed on the name plate.

10 Use Riprap Class A5 on slopewalls of all bridges over water. See Hydraulics for the riprap size on bridges on the Mississippi River and the lower Rock River.

11 In urban areas use articulated block mat or turf reinforcement instead of riprap.

12 The rule of thumb for the length of riprap at the end of culverts is 3 times the 10 year velocity (See DS 19.4 for more information).
- Use Turf Reinforcement Mat instead of riprap on all drop boxes and upstream ends of large culverts.

13 Drop boxes should always be cast-in-place or precast.

14 Do not specify elliptical corrugated metal pipes or concrete arch pipes because they are not being produced in our District.

15 Place the waterway information table for each culvert that doesn't have a separate culvert detail on the same plan sheet as the culvert callout.

Typical Sections, Plan Sheets & Cross Sections

1 Ditching should be a 4' desirable depth, 2' minimum (unless specified otherwise in design report).

2 Standard ditches are 2' wide at the bottom. When tapering ditch widths from 2' to greater than 2', use a taper rate of 1:25 (IDOT Drainage Manual, Section 9-402).

3 Grass ditches should be built on a minimum 0.3% slope.

4 Place Leveling Binder (Machine Method) to obtain Design Standard superelevation rates on existing curves.

5 Use minimum 9" depth widening on state-only funded projects.

DISTRICT DESIGN POLICY

Typical Sections, Plan Sheets & Cross Sections (con't)

6 HMA Tapers:

Primary system - 1" in 30'

Interstate and supplemental freeways – 1" in 50'

Use a 40' uniform depth of bituminous in advance of all interstate and supplemental freeway system structures

7 Use 4" minimum aggregate under flexible pavement (non-mechanistic) unless the soils report recommends more.

8 Strip Reflective Crack Control treatment is to be placed on the existing pavement if sufficiently smooth, if not, place between binder and surface course.

9 New HMA shoulders shall have a 4% slope, and all aggregate and turf shoulders shall be 4%.

10 Resurfacing existing HMA shoulder, use Hot-Mix Asphalt Surface Course, Mixture C, N50 and pay for by the Ton. New full-depth shoulders will be paid for by the square yard for HOT-MIX ASPHALT SHOULDER of the thickness specified, and the top lift will be paid for as Hot-Mix Asphalt Surface Course, Mixture C, N50 by the Ton. Include District Standard 23.4 or 23.4a in the plans.

11 1.5% cross slope on pavement. On multi-lane pavement, 1.5% on the first lane and 2% on the second lane and 2.5% on the third. Always use 2% cross slope in Urban areas with curb and gutter

12 Aggregate Shoulders Type A to be used for full-depth shoulders. Use Aggregate Wedge Shoulders Type B on SMART & 3P. The aggregate shoulder is only a few inches thick.

13 Use Hot-Mix Asphalt Surface Course, Special at locations that consist of a few inches of Hot-Mix Asphalt placed on an aggregate base. Examples are runarounds, frontage roads, reconstructed City Streets and County or Township Roads that are a few hundred feet long, City Streets and County or Township Roads used as a detour route, and Good Neighbor policy roads. If just the returns of City Streets and County or Township Roads are being resurfaced or if the roads are short, use Incidental Hot-Mix Asphalt Resurfacing like entrances. It is difficult to reach density of thin HMA lifts on an aggregate base.

14 On rural entrances, use 8% maximum grade at CE's, 10% at PE's, 12% at FE's.

15 Use 7" unreinforced concrete to replace existing concrete entrances.

16 Use 5" depth sidewalk replacement.

17 Use no less than 1:6 sideslope on entrances. If 1:6 will not work, discuss with Project Engineer to resolve.

18 Sidewalk maximum slope = 2%, note it can be flatter. Design it at 1%.

19 Entrances that interfere with proposed guardrail placement should be relocated outside the limits of the guardrail.

20 Subbase Granular Material Type A or Aggregate Subgrade Improvement shall be paid for in Square Yards. Put 12", 18" & 24" as a minimum in all plans. Estimate it high since we do usually have overruns.

21 On peek-a-boo patches, always remove the bituminous to the concrete surface, even it it's 8"± thick (from Lessons Learned 11-27-06).

Section 4

DISTRICT DESIGN POLICY

Typical Sections, Plan Sheets & Cross Sections (con't)

22 On peek-a-boo patches where the bituminous is 8" or thicker on top of the concrete pavement, do not schedule any full-depth patches. The depth of the patch plus resurfacing thickness will be over 10" thick, almost as thick as new pavement (from Lessons Learned 11-27-06). Use HMA Surface Removal over Patches, 8" as a maximum depth.

23 When computing quantities for Incidental Hot-Mix Asphalt Surfacing, increase the thickness, as shown on the plans, by ½". This is for computing the quantity; don't change the thickness shown on the plans. The reason for this is to combat the construction overruns on this pay item.

24 The top lift of full depth HMA shoulders will be HMA Surface Course, Mix C, N50. If the shoulders are used for staging, you could use the N level of the mainline.

25 On the typicals, the location of the thickness of the material has a meaning. If the thickness is placed before the pay item, it means it will be paid for by the Ton. If the thickness is placed after the pay item, it will be paid for by the Square Yard.

26 Place application rate of HMA on typical.

Miscellaneous

1 If five or less water and sanitary manholes are to be adjusted, the State will pay. If more than five are to be adjusted, the City will pay. NOTE: If the City pays, we need an Agreement. Utility manholes to be adjusted by the utility.

2 The moving, adjusting or relocation of fire hydrants shall be included under City participation.

3 Use asphalt-coated aggregate slopewall on bridges over roadways when bridge doesn't have deck drains.

4 Use aggregate slopewall on bridges over roadway when deck drains are located in the first or last spans or the existing slopewall is to be replaced.

5 Partial Depth Patching on bridges: Review four months prior to letting.

6 Re-establish section corners whenever they are disturbed by the project. To be a contract pay item.

7 From Maintenance: 1 lb. of crack filler will fill a routed crack 3/4" x 3/4" and 3 1/2' long.

8 Place delineators each side of AR culvert, at approach terminals of guardrail sections and on Interstates & Expressways.

9 All obstructions are to be removed or be shielded in the clear zone.

10 Expansion joints are not needed in jointed concrete pavements. The joints are at 15' centers which allows for movement so expansion joints are not necessary.

11 On the Pavement Design program always use AC 20 for full depth pavements.

12 Wide flange beam terminal joint as shown on the Highway Standard is only necessary when installing new concrete pavement beyond the approach pavement or PCC Connector.

Where the slab length of CRCP between bridges or other pavement types is less than 1500', use a doweled expansion joint. Where the slab length is between 1500' and 2000', contact BDE. For sections of CRCP longer than 2000', use a lug system. A wide flange beam terminal may be used in place of a lug system.

DISTRICT DESIGN POLICY

Miscellaneous (con't)

13 On TMA's for detours, use the following adverse travel rates that came from the 2008 Program Development Meeting. (BDE verified these rates in February, 2014.)

$0.35/mile	Passenger Vehicles (PV)
$0.90/mile	Single-Unit Vehicles (SU)
$1.35/mile	Multiple-Unit Vehicles (MU)

14 Do not use "which price shall include", "at the contractor's expense", or "to the satisfaction of the RE" in the special provision.

Seeding & Erosion Control

1 Erosion Control Blanket is to be placed as needed on slopes 1:3 and flatter. These slopes shall not be furrowed. Place on 1:4 or 1:6 slopes adjacent to HMA shoulders on high volume, high speed highways such as Interstates.

2 Seeding:

0-0.5 ac. -	Seeding and related items are incidental to Earth Excavation
0.5-3 ac. -	Seeding and Mulch are pay items
3+ ac. -	Pay items necessary for all items

3 Place sod on disturbed urban areas.

Seeding and Mulch. (On temporary seeding check with the Landscape Architect on a job-to-job basis on the type of mulch to use, if needed at all.)

- Use Class 4 in rural areas on all back slopes and areas behind the backslope, areas beyond the toe of frontslope on fill sections without ditches, and areas behind Type A Gutter or curb & gutter. Design Note: Class 4 seeding grows very tall. Do not plant in areas where this could affect sight distance.
- Use salt tolerant Class 2A in rural areas on frontslopes and ditch bottoms.
- Use salt tolerant Class 1 in front of homes in rural areas
- Use Class 7 for temporary seeding. This isn't used much. An example: use it on temporary runarounds. Do not confuse this with temporary erosion control seeding, which is spread once a week according to the specifications book.
- Mulch Method 1 and 3A are rarely used in District 2.
- Use Mulch Method 2 on projects with more than 1.0 ac., if homes and vehicles are near the work area, specify Procedure 3. Don't use if you have any slopes steeper than 1:4.
- Mulch Method 3 may be used in District 2. Use up to 1:3 slopes.
- Mulch Method 4 is not to be used in District 2.
- Use Turf Reinforcement Mat on slopes steeper than 1:3.

4 In urban areas where seeding or sodding are required consider paying for Furnishing & Placing Top Soil 4" or 6" to be placed to ensure the seed or sod will grow, check with Materials for existing soil types on your project.

5 Add pay item Supplemental Watering when using sod. Three waterings at 3 Gallons/Square Yard of sodding. A unit of Supplemental Watering is 1,000 Gallons.

Pavement Marking

1 All stop bars will be 24" wide and all turn arrows and words will be the large size 8' high.
2 All cross walk lines shall be 6" wide and 6' apart.
3 Place railroad symbols at all railroad crossings.

POLICY FOR LOCAL AGENCY COORDINATION

(Good Neighbor Policy)

- For every project requiring a Project Report that involves a roadway under local agency jurisdiction, the Project Engineer is required to contact the local agency and explain the scope of the work involved. The local agency must be asked to relate to the District within 10 working days any work related items that they may wish to include in our plans at their expense. A "no response" after this period of time will be assumed as a negative response to the inquiry and negate any further obligation to include work items for the local agency under the District policy. This coordination shall be documented by a letter with the response as an exhibit in the Project Report and in the case of a "no response", so indicated.

- On all projects involving project detours, the appropriate Municipal Official or County Engineer will be contacted by the Project Engineer and the following guidelines utilized as appropriate:

  a) If the work involves routing of traffic on a State maintained route, the Project Engineer will notify the County Engineer that we do not plan to detour over any local roads, but additional local traffic may be expected on the local road system. ***The County Engineer will be asked to arrange a meeting with appropriate County and/or Township Officials, and with the District's Project Engineer in attendance, to determine local route(s) that are anticipated to be the most used by local traffic in lieu of the marked detour. The local route(s) selected must be hard surfaced roads with a maximum of one aggregate surfaced local route. A full explanation for the anticipated significant increase and potential damages should be documented. Minutes of the meeting shall be prepared by the District staff and copies sent to all agency officials in attendance at the meeting for their review and/or comments. A ten working day time period shall be afforded them for comment and, if no response is received within that time period, the minutes shall stand as recorded. Appropriate documentation of this process shall be contained within the Project Report.*** The District will then place necessary pay items in the contract plans for making repairs to the designated route(s). The maximum quantity of aggregate for repair of the aggregate surfaced local route will be computed at 1" thick times the length and width of the existing route. <u>These pay items are for repairs of documented damages only and are not to be construed as items to be used for a total rehabilitation of the local road. Selection of another route after the contract is awarded will be ineligible for repairs under this policy</u>.

     A video tape, with sound track, will be made by the Bureau of Project Implementation of the selected routes, prior to construction initiation with representatives of the jurisdictional agencies present, to ascertain its conditions and of any concerns expressed. At the end of use of the detour for the project, the Bureau of Project Implementation, with the appropriate local officials present, will again video tape, with sound track, the local agency routes to record the condition of the route and document any need for repair.

b) If the project involves the use of a County and/or Township road for a marked detour, the Project Engineer will meet with the respective jurisdictional agency and prepare a letter of understanding, listing any commitments agreed to, with a signature block for the jurisdictional agency to acknowledge concurrence. ***If the detour involves a County and/or Township highway and local traffic is anticipated to utilize another local road, the same procedure as listed under (a) above will also be followed***. Again, it is emphasized that the necessary pay items are for repairs of documented damages only and are not to be construed as items to be used for a total rehabilitation of the local road or detour route. Selection of another route after the contract is awarded will be ineligible for repairs.

   If a detour involves a City/Village street without a permanent engineering staff, a resolution by the City Council must be documented as part of the Project Report. A verbal reply from a Mayor or Village President is unacceptable and an agreement is required in either case.

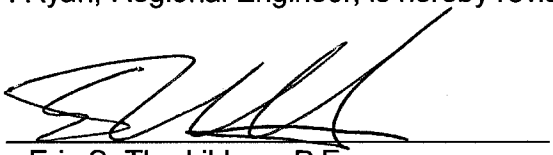
- The Bureau of Program Development will be responsible for preparing all joint and maintenance agreements, incorporating any commitments made to the jurisdictional agencies, as addressed in the above referenced steps prior to letting.

- The Bureau of Program Development will coordinate and conduct a field check with the jurisdictional agencies one last time prior to the letting. A change in the City Administration/Village Board may have occurred during the lapse of time between Phase I and Phase II engineering. It is suggested that this field check be conducted at the time the contract plans are final field checked.

In no case is a County road to be closed without written coordination with the County Engineer and their documented reply. If the Department finds it necessary to close a County road, even though not agreed to by the County Engineer, a meeting will be arranged in the Regional Engineer's office by Program Development with the County Engineer invited to attend.

Normally, unmarked State highways do not require a marked detour and this policy would not apply. However, on any unmarked State highway with an ADT greater than 400, this policy shall be applied to accommodate the added traffic onto the local system.

The current policy, originally approved by William D. Ost, District Engineer, on June 26, 1985, revised document dated November 24, 2003, as approved by Gregory L. Mounts, District Engineer, and revised document dated April 22, 2008, as approved by George F. Ryan, Regional Engineer, is hereby revised by this document.

Revised:  APRIL 9, 2012

Eric S. Therkildsen, P.E.
Acting Deputy Director of Highways,
Region Two Engineer

Date

Illinois Department of Transportation

Memorandum

To: All Bureaus

From: Kevin Marchek By: Kyle Lorenz

Subject: Pavement Marking Guidelines

Date: March 8, 2012

PAVEMENT MARKING GUIDELINES: When developing striping plans, please use the following:

Short Term and Temporary Pavement Markings: Type III Tape can be used short term, unless it is on a milled surface, then use paint. For Temporary Pavement Markings, use paint.

Epoxy: May be used for longitudinal lines on PCC surfaces, HMA rural expressways, and freeways. Do not use for symbols, letters, crosswalks, stop bars, or other transverse markings.

Thermoplastic: For HMA surfaces only. Can be used for both longitudinal and transverse markings. If used in a rural application, use for all markings in channelized intersections.

Preformed Thermoplastic: Generally used for HMA surfaces, but may be applied on concrete with the use of primer. Typically, it is not used for longitudinal lines.

Preformed Plastic: Can be used for all line types on both HMA and PCC surfaces. Must be inlaid on HMA surfaces and grooved-in on PCC surfaces.

Polyurea: Can be used for all line types on PCC surface; however, it is not recommended for new HMA surfaces or surfaces older than three years.

Modified Urethane: Can be used for all markings on both HMA and PCC pavement.

Wet Reflective Markings: To be used as part of research projects. The Bureau of Materials and Physical Research should be contacted when utilized.

Recessed Markings: Can be used with all pavement markings on both HMA and PCC surfaces.

Paint: Can be used with all pavement markings on both HMA and PCC surfaces. If used, always apply two coats.

The above guidelines cannot cover every possible situation; therefore, **always** check with Operations before determining the pavement marking type for your job. Also, For special circumstances or if additional information is needed, please contact Kurt Glazier at Ext. 478 or Kyle Lorenz at Ext. 469.

s/TR/KL-03-01-12:jej

Illinois Department of Transportation

Memorandum

To:	Studies and Plans
From:	John H. Wegmeyer
Subject:	District Policy: Guardrail/Culvert End Treatments on 3R Projects
Date:	December 3, 1998

Effective immediately, the following shall be the District's policy on 3R projects. This is meant to supplement rather than replace the Roadside Treatment and Highway Appurtenances section in State 3R policy.

All areas with guardrail shall be analyzed to determine if it is practical to remove the guardrail since it is a hazard itself. Guardrail should be replaced or left in place only if it is clearly impractical to remove it.

Culvert end treatments shall be designed as follows when culvert ends are within 30 feet from the edge-of-pavement:

1) AR culverts ≤ 915 mm (36 in.): Install standard flared end section (no grate); no guardrail.

2) AR culverts > 915 mm (36 in.): Install special end section with pipe grates (see attached design example) when practical, otherwise guardrail.

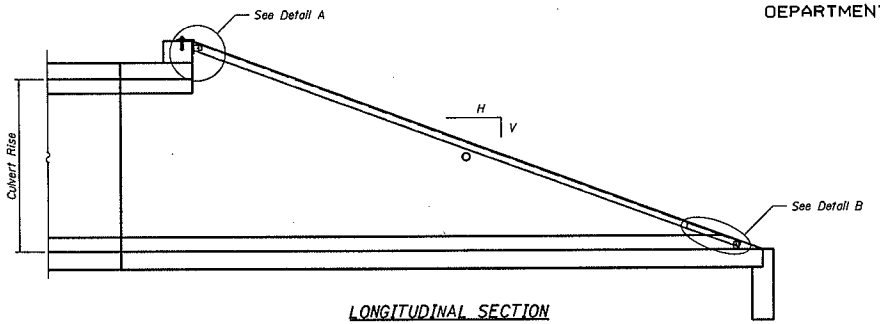
When the cover over a culvert exceeds a certain point, the culvert will terminate beyond the 30-foot point. In these situations, guardrail is not required and a standard flared end section (no grate) should be installed wherever possible. If not available due to excessive size, a determination shall be made as to whether a special end section is practical.

While determining culvert lengths the designer should consider the possibility of a wider shoulder with future projects. If there is even a slight chance of widening the shoulder in the future, the culvert should be long enough to accommodate the anticipated roadway width (see attached "Front Slopes for 3R Projects" for recommended shoulder width guidelines).

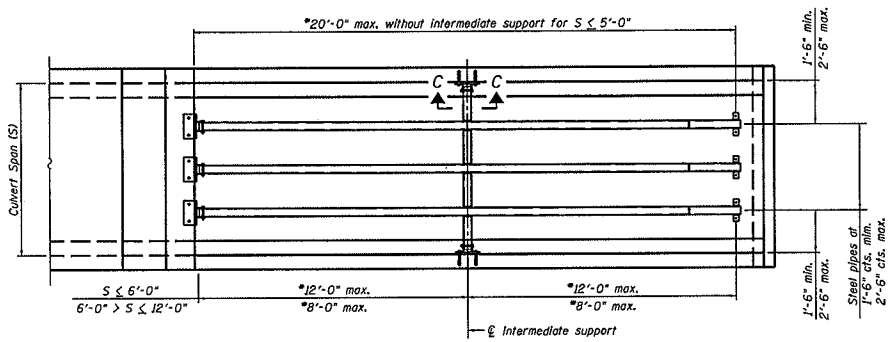
Note that the clear zone for 3R projects on a tangent section of rural highway is typically 5.5 meters (18 feet) regardless of whether guardrail is removed or a culvert is removed and replaced. Exceptions (i.e. horizontal curves, less than 80 km/h, ADT < 1000) are addressed in State 3R.

Culvert lengths are to be designed to meet the front slopes as shown on the attached "Front Slopes for 3R Projects". Attempts to extend culverts beyond this point are typically unnecessary. Depending on where the culvert terminates within the front slope, end treatments shall be determined using the attached "Culvert End Treatments for 3R Projects".

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

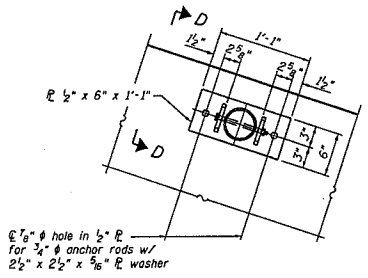


LONGITUDINAL SECTION

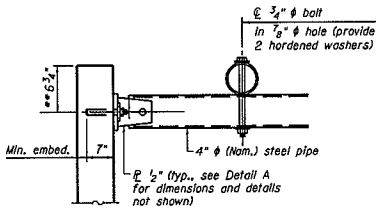


PLAN VIEW

*Measured along embankment slope.

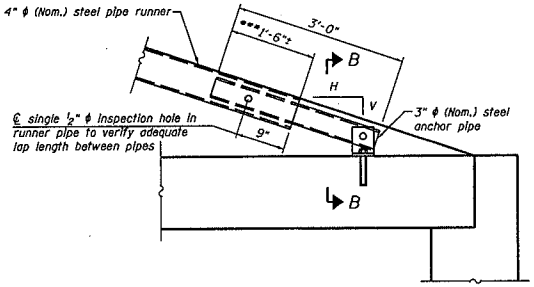


SECTION C-C



SECTION D-D

** Measured perpendicular to top of culvert wall. In addition, anchor rods shall be located a minimum of 6" measured horizontally from any vertical joints necessary for construction of the culvert end section.



DETAIL B

*** The lap length between pipes may be adjusted in the field to accommodate construction tolerances but shall not be less than 9".

GENERAL NOTES

Length and number of steel pipes shall be determined by the Contractor. All steel pipe shall be standard weight (Sch. 40) unless otherwise noted.

All components of the Steel Pipe Grate System shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable.

Fabrication of the Steel Pipe Grate System shall conform to the requirements in Section 505 of the Standard Specifications unless noted otherwise.

Structural steel shapes and plates shall conform to the requirements of Article 1006.04 of the Standard Specifications. Steel pipes shall conform to the requirements of ASTM A 53 (Type E or S), Grade B.

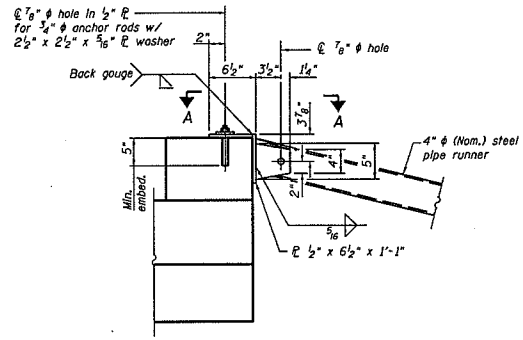
Anchor rods shall conform to the min. strength requirements of ASTM F1554, Grade 105. Anchor rods shall be drilled and epoxy grouted according to the requirements of Section 584 of the Standard Specifications, except as shown, using the "HIT HY-150 MAX" chemical adhesive by Hilti.

Bolts shall conform to the requirements of Article 1006.08 of the Standard Specifications.

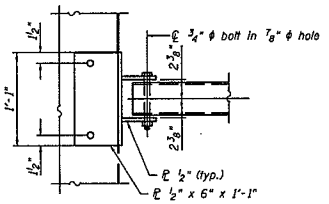
The minimum edge distance from the center of a hole to the free edge of a structural shape or plate shall be 1½" unless noted otherwise.

Bolts and anchor rods shall be snug tightened by a few impacts of an impact wrench or the full force of a worker using an ordinary spud wrench.

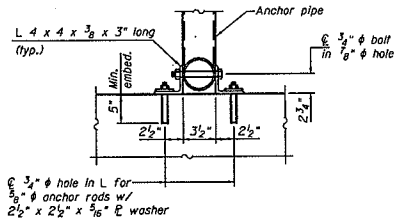
All cost associated with furnishing and installing the steel Pipe Grate system shall be included in the contract unit price for Box Culvert End Sections.



DETAIL A



SECTION A-A



SECTION B-B

STEEL PIPE GRATE SYSTEM

DESIGNED	-
CHECKED	-
DRAWN	-
CHECKED	-

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

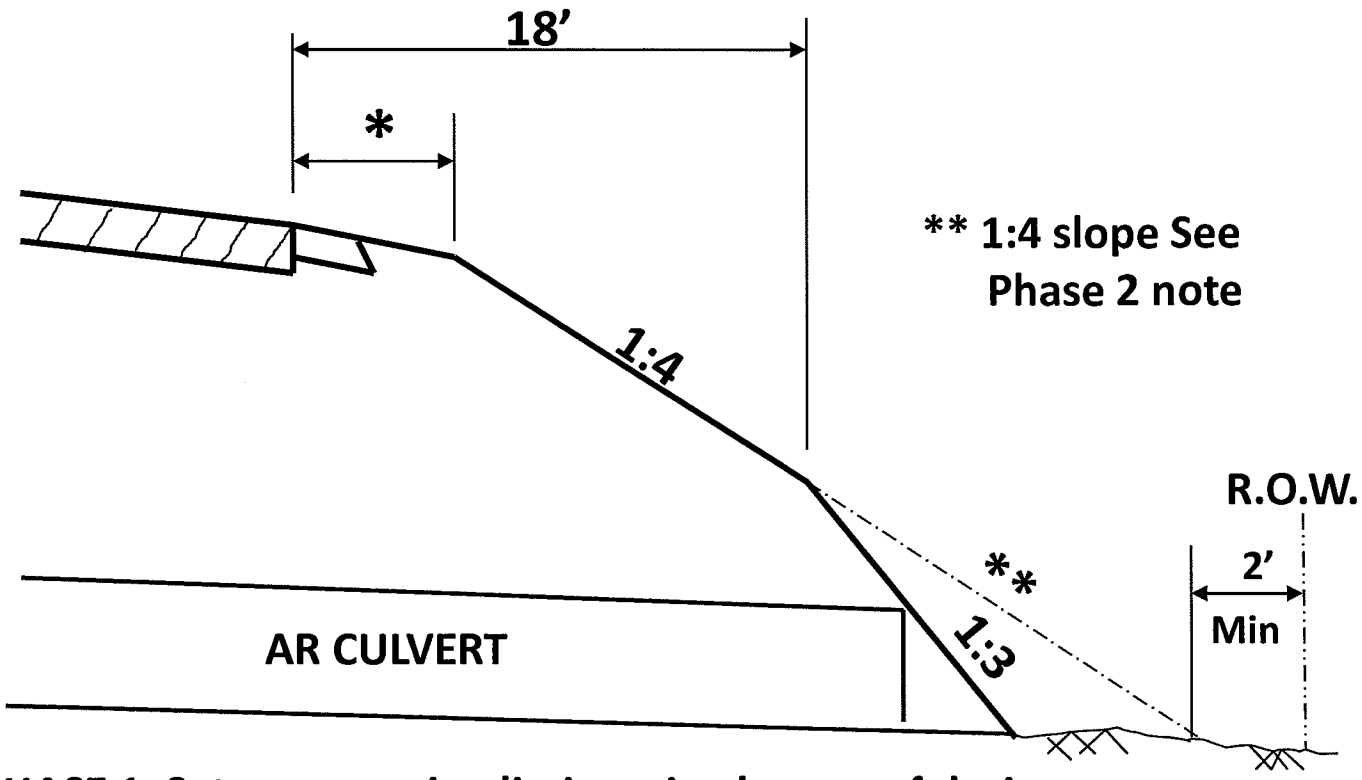
(07-30-10)

SHEET NO. 1	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1 SHEETS	17	110T-4	Ogle		
	S.N.	NA	CONTRACT NO. 64E32		
	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FRONT SLOPES FOR 3R PROJECTS

8' for ADT > 3000

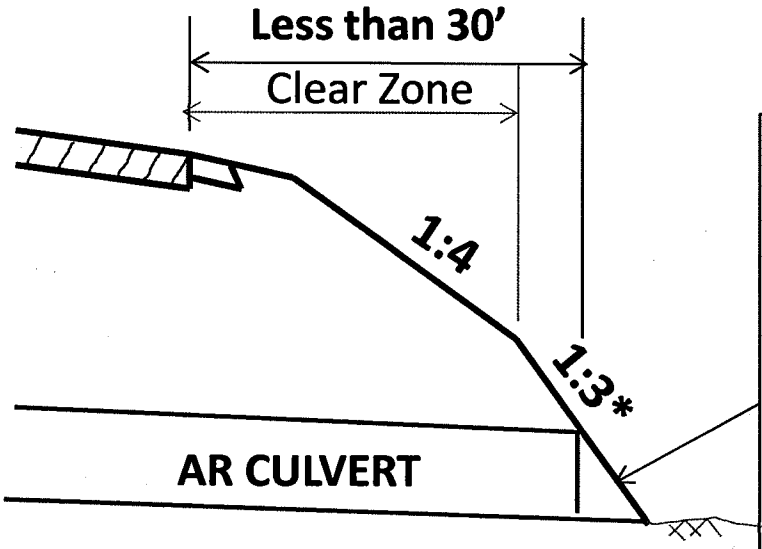
*** 4' Min & 8' Desirable for ADT <3000**



PHASE 1 Set construction limits using barn roof design. Note: see hydraulics for the R.O.W. requirements for riprap.

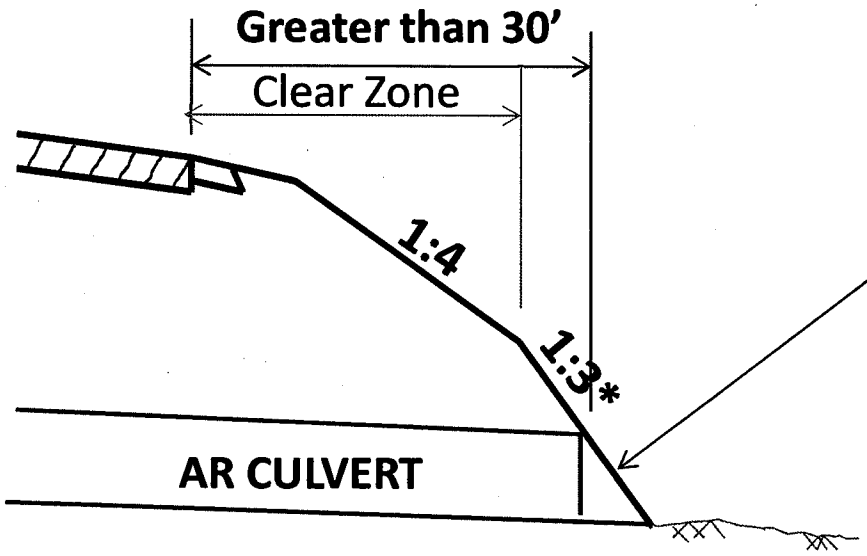
PHASE 2 adjust barn roof design as R.O.W. allows. R.O.W. is set approximately 10' beyond construction limits. Try to use all 1:4 slopes, but stay a minimum of 2' from the R.O.W. and check on riprap requirements. Riprap shall not be placed outside R.O.W. unless a permanent easement was obtained in Phase 1.

CULVERT END TREATMENTS FOR 3R PROJECTS



AR ≤ 36" Install Concrete End Section, Standard 542001.

AR > 36" Install Concrete End Section, Standard 542001 with Traversable Pipe Grates



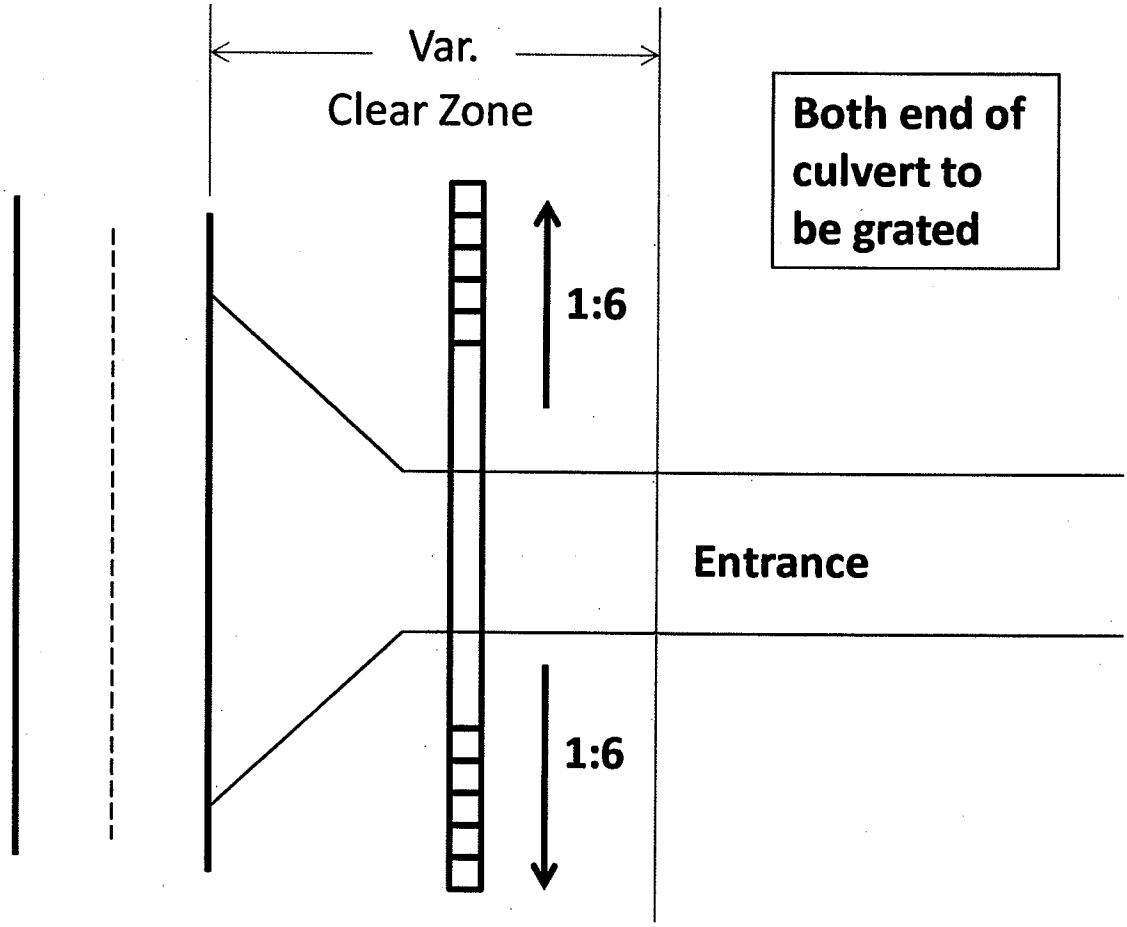
Grate Not Required, but Okay to use

Note: See Phase 2 note on Front slopes for 3R Projects

ENTRANCE CULVERTS

BDE CH. 38-4.06(c)

If the culvert is within the clear zone, grate the end sections when the height of the culvert is > 24".
The end section must be designed at a 1:6 slope. See See the BDE Manual CH. 38-3.01 for clear zone values.



If the culvert is outside the clear zone,
No grating is necessary.

STRUCTURE CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

____ Route _____
Section _____
_____ County
Squad Leader: _____
_____

_ 1. Cofferdams and cofferdam excavation had to be added. Confer with Construction on need for cofferdams.

_ 2. No materials set up for shoulder widening on bridge or box culvert stage construction.

_ 3. Reinforce Interstate shoulders at bridge repair locations 400 to 500 feet in advance of bridge for traffic encroachment during construction. Check existing shoulders. If they are deteriorated, remove and replace them for the stage construction.

_ 4. On stage construction of bridges, be sure temporary sheet piling has been considered at the approaches to retain the earth under the approach slab.

_ 5. On bridge deck repair projects, check on structural steel requirements.

_ 6. Bridge Office review on all bridges.

_ 7. Bridge Office approval for additional surface.

_ 8. Are boring logs in the plans?

_ 9. Under bridges be sure that area between shoulder and bridge slopewall is filled with bituminous shoulder (only a problem on concrete slopewalls).

_ 10. On bridges on divided highways no guardrail is required to be attached to the bridge rail or parapet wall on the departing end of the bridge unless guardrail is needed for slope protection.

_ 11. Check for channel excavation for placement of stone riprap under bridges.

_ 12. On projects adding box culverts that also require guardrail if there is less than 40 1/8" of fill over the top of box, use the pay item Steel Plate Beam Guardrail, Attached to Structures and Highway Standard 630101, or Highway Standard 630106 Long-Span Guardrail over culvert.

_ 13. Submit TSL's or final plans for multiple cell precast concrete box culverts to the Bureau of Bridges and Structures for review and approval for structures on the interstate system only.

_ 14. Include a pay item for test piles on all new bridges or abutments and piers that are widened.

_ 15. Show location of weep holes on cast-in-place box culverts and wingwalls. See Culvert Manual base sheets.

_ 16. Include a pay item and detail for bar splicers on staged constructed single barrel cast-in-place box culverts.

STRUCTURE CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 17. Use epoxy re-bars on culverts with 0' of cover from the top of pavement to the top of box culvert.

_ 18. On Precast Box Culverts the end sections to be paid as Box Culvert End Section Culvert No. __ if both ends have an end section it would be 2 each.

_ 19. Get structure numbers for all box culverts. Include a pay item for name plates. Double box culverts equal or greater than 20' wide, use the State Standard for name plates. All other box culverts use the District Standard for name plates. If the culvert is skewed the width is measured along the roadway centerline.

_ 20. Furnishing & erecting structural steel or remove existing structures the pay item is Lump sum. When you have more than 1 structure and the sizes are different the total quantity will still be 1 lump sum. On the SOQ for the breakdown under each structure use the real proportion. For example, 0.3 & 0.7, instead of splitting it equal.

_ 21. The designer is required to clearly indicate the design fill height for every precast and cast-in-place culvert, including extensions, in the contract plans. To determine the design fill height, the maximum and minimum fill heights between the extreme edges of the shoulders shall be calculated. Regardless of fill height, all culverts shall be designed using ASTM Standard C 1577.

BOX CULVERT DESIGN CRITERIA (English)

f_{min}/f_{max} (feet)	Design Fill Height (F) (feet)	AASHTO Designation [1]
$f_{min} < 2'$	$< 2'$	C 1577
$2' \leq f_{min} < 3'$	2'	C 1577
$3' \leq f_{min} < 4'$	3'	C 1577
$f_{min} \geq 4'$	f_{max}	C 1577

f_{min} = The minimum fill height over the culvert between the extreme edges of the shoulder.

f_{max} = The maximum fill height over the culvert between the extreme edges of the shoulder.

F = Design fill height for culvert.

[1]Add an "I" following the AASHTO designation for culverts where interstate loading is applicable (Ex. C 1577-I).

_ 22. On culverts with sloped end sections with a drop box, the break point of the grated end must be a minimum of 30' off the edge of pavement. Include grating on the drop structure.

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

____ Route _____
Section _____
_____ County
Squad Leader: _____

_ 1 Resurfacing thickness to show on Typical Sections and how to compute quantities.

SMART	Thickness to use for computations
1½" HMA Surface Course	1¾"
3P & 3R Resurfacing and Resurfacing with Grinding	
2¼" thickness	
1½" HMA Surface Course	1½"
¾" Leveling Binder (Machine Method)	1"
2¼" HMA Surface Course on paved shoulders	2½"
3P & 3R Widening and Resurfacing	
2½" thickness	
1½" HMA Surface Course	1½"
1" Leveling Binder (Machine Method)	1¼"
2½" HMA Surface Course on paved shoulders	2¾"
2½" thickness on Concrete	
1½" HMA Surface Course	1½"
1" Leveling Binder (Machine Method)	1"
2½" HMA Surface Course on paved shoulders	2½"
Interstate Resurfacing	
3¾" thickness	
1½" HMA Surface Course	1½"
2¼" HMA Binder Course	2¼"
2¼" HMA Shoulders on paved shoulders	2½"
1½" HMA Surface Course on paved shoulders	1½"

_ 2 Incidental HMA surface (overruns).

_ 3 Minimum thickness of Binder Course is 2¼", this is 3 times aggregate size.

_ 4 Increase Leveling Binder (Hand Method) on grinding projects.

_ 5 Has pavement design been updated to present policies? Include pavement structural information on typical sections.

_ 6 Use HMA Surface Course, Mixture E, on four-lane highways with ADT between 25,000 and 100,000; use Mixture F with ADT greater than 100,000.

_ 7 Deleted 06-24-14

_ 8 3R Projects - Widen HMA shoulders on the inside of the curves. Refer to BDE Article 49-3.04(c).

_ 9 Schedule prime coat for each lift.

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 10 When grinding rural highway, mill at a 1.5% cross slope and show the final crown at 1.5%.

_ 11 On multi-lane pavements, show 3' wedge on shoulder on the typical sections. (See Article 406.10.)

_ 12 On Hot-Mix Asphalt Pavement (Full Depth). Add pay item for Furnish Profilograph according to Article 407.09(b) of the Specifications Books.

* * * * *

_ 13 Earthwork quantity error due to:
(a) Cross sections not drawn to proper slope - calculations wrong.
(b) Factor not included for consolidation.
(c) Improper shrinkage factor.

_ 14 Have shoulders been field checked to see if additional earth will be required to build them up as shown on the typical sections?

_ 15 Add estimated quantities of erosion control pay items labeled for use at Contractor borrow/waste/use sites.

_ 16 On projects with less than 500 cubic yards of borrow, use Furnished Excavation by the truckload method. Special Provision #5.

_ 17 Pay for Earth Excavation to construct PCC sidewalk or add a note that earthwork is included in PCC sidewalk.

* * * * *

_ 18 Quantity errors in not taking everything off the plans and putting them into the Summary of Quantities. This is very common with concrete for structures, but also happens with many other items.

_ 19 On Schedule of Quantities, break quantities out for Rural and Urban in cities with population greater than 5,000.

_ 20 City participation on Summary of Quantities breakdown

Total	100% City	100% State	50%/50% City/State

_ 21 Make sure Summary of Quantities, Schedule of Quantities, and Estimate of Cost all agree.

_ 22 Do not overlook salvage item for maintenance. On federal projects, salvage items greater than $5,000 shall be noted as non-participating on the Summary of Quantities.

_ 23 Add Mobilization Lump Sum pay item to all projects.

* * * * *

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 24 When lighting is being done, be sure that the pay item for "service installation" is a pay item when the utility company is not readily accessible.

_ 25 Install identification beacons at all rural intersections of two State routes that do not qualify for full highway lighting. Provide Bureau of Traffic with a copy of the intersection drawing and they will indicate where the lights should be located.

* * * * *

_ 26 On widening and resurfacing project show pay width of seeding and related items. We are consistently short on these pay items.

_ 27 Use pay item SELECTIVE MOWING STAKES to delineate areas to be seeded or interseeded with Class 4A, 4B and all 5 mixtures.

_ 28 Temporary seeding - inadequate quantities.

_ 29 Seeding quantities omitted on tree removal areas on interstate projects.

_ 30 Send memo to Landscape Architect on tree replacement. Include a copy of the commitment or the number of trees to be removed.

_ 31 For tree replacement quantities, when using Tree Removal Acres, use 109 trees/acre.

_ 32 Tree Removal Acres - show definite location on the plans.

* * * * *

_ 33 Place the waterway information table for each culvert 24" and larger, that doesn't have a separate culvert detail, on the same plan sheet as the culvert callout. Otherwise, place the waterway information table on the culvert detail sheet.

_ 34 18" CMP minimum size under sideroads.

_ 35 When installing a precast box culvert with precast end sections, always use a 540 code number for Box Culvert End Section, Culvert No. ___. If installing pipe grates on the end section, add a note on the detail that the pipe grates are included in the pay item.

_ 36 When using pipe liners, check existing right-of-way area, a temporary easement may be required for installation. Also add trench backfill around the liners that are outside the end of the existing headwall.

_ 37 When replacing field tile within the R.O.W. that crosses under the roadway and below the roadway ditch, pay for as STORM SEWER PROTECTED, CLASS A. The smallest size made is 12".

* * * * *

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 38 Has agreement been prepared? Give information to Utility Engineer. Municipality should be contacted at the field review stage. Include a copy with plan submittal to Springfield.

_ 39 Have preliminary plans been given to Utility Engineer for review by the utility companies? Have final plans been sent to Utility?

_ 40 Utility: JULIE names and Non-JULIE names and addresses on general notes sheet.

* * * * *

_ 41 When patching continuous pavement (Class A patch), note in plans the size and spacing of existing reinforcement bars or fabric.

_ 42 Include quantities for patches for the installation of new AR culverts or for removing existing AR culverts.

_ 43 Double check all thickness specified for full-depth patching. Include 9" plus the thickness of all overlays placed previously.

_ 44 Add a quantity for Pavement Patching around manholes to be removed.

_ 45 Class B expansion joint will be paid for per Foot for CLASS B PATCH - EXPANSION JOINT.

* * * * *

_ 46 Pipe culvert errors between plans, cross sections and schedules. Revisions not followed through on all three affects pipe length, size, type, elbows, tees and inlets. Check for minimum cover on AR pipes.

_ 47 Watermains are missing elevations, station and offsets. Ask the City's consultant to supply this information.

_ 48 Some plans are missing paving details, giving offsets and elevations, locations of gutter, median details, inlets, etc.

_ 49 Avoid plan sheets with too much information. It makes them difficult to read and easy to miss small details, especially 1/4-size sets.

_ 50 Are property owners' names on the plan sheets?

_ 51 Have construction limits been shown on the plans?

_ 52 Indicate low volume highways. Show Low Volume ___ ADT and percent of MU's on cover sheet.

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 53 On resurfacing projects check old plans for superelevation transition stationing and show this with the curve data.

_ 54 Include cross sections on side streets & sideroads.

_ 55 Some plans are missing elevations on new construction of side streets & sideroad returns. Include elevations on all returns regardless if there is curb & gutter, bituminous shoulders, or aggregate shoulders.

* * * * *

_ 56 Calculate riprap on slope, not flat surface. Use A-3, A-4 or A-5. A-4 and A-5 require pay item Filter Fabric.

_ 57 Tie bars added because existing tie bars are deteriorated. Increase quantity. See General Note #103.

_ 58 Shoulder (aggregate wedge) quantities are low. Allow 50 percent overrun.

_ 59 Remove and replace unsuitable materials under pavement removed. (Add more Aggregate Subgrade Improvement.)

_ 60 Pavement markings are not included on the plan quantities for existing crosswalks, etc. in urban areas.

_ 61 On resurfacing projects with bridge omissions include quantities for Pavement Marking on the bridges. From the beginning of the project to the end we want new continuous pavement marking.

_ 62 On widening and resurfacing jobs, rumble strips are not provided as replacement for existing.

_ 63 Review all projects to see if there is adequate right of way or easement to allow the contractor to perform his work. Check culvert extensions, bridges, around existing abutments and where tramways will be required.

_ 64 On projects with narrow shoulders, make sure that culverts are provided in areas where mailbox turnouts are widened and ditch cannot be reshaped.

_ 65 Check height of guardrail on 3P projects, widening and resurfacing sections (superelevated adjustments). Re-adjust guardrail if different than ±3" from Standard.

_ 66 On Guardrail attached to Structures, standard spacing is 6'-3".
If you need the Type B spacing, note it on the plans. Also note on the plans which Case it is (Case I, II, III, or IV).

_ 67 Provide a 25 percent contingency item for the replacement of frames and grates on projects that have frames and grates to be adjusted.

_ 68 Has policy on Raised Reflective Pavement Markers been checked?

_ 69 Increase the length of gutter outlet when the pavement grade is over 2%. See State Standard.

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 70 Place a 4' x 4' piece of erosion control blanket at the outlets for pipe underdrain and stone riprap at the ends of gutter outlets.

_ 71 For runarounds or temporary pavement widening constructed with full-depth bituminous, include a pay item for the removal (Pavement Removal or Paved Shoulder Removal).

_ 72 For lug system leveling projects:

(1) Add more Dry Grout Solids (quantities have been low).
(2) Remove and replace existing bituminous shoulders to let water drain out from under pavement.
(3) Add note for RE to thump pavement to find voids to be filled.

_ 73 When "A" is circled on Line #16 (Wet Weather Accident Location) of the CA form, provide the miles identified, miles of treatment, and the recommended corrective treatment in the remarks section of the check sheet.

_ 74 Add the ADT or DHV to Typical Sections for reconstruction of township roads, city streets and county roads.

_ 75 On typical sections include the weight of Bituminous 112 lbs/Sq Yd/in for Mix C & D, 119 lbs/Sq Yd/in for Mix E, and 123 lbs/Sq Yd/in for Mix F.

_ 76 Don't pay for trench backfill for pipe underdrains, but do pay for it for backslope drains. Standard 601001 includes trench backfill in the pay item for underdrains.

_ 77 If USC & GS or NGS bench marks are on your project and must be relocated, send a memo to them and they will do the relocation. If a USGS bench mark is found, send memo to USGS and add pay item, "Permanent Survey Marker, Type I or II". Also notify the Chief of Surveys.

_ 78 On first Field Check determine the width and type of surface on entrances and sideroads. Also correct wide entrances - CE's greater than 35 feet and PE's greater than 24 feet.

_ 79 More field checks need to be done during design to determine existing conditions.

_ 80 Increase use of Perimeter Erosion Barrier at low points and fill areas without ditches.

_ 81 Show on plans limits of sidewalk, driveway, fences, steps, patios, etc. to be removed with Building Removal.

_ 82 Valve Vaults to be adjusted to be paid for as Code No. 60265700 VALVE VAULTS TO BE ADJUSTED. Valve Boxes to be adjusted to be paid for as Code No. 60266600 VALVE BOXES TO BE ADJUSTED. Do not pay for water service valves to be adjusted.

_ 83 On Urban Projects with proposed R.O.W. or Easements, existing R.O.W. pins might be disturbed. Use special provision Property Markers and a contingency to the plans.

CHECK SHEET OF MOST COMMON ERRORS AND OMISSIONS ON PLANS

_ 84 Improvements located within temporary easements (i.e.; trees, signs, fence, etc.) that are likely to be disturbed by the construction work are to be marked with an "X". If an improvement is not marked with an "X", we are in effect making a commitment to the property owner that the improvement is to be saved.

_ 85 Send Detour Coordination letter on projects that involve a marked detour or projects that will alter any established routes for the following agencies: Rural Fire Protection District, School District, Law Enforcement, and Postal Service.

_ 86 The asphalt grade must be shown on the typicals for all full-depth asphalt pavements. It must also be shown whenever the special provisions for Polymer mixes, SMA's or O6FC are being used.

_ 87
- Liability insurance is needed if working within 50' of railroad ROW.
- Liability insurance plus flagger is needed if 25' from tracks. (The distance of 25' is at the railroad engineer's discretion, may need to be more)
- If working on the tracks, liability insurance, flagger, and an agreement with the railroad is required.

_ 88 For signs removed by the owner add a pay item to remove the foundation.

_ 89 Check ADA ramps, are they long enough? If not, additional ROW or temporary easement may be needed.

_ 90 When using a 4.75 mm mix for leveling binder, the N number will always be N50 even though the surface is a N70. Also specify N50 in the mixture table in the General Notes.

_ 91 On the mixture table in the General Notes, do not include information for Incidental HMA Surfacing. The specifications book has some information, but is intentionally left open for flexibility for the contractor.

District 2

Temporary Pavement Marking for Traffic Control Standards

According to Article 703.07 when temporary pavement marking is shown on the Standard, the cost of the temporary pavement marking will be included in the cost of the standard.

The following is what District 2 will include for pay items for temporary pavement marking for the various State Standards.

Standard 701316 & 701321 (Staged bridge or culvert) (One lane at a time)

- Temporary Pavement Marking (Pay for 24" stop bars and 4" line from stop bar to stop bar; all lines and stop bars will be white.)
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".
- 78300100 Pavement Marking Removal by the square foot (These are the existing pavement markings that conflict with the temporary marking.)
- 70301000 Work Zone Pavement Marking Removal by the square foot (Includes stop bars and 4" lines.)

Standard 701331 (Runaround)

- Temporary Pavement Marking (Double yellow centerline and white edge line.)
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".
- 78300100 Pavement Marking Removal by the square foot (Existing pavement marking that conflicts with the temporary marking, typically on each end.)
- 70301000 Work Zone Pavement Marking Removal by the square foot (Pay for the marking that is on the original pavement.)

Standard 701401, 701411, 701422 & 701446 (Interstate with lane closure and no temporary barrier wall)

Do not add a pay item for Temporary Pavement Marking. The Contractor is required to install temporary tape when the lane closure is greater than 14 days.

- Work Zone Pavement Marking Removal (Add an estimated quantity.)

Standard 701402 & 701423 (Lane closure on Freeway/Expressway or multi-lane with barrier)

- Temporary Pavement Marking (Pay for the taper, the line along the wall and edge line. See Note 1 of the standard for the line color.)
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".
- 78300100 Pavement Marking Removal by the square foot (Remove the existing pavement marking that conflicts with the temporary marking in the taper. Remove the edge line and possibly the centerline, depending on staging.)
- 70301000 Work Zone Pavement Marking Removal by the square foot (Remove the paint that conflicts with the proposed marking. This includes the taper and the lines in the open lane adjacent to the barrier unless it will be resurfaced.)

Standard 701416 (Freeway/Expressway with crossover & barrier)

- Temporary Pavement Marking (Pay for the taper, centerlines and edge lines from taper to taper.)
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".
- 78300100 Pavement Marking Removal by the square foot (Existing pavement marking that conflicts with the temporary marking, typically the tapered ends and edge lines of the wrong color.)
- 70301000 Work Zone Pavement Marking Removal by the square foot (Pay for the removal of marking on the original pavement that will not be resurfaced.)

Standard 701431 (Multilane undivided with crossover)

Reflective solid edge lines and a double yellow centerline shall be used when the closure time exceeds 4 days or when the normal posted speed limit outside the area of operations exceeds 50 mph.

Pay for:

- Temporary Pavement Marking (Pay for the taper, centerlines and edge lines from taper to taper)
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".

- 78300100 Pavement Marking Removal by the square foot (Remove the existing pavement marking that conflicts with the temporary marking in the taper and where the color will be different.)
- 70301000 Work Zone Pavement Marking Removal by the square foot (Remove the paint that conflicts with the proposed marking.)

Standard 701502, 701601, 701602, 701606 & 701701 (Urban Lane Closures)

- Pay for Temporary Pavement Marking where the closure is greater than 4 days for Standard 701606 and greater than 14 days for the others. This is used for urban reconstruction projects; otherwise don't pay for marking on patch and resurface projects.
- Temporary Pavement Marking (Paint) shall be used including on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts. This will be paid for as 70300220 Temporary Pavement Marking Line 4" & 70300280 Temporary Pavement Marking Line 24".
- 78300100 Pavement Marking Removal by the square foot (Remove conflicting lines.)
- 70301000 Work Zone Pavement Removal by the square foot (Remove the paint that conflicts with the proposed marking.)

... District Engineer
cc— Planning Traffic
Design & Roads

Illinois Department of Transportation

Memorandum

To: Highway District Engineers and Bureau Chiefs

From: Ralph C. Wehner

Subject: Diagonal Parking

Date: July 6, 1990

Our current "3R Policies for the Rehabilitation of Arterial Highways and Bridges for Other than Expressways and Freeways on the Federal-aid Highway System in Illinois" provide for exceptions to limitations on angled parking. These exceptions can occur when a brief engineering analysis of existing angled parking is included in the project report and demonstrates that there will be no adverse effect on street capacity and safety. The existing policy states that this analysis should describe parking characteristics, accident history, street operations and potential problems.

The following guidelines clarify the existing policy by stating the factors to be considered in determining whether existing diagonal parking should be allowed to remain.

1) The angle of parking specified will not be excessive (i.e., no greater than 45 degrees).

2) The level of service along the adjacent street with diagonal parking permitted will not be seriously diminished (i.e., preferably no lower than level "C").

3) Sufficient roadway width is available to permit angle parking without interfering with the free movement of traffic. A vehicle should be able to back out part-way (5-7 ft.) in order to see oncoming traffic without becoming an obstruction, before completing the unparking maneuver after traffic clears. An area 25 feet wide adjacent to traffic lanes accommodates 45° diagonal parking and safe back-out maneuvers.

4) High accident spots or sections do not occur where existing diagonal parking will be permitted to remain.

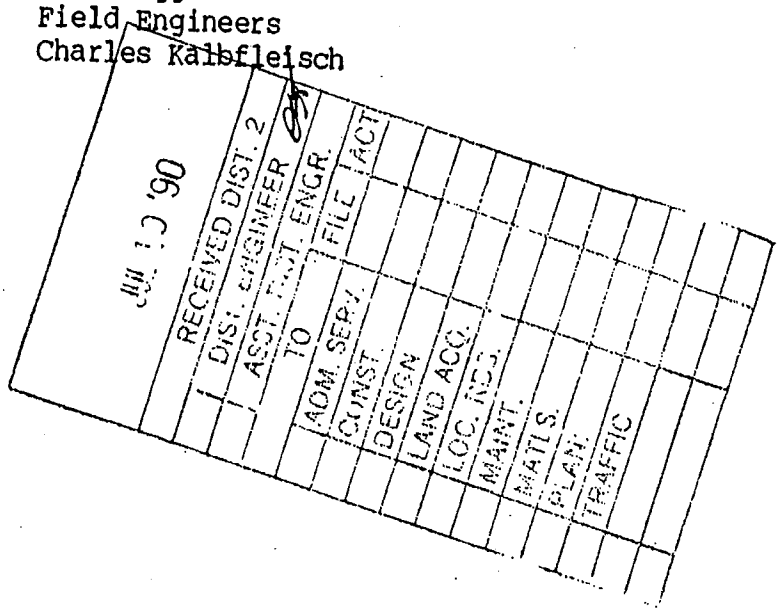
5) Truck traffic does not exceed 10-15%, depending on the ADT on the adjacent road.

6) Provisions for monitoring the completed project are in the city-State agreement in order to determine if safety or capacity problems develop as traffic volumes increase.

Use of these criteria is consistent with 23 CFR Section 655.107(b)(2) and Section 11-1304(c) of the Illinois Vehicle Code.

Ralph C. Wehner

cc: Paul Biggers
Field Engineers
Charles Kalbfleisch



DESIGN AIDS

INDEX

RATE OF APPLICATION

1. A-2

Bituminous Materials (Prime Coat)	.375 gal./sq. yd. .00143 ton/sq. yd.
Bituminous Materials (1 application each Cover & Seal Coat)	.70 gal./sq. yd. .00267 ton/sq. yd.
Cover Coat Aggregate (1 application)	.01 ton/sq. yd.
Seal Coat Aggregate (1 application)	.01 ton/sq. yd.

2. A-3

Bituminous Materials (Prime Coat)	.375 gal./sq. yd. .00143 ton/sq. yd.
Bituminous Materials (2 applications Cover and 1 application Seal Coat)	1.125 gal./sq. yd. .00429 ton/sq. yd.
Cover Coat Aggregate (2 applications)	.02 ton/sq. yd.
Seal Coat Aggregate (1 application)	.01 ton/sq. yd.

3. I-11

Bituminous Materials (Prime Coat) (on Pavement)	.075 gal./sq. yd. .000286 ton/sq. yd.
Bituminous Materials (Prime Coat) (on Gravel)	.375 gal./sq. yd. .00143 ton/sq. yd.
Aggregate (Prime Coat)	.0015 ton/sq. yd.
Leveling Binder (Hand Method)	5-15 ton/mile
Leveling Binder (Machine Method)	As Field Checked

RATE OF APPLICATION
(continued)

Bituminous Overlay

Leveling Binder (Machine Method)	112 lb./sq. yd./in.
Leveling Binder (Machine Method) 4.75	109 lb./sq. yd./in.
Bituminous Concrete Surface Course (Mixture C, D & E) (Check with Materials when using Mix E in the Quad Cities [E=119 lbs./sq. yd./in.], the rate will be higher)	112 lb./sq. yd./in.

Class I, Mixture F - 123 lbs./sq. yd./in. thickness

4. Gravel and Crushed Stone

Gravel or Crushed Stone Base Course, Type A	2.05 ton/cu. yd.
Gravel or Crushed Stone Base Course, Type B	2.05 ton/cu. yd.

Salvage is 75% of original amount

Type B Shoulder (3' wedge)

1 1/2"	0.028 ton/lin. ft. (2 sides)*
2 1/4"	0.043 ton/lin. ft. (2 sides)*
3 1/4"	0.062 ton/lin. ft. (2 sides)*

*Increase these by a minimum of 50% or as field review indicates.

5. Calcium Chloride

1/2 lb. to 3/4" lb./sq. yd. for each inch of thickness of the Base Course

RATE OF APPLICATION
(continued)

6. "Good Neighbor" Policy

   Calcium Chloride 2 lb../sq. yd.

7. Rock Excavation Expansion - 10% - 15%

8. Lime Modified Soil

   Processing Lime Modified Soils (Specify thickness) sq. yd.

   LIME in Tons (3.5% by weight of specified thickness).
   Example: Processing Lime Modified Soils 12"

   90 pounds/cubic feet of soil
   Lime - 27 x 12/36 x 90 x .035 divided by 2000 = 0.0142 ton/sq. yd.

   Water (Slurry Mix)(In urbanized areas)
   2 tons of water/ton of lime = 1/2 unit water/ton of lime

   Water (Dry Mix)(In rural areas)
   1/2 tons of water/ton of lime = 1/8 unit water/ton of lime

9. Pavement Marking

Short-term Pavement Marking (one application on each, prime coat, binder course, and surface course)	4' per 40 lin. ft. 4' @ 100' centers on shoulder of 4-lane highways
Permanent Pavement Marking (Passing Zone)	10' per 40 lin. ft.

   Permanent Paint Pavement Marking – use 2 applications

10. HMA Taper Rates

    Temporary ramps – 1" to 40"

    Tapers on 2-lane highways – 1" in 30'

    Tapers on 4-lane highways – 1" in 50'

PAVEMENT MARKING LETTERS AND SYMBOL AREAS

LETTERS SQ. FT.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
6'	3.1	4.0	2.7	3.4	3.3	2.6	3.3	3.4	1.5	2.1	3.1	2.2	4.2
8'	5.5	7.1	4.8	6.1	5.9	4.7	5.8	6.0	2.6	3.7	5.7	3.8	7.4

SIZE	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
6'	4.0	3.4	3.0	3.6	3.6	3.2	2.2	3.2	2.7	4.2	2.7	2.2	2.9
8	7.1	6.0	5.3	6.3	6.3	5.7	3.8	5.6	4.8	7.3	4.8	3.9	5.1

NUMBERS SQ. FT.

SIZE	1	2	3	4	5	6	7	8	9	0
6'	1.5	3.3	3.3	2.9	3.5	3.5	2.2	3.8	3.5	3.4
8'	2.6	5.8	5.8	5.1	6.1	6.2	3.8	6.7	6.2	6.0

SYMBOLS SQ. FT.

	>LARGE SIZE	SMALL SIZE
Through Arrow	11.5	6.5
Left or Right Arrow	15.6	8.8
Combination Left or Right and Through Arrow	26.0	14.7
Railroad "R" (6 feet)	3.6	-
Railroad "X" (20 feet)	54.0	-
Handicapped Symbol (Disabled)	4.6	-
3 Arrow Combination Left, Right and Through	38.4	20.9
Lane Drop Arrow	41.5	
Wrong Way Arrow	24.3	
Bike Symbol	6.0	

Table applies to all types of pavement marking materials.

METRIC CONVERSIONS

	From English	To Metric	Multiply Quantity Units By
LENGTHS	Inch	mm	25.4
	ft.	m	304.8
	ft.	m	0.3048
	yd.	m	0.9144
	mile	km	1.609344
	mile	m	1609.344
	inches/mile	mm/km	15.7828
AREAS	sq. inch	mm^2	645.16
	sq. ft.	m^2	0.092903
	sq. yd.	m^2	0.836127
	acre	m^2	4046.856
	acre	ha	0.404685
	sq. mile	km^2	2.59
VOLUME	cubic inch	mm^3	16387.06
	cubic foot	m^3	0.028316
	cubic yard	m^3	0.764555
	gallon	L	3.78541
	gal./yd.	L/m	4.1398
	gal./sq. yd.	L/m^2	4.5273
	gal./cubic yd.	L/m^3	4.9511
MASSES	ounces	g	28.349523
	pound	kg	0.453592
	kip (1000 lbs)	metric ton	0.453692
	ton	metric ton	0.9072
FORCES	pound	N	4.44822
	kip	kN	4.44822
FORCE/UNIT LENGTH	lb./ft.	N/m	14.5939
	lb./inch	N/mm	0.1751
PRESSURE/STRESS	lbs./sq. ft.	Pa	47.3803
	kips/sq. ft.	kPa	47.3803
	lbs./sq. inch	kPa	6.89476
	lbs./sq. inch	MPa	0.006895
	kips/sq. inch	MPa	6.89476
ENERGY	foot pound	J	1.35582
MASSES/LENGTH	oz./sq. yd.	kg/m^2	0.0339057
	lbs./sq. ft.	kg/m^2	4.8824
	lbs/sq. yd.	kg/m^2	0.5425
	lbs./cubic ft.	kg/m^3	16.01894
	lbs./cubic yd.	kg/m^3	0.5933
TEMPERATURE	(F-32)/1.8 = C		

m = meters mm = millimeter Km = kilometer (1000 meters)

METRIC INFORMATION
Agenda

Definitions: Soft Conversion is an exact conversion of the English Unit. Hard conversion is a close approximate of the English unit but is rounded logically in the metric system.

Basic Dimensions		Prefixes		
millimeter	(mm)	deci (d)	10^1	one tenth
meter	(m)	centi (c)	10^2	one hundredth
square meter	(m^2)	milli (m)	10^3	one thousandth
cubic meter	(m^3)	micro (u)	10^6	one millionth
		nano (n)	10^9	one billionth
liter	(L)	deca (da)	10^1	ten
		hecto (h)	10^2	one hundred
Pascal	(Pa)	kilo (k)	10^3	one thousand
kilopascal	(kPa)	Mega (M)	10^6	one million
Megapascal	(MPa)	Giga (G)	10^9	one billion

Newton (N)
kilonewton (kN)

Joule (J)

degree celsius (°C)

gram (g)
kilogram (kg)
Megagram (Mg) (Metric Ton)

kilogram per square meter (kg/m^2)

Metric Measurements

Lengths	= millimeters, meters, kilometers
Areas	= square meters or hectare (10,000 square meters)
Volume	= liters or cubic meters
Mass	= kilograms, metric tons
Force	= Newton ($N = kg\ m/s^2$)
Pressure, Stress	= Pascal ($Pa = N/m^2$)
Energy, Work	= Joule (J - Nm)
Torque	= Newton meter
Speed, Velocity	= meter/second, kilometers/hour
Acceleration	= meters/second squared, kilometers/hours squared
Density	= Newton/meter cubed
Temperature	= Celsius
Power	= grams/Watt

CONCRETE INFORMATION

Intersection Joint Layout

Ideally, designers should develop an intersection joint layout while developing project plans. Though on paper, the plan view of an intersection provides the best birds-eye view for seeing the entire intersection. During construction it is difficult to visualize an intersection because of construction staging.

A good jointing plan will ease construction by providing clear guidance. It is common practice for some designers to leave intersection joint layout to the field engineer and contractor. These designers often justify this practice by citing the many field adjustments that occur during construction, which they contend negates the usefulness of a jointing plan. However, it is not desirable to eliminate the jointing plan except for very simple intersections. A jointing plan and appropriate field adjustments are both necessary for more complex intersections, because islands, medians and turning lanes complicate joint layout and require some forethought before construction. The plan will also enable contractors to more accurately bid the project.

During construction it is likely that location changes will be necessary for some joints within an intersection. The primary reason is to ensure that joints pass through fixtures embedded in the pavement like manholes or drainage inlets. It is common for the actual location of manholes, or drainage inlets to vary from the location shown on the plans. As a result, it will be desirable for the construction crew to adjust the location of some joints so that they coincide with the actual location of a nearby manhole or inlet. The designer should consider placing a note on the plan to give the field engineer and contractor the latitude to make appropriate adjustments.

The transverse and longitudinal joints in concrete pavement are necessary primarily to control cracking. The desirable transverse joint spacing depends on the slab thickness and subbase, but is usually about 4.5 m (15 ft). On typical roadway pavements, longitudinal joints divide lanes of traffic and in most cases are no more than about 4 m (12 ft) apart. Because the transverse and longitudinal joint spacing are usually not identical, it is difficult to maintain an even spacing on either roadway through an intersection.

The ten-step method in this publication provides intersection joint layout fundamentals. The examples show a right-angle and a skewed T-intersection. The detail diagrams show preferable alternates, but there may be certain intersections with unique geometry that the methodology does not fully address. This publication does not address dowel and reinforcing requirements for joints.

A primary goal of this method is to minimize or eliminate joints that intersect another joint or the pavement edge at an acute angle. Experience shows that cracks often occur near acute angles, especially angles less than 60°. For most intersections it is possible to eliminate all angles less than 90° from the roadway slabs — there may be some acute angles in the curb and gutter. For skewed intersections it is likely that some joints will intersect at angles less than 90°. However, even for skewed intersections it is preferable to avoid angles less than 60°.

The method works equally well for integral curb and gutter, as well as for separate curb and gutter. The diagrams show how to place joints through curb and gutter and along curves between the intersecting roadways. The method also helps the designer produce a plan that is easier to construct by avoiding width changes along the edge of the mainline or primary paving lane(s).

New terms:

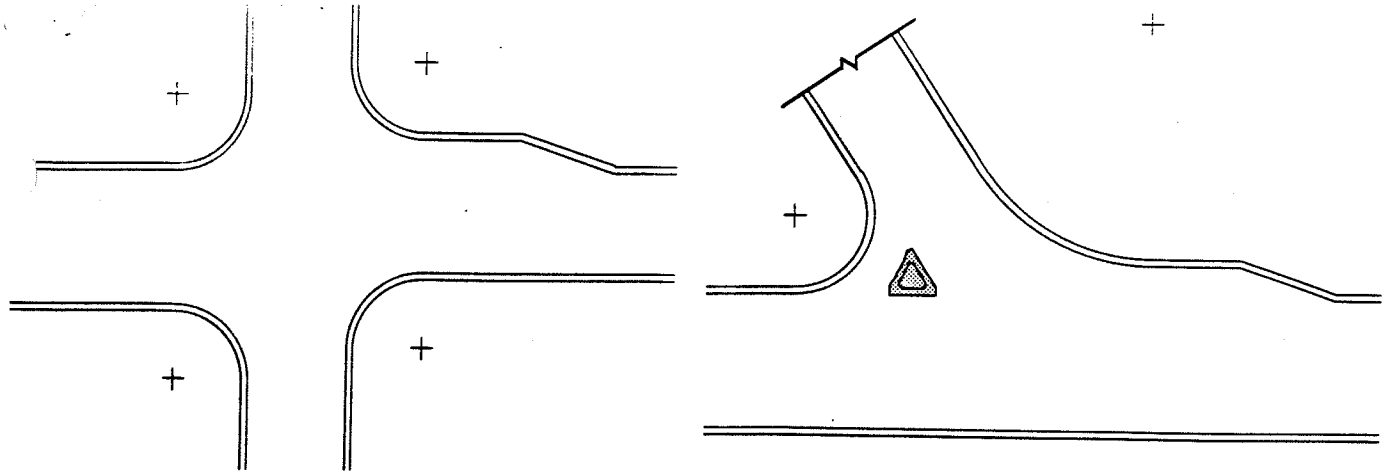
Doglegs: Construction block-outs at points where the pavement changes width. (See page 5 for details.)

Circumference-Return Line: A lightly drawn line 0.5-1.0 m (1.5-3.0 ft) from the face of the gutter along the curve between the edges of the intersecting roads. For obtuse angles, the line is 1/2 the nominal lane width from the gutter. Any joint that meets the circumference-return line is brought along the curve's radius to the back of the curb and gutter. Older publications use the term "off-set points" to refer to the points where joints return to the back of the curb.

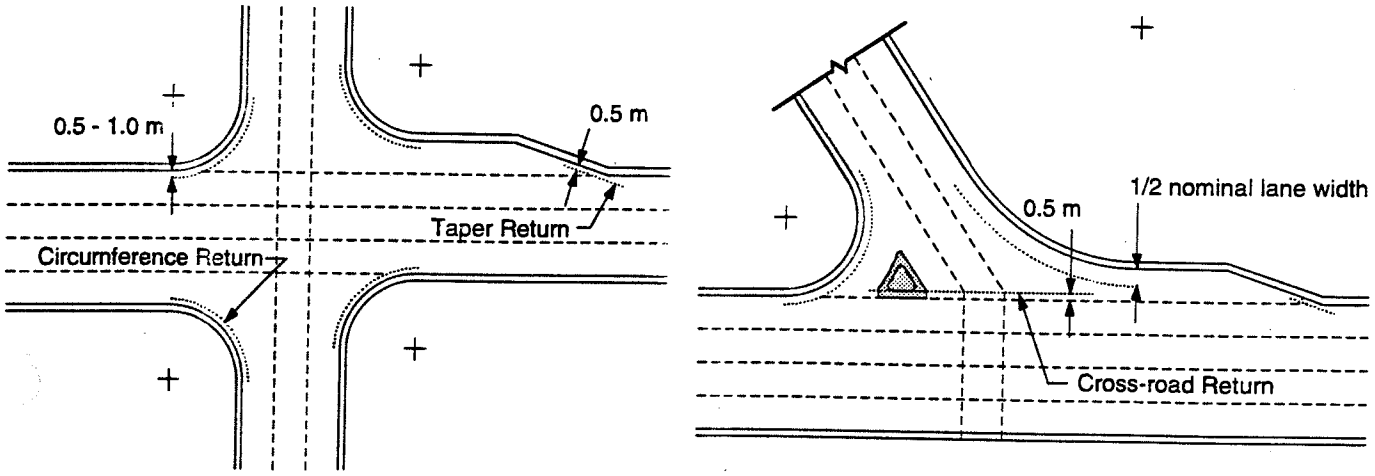
Taper-Return Line: A lightly drawn line 0.5 m (1.5 ft) from the face of the gutter at the start of a turn lane taper. Any longitudinal joint that meets a taper-return line defines a location for a dogleg in the gutter.

Cross-Road Return Line: A lightly drawn line 0.5 m (1.5 ft) from the edge of a the mainline roadway at a skewed intersection. Any cross-road longitudinal joint will meet a transverse joint for the mainline roadway at the cross-road return line.

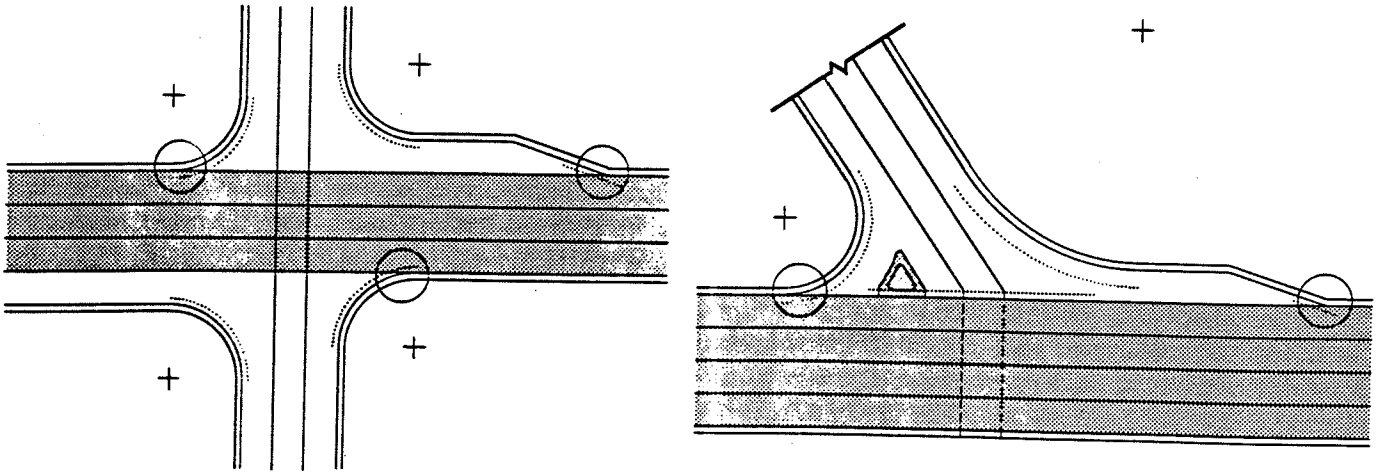
Intersection Box: The box formed by the edge of the mainline and intersecting paving lanes (including turning lanes).



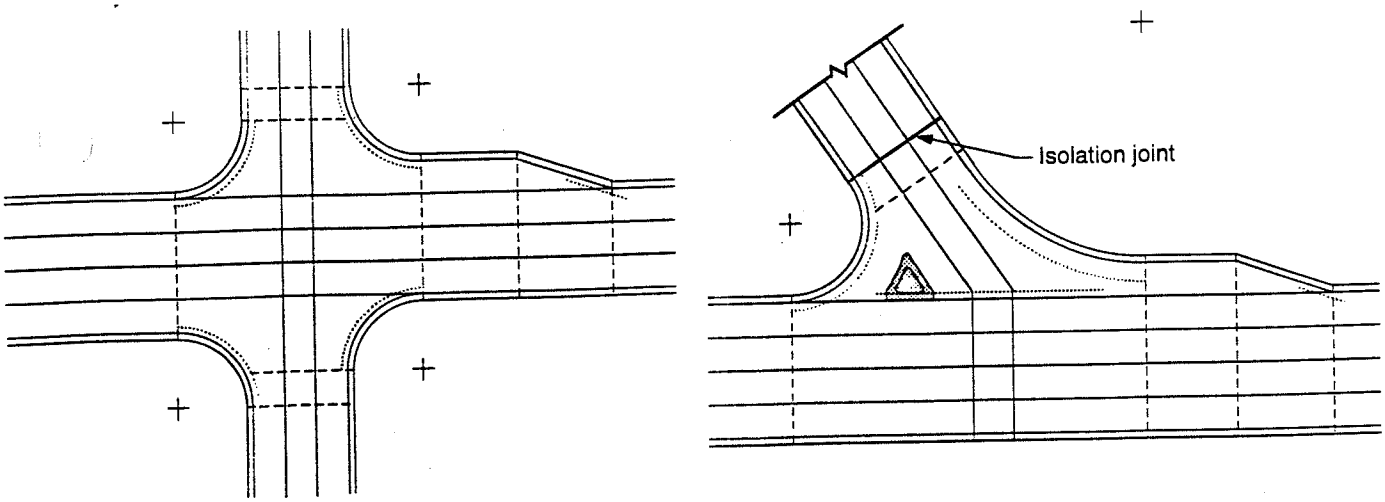
Step 1: Draw all pavement edge and back-of-curb lines on the plan view.



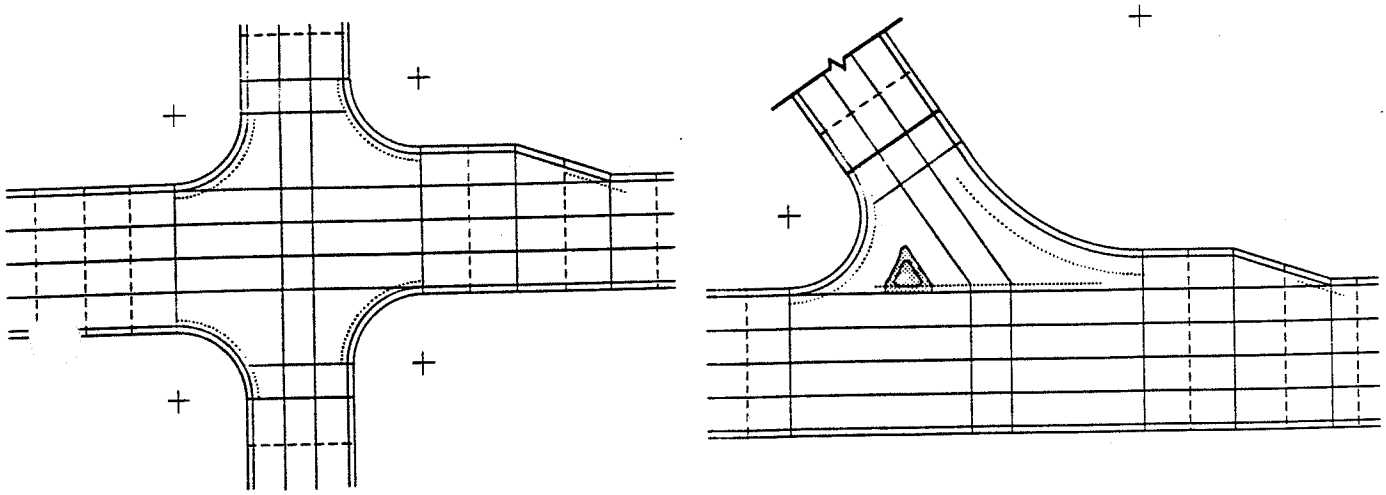
Step 2: Lightly draw the circumference-return, taper-return, and the cross-road-return line(s).
Step 3: Draw all lines that define lanes on the mainline and cross road. (Do not extend these lines past the circumference-return, taper-return or cross-road-return lines.)



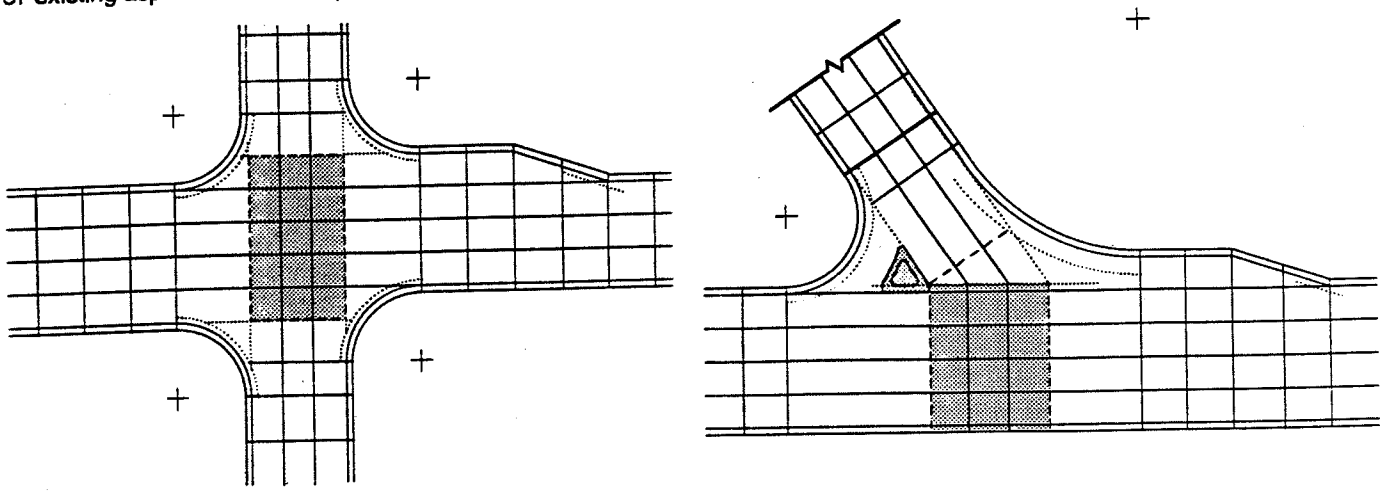
Step 4: Define the mainline lanes for paving. Find all locations where the mainline lanes intersect circumference-return or taper-return lines. At these locations only, extend the mainline paving edge lines past the circumference-return or taper-return line(s). Any block-outs for doglegs at these locations are preferable in the gutter for the curb.



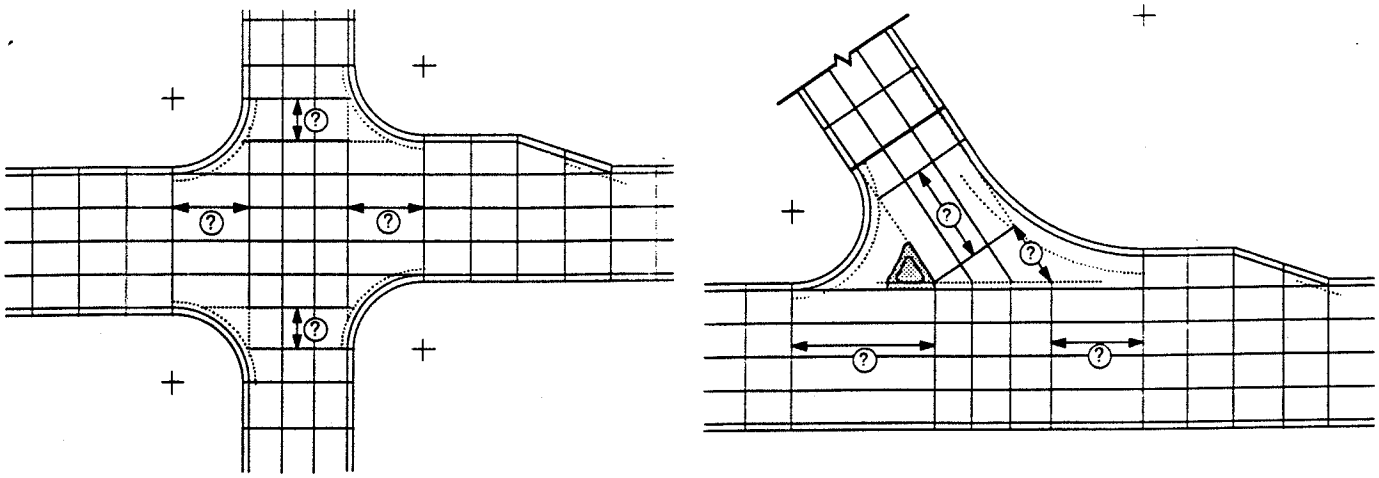
Step 5: Add transverse joints at all locations where the pavement changes width, extending the joints through the curb and gutter. Do not extend joints that intercept a circumference-return or cross-road-return line, except at the tangent points. The joint at the tangent point farthest from the mainline becomes an isolation joint in the cross road for T- and unsymmetrical intersections.



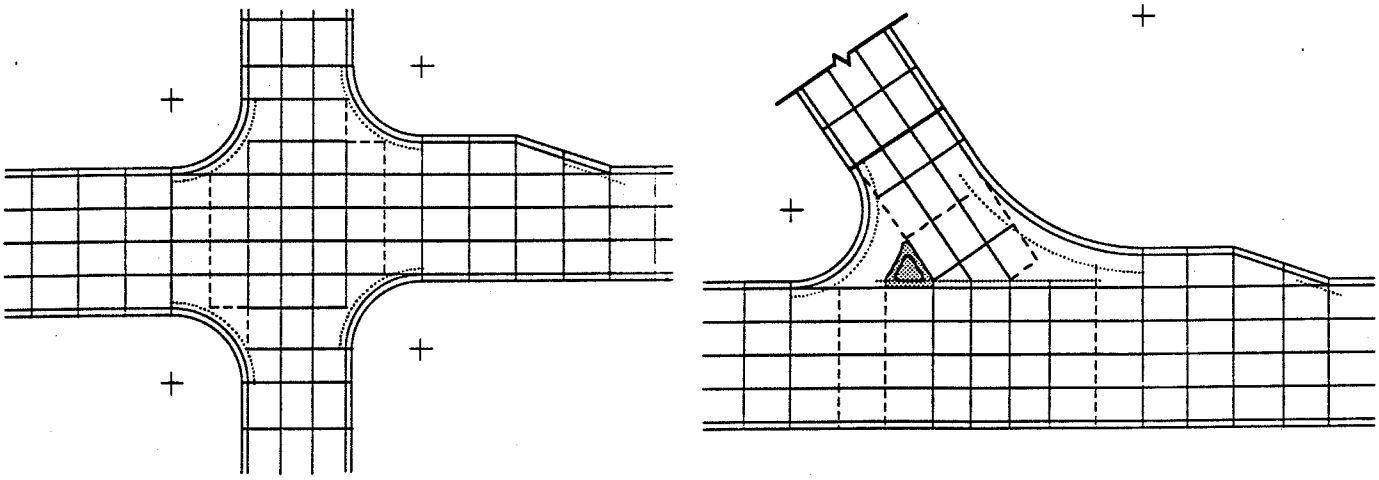
Step 6: Add transverse joint(s) between and beyond the joints you defined in Step 5, but do not add joints to the center of the intersection yet. Attempt to keep the distance between joints less than the maximum desirable length. Usually the maximum length is about 4.5 m (15 ft). (To calculate: ML = Dx24 for slabs on granular or unstabilized subbases; ML = Dx21 on stabilized subbases or existing asphalt or concrete pavements; ML=maximum length; D=slab thickness.)



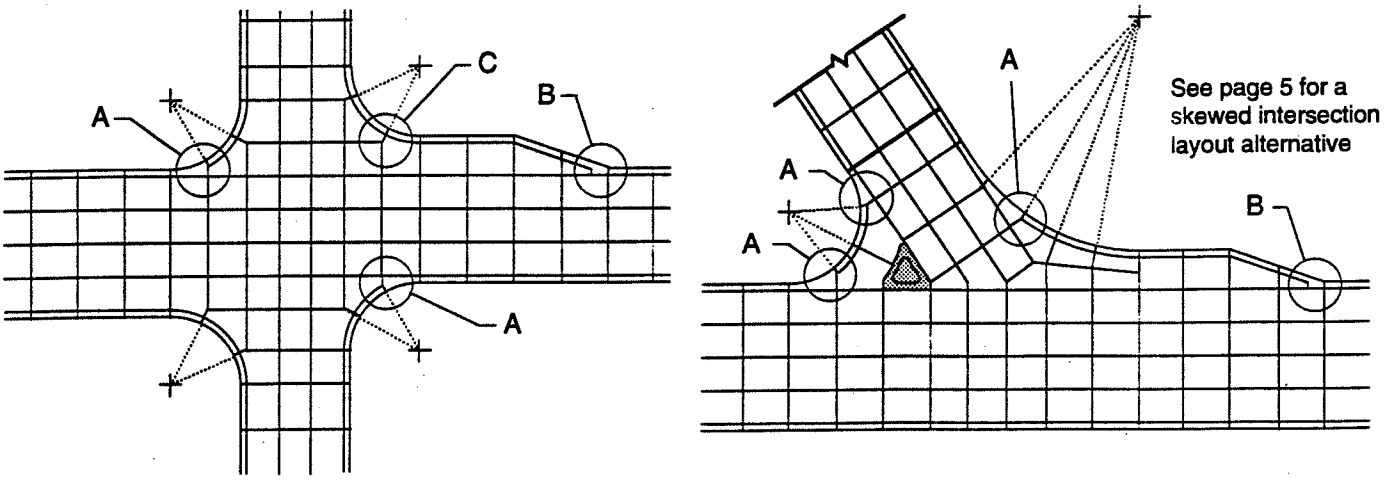
Step 7: By extending the edge of pavement lines for the cross road and any turning lanes, define the intersection box. (Note: For skewed intersections do not extend the lines for the turning lanes. Instead, place a transverse joint normal to the cross road centerline starting from the corner of the intersection box that is nearest to the acute angle of the intersection.)



Step 8: Check the distances between the "intersection box" and the surrounding joints.

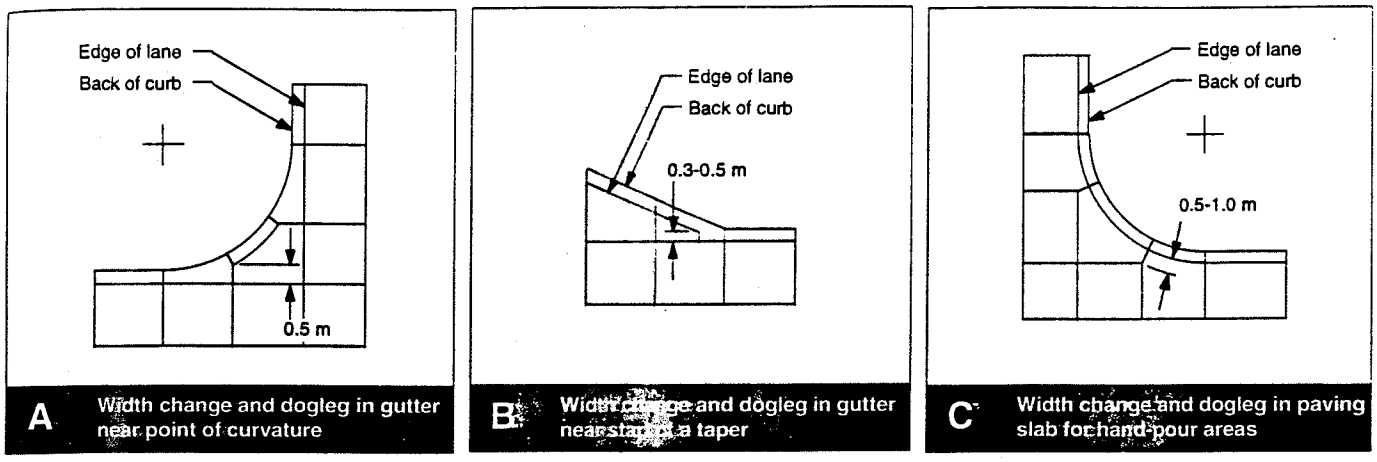


Step 9: If the distance is more than the maximum desirable joint spacing, then add transverse joint(s) at an equal spacing. Do not extend these joints past the circumference-return or cross-road-return lines.



See page 5 for a skewed intersection layout alternative

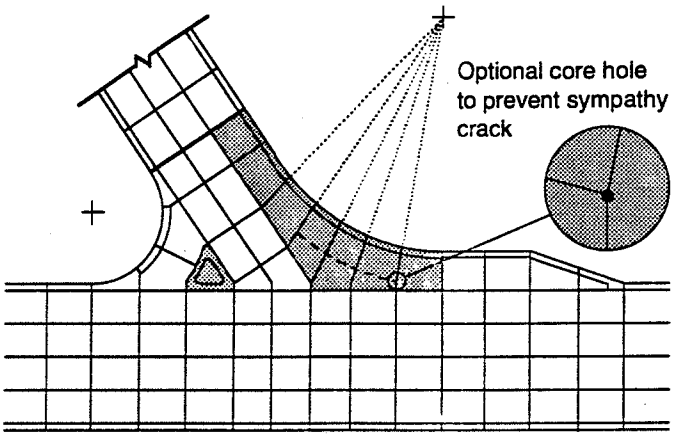
Step 10: Lightly extend lines from the center of the curve(s) to the points defined by the "intersection box," any intermediate joints surrounding the "intersection box" and point(s) along any islands. Add joints along these radius lines. Finally, make slight adjustments to eliminate doglegs in mainline edges. (See details on page 5.)

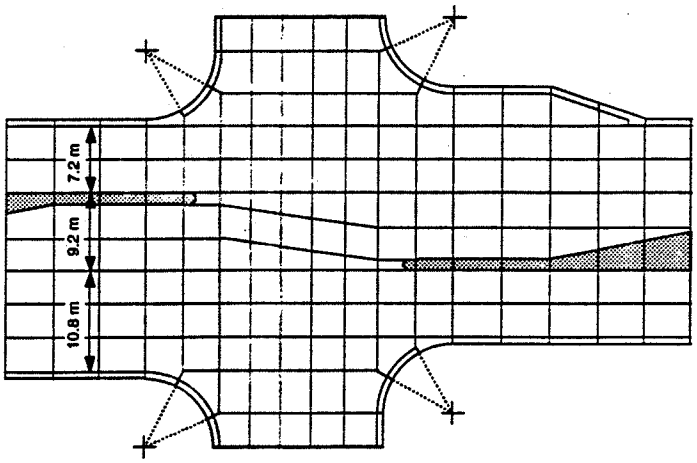


Skewed Intersection Layout Alternative

This alternative for a skewed intersection is useful for simple curve radii greater than 11 m (36 ft) and offset or compound radius curves. It can simplify field construction when the contractor builds the curve area in a single hand pour (indicated by the shaded area).

It is necessary to add an additional longitudinal joint near the center of the slabs that exceed 5 m (15 ft) wide. The additional joint should prevent the occurrence of a longitudinal crack. It is desirable to begin and end the additional longitudinal joint at a transverse joint, as shown in the diagram. Some agencies core a small 50-mm (2-in.) hole through the slab at the ends of this longitudinal joint to prevent sympathy cracking (see diagram).





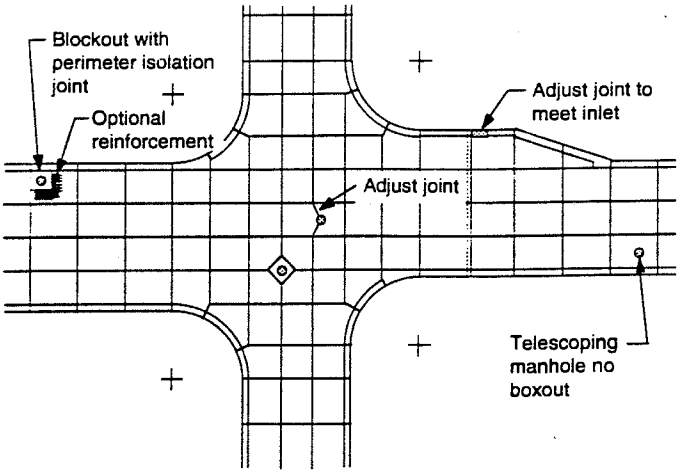
Handling Wide Medians and Dual-Left Turn Lanes

Large urban and suburban intersections that contain dual-left turn lanes, create joint alignment challenges. The medians in these large intersections are often up to 9.2 m (30 ft) wide. The diagram shows how to skew joints through the intersection box in order to maintain the joints along the lane lines for dual-left turn lanes. The ability to use this method will depend on construction staging; it is just one option to apply for complex intersections.

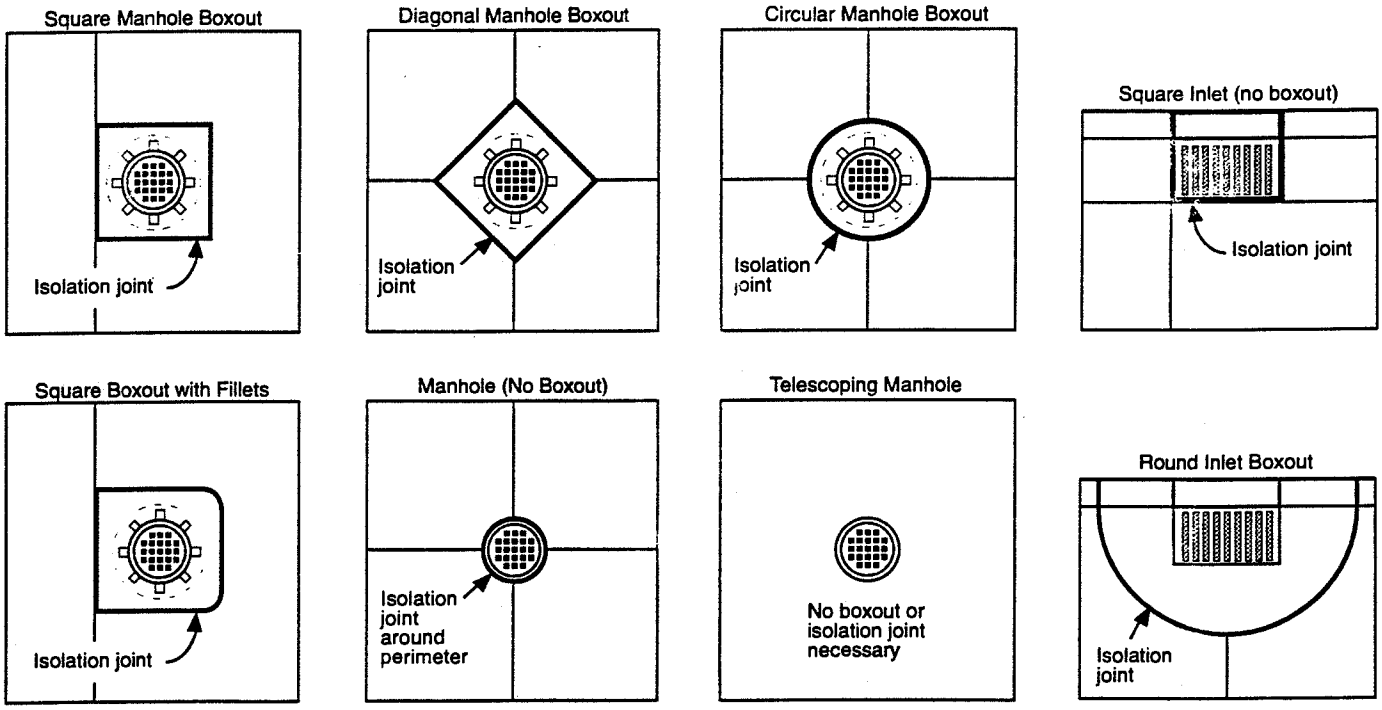
...sting Joints for Utility Fixtures

After developing the jointing plan, plot any catch basins, manholes or other fixtures that are within the intersection. Non-telescoping manholes will require a boxout or isolation to allow for vertical and horizontal slab movement. Consider using rounded boxouts or placing fillets on the corners of square boxouts to avoid crack-inducing corners. Also for square boxouts, wire-mesh or small-diameter reinforcing bars in the concrete around any interior corners will hold cracks tight should they develop. Telescoping manholes can be cast integrally within the concrete, and do not necessarily require a boxout. The two-piece casting does not inhibit vertical movement and is less likely to create cracks within the pavement.

Finally, when a joint is within 1.5 m (5 ft) of a fixture, it is desirable to adjust the joint so that it will pass through the fixture or the boxout surrounding the fixture. The diagram on the right shows several acceptable ways to skew or shift a joint to meet a fixture.



Details for Boxing Out Fixtures



Notes: 1. Isolation joints should be at least 12 mm (1/2 in.) wide and filled with a compressible material.
2. Boxouts should be large enough to provide at least 0.3 m (1 ft) clearance between the fixture and the surrounding isolation joint.

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Skokie, IL 60077-1059

Printed in U.S.A.

DISTRICT 2 PAVING MATERIAL WARRANTS GUIDE

Preface: Choosing the best paving material is one of the most important aspects of a successful project. Always visit the job site and take note of the pavement condition, especially at critical areas such as intersections, before making this choice.

NOTE: Consult your Project Engineer and Mixtures Section in Materials for recommendations. Also, use the ESAL CALCULATIONS program (see D2 SP HMA Guide tab) and BDE Chapter 53 for choosing mix parameters.

RESURFACING PROJECTS

- **HOT-MIX ASPHALT SURFACE COURSE, SPECIAL (thickness 4" or less)**

  1. Any road with an aggregate base. The following are examples:
     Frontage Roads
     State Parks
     Detours (On County & Township Roads or City Streets)
     Reconstructed City Streets, County & Township

- **POLYMER WARRANTS (Extreme Duty Applications)**

  Note: Always consult with the District Mixtures Section when polymer warrants are met. Minimum polymer job size is 400 tons.

  1. All 6 thru lane intersection resurfacing projects.
  2. Intersection resurfacing projects with a -3% or greater grade leading into a stop or turn deceleration condition.
  3. All Interstate.
  4. Existing visible shoving and rutting. Always investigate cause to determine if milling or base repair is necessary. Consult the Mixtures Unit and the Soils Unit in the Materials Section.
  5. All N90 and greater (High end N70 should be considered).
     Note: The surface and binder course on full-depth pavement will be polymer, PG 64-28, PG 70-28 or PG 76-28.

- **MIX E WARRANTS (Skid Resistant Applications)**

  Note: The use of Mix E has little to do with the load carrying capacity of the pavement. It is used only to improve skid resistance.

  1. 25,000 ADT to 100,000 for 4 lanes.
  2. 60,000 ADT to 100,000 for 6 lanes.

- **MIX F WARRANTS (Skid Resistant Applications)**

  Note: The use of Mix F has little to do with the load carrying capacity of the pavement. It is used only to improve skid resistance.

  1. Wet weather accident locations.
  2. Any location which was overlaid with the "old" E or E Special (usually Type 1 or 2)
  3. Any location which was overlaid with a Superpave Mix F.
  4. Greater than 100,000 ADT on 4 or 6 lanes.

RECONSTRUCTION & NEW CONSTRUCTION

- **CONCRETE OR AC ≥ 90 WARRANTS AT INTERSECTIONS**

  Note: Unless a safety consideration, warrants are for reconstruction and new construction projects. See BDE Section 54-1.05.

D2 HMA GUIDE

TERMINOLOGY

1)	HMA	Hot Mix Asphalt
2)	BC	Binder Course
3)	SC	Surface Course
4)	P	Polymer
5)	LB HM	Level Binder Hand Method
6)	LB MM	Level Binder Machine Method
7)	IL	Illinois
8)	L	Low Volume Traffic only, See Mixtures Unit of Materials
9)	FG	Fine Graded mix design
10)	SMA	Stone Matrix Asphalt, high level mix for extreme traffic
11)	25	25 mm (1") nominal aggregate size (Older Binder Mix A)
12)	19.0	19 mm (3/4") nominal aggregate size (Old Binder Mix B)
13)	19.0 L	19 mm (3/4") nominal aggregate size Low Volume
14)	12.5	12.5 mm (1/2") nominal aggregate size
15)	9.5	9.5 mm (3/8") nominal aggregate size
16)	9.5L	9.5 mm (3/8") nominal aggregate size Low Volume – contact Mixtures Unit of Materials
17)	N	Number of gyrations on a gyratory compactor. Refers to the compactive effort in the mix design. A low "N" would be used for low traffic loading, i.e. N50. A high "N" for high traffic loading, i.e. N105.
18)	"C"	Lowest friction quality bituminous mixture, allowed only on low to moderate traffic volume roads.
19)	"D"	Moderate friction quality bituminous mixture, allowed on moderate to high traffic volume roads.
20)	"E"	High friction quality bituminous mixture, allowed on high to very high traffic volume roads.
21)	"F"	Very high friction quality bituminous mixture, allowed on high to very high traffic volume roads and accident locations.
22)	PG	Performance Graded
23)	SBS	A common modifier indicating polymer asphalt binder (SBS PG 70-22)
24)	64	Positive 64 degrees Celsius, the high end of the liquid asphalt
25)	-22	Negative 22 degrees Celsius, the low end of the liquid asphalt

How to Specify

1. Obtain needed information
   a) Lift thickness
   b) 10 year traffic – Calculate avg. of 20 year Esals
   c) Existing pavement problems, rutting, cracking?
   d) Type of traffic movements, slow, stopping, turning
   e) Needed surface friction, HES project, **existing friction aggregate type**, accident types and numbers, grade or geometric conditions

2. Choose aggregate top size
   a) For Binder Course and Level Binder 2¼" and over in thickness, use HMA BC IL-19.0 (¾" aggregate) or 19.0FG
   b) For Level Binders 1½" to 2¼", use LB MM IL-12.5 (½" aggregate)
   c) For Level Binders under 1½", use LB MM IL-9.5 (3/8" aggregate) or 9.5FG
   d) For Surface Lifts 1½" and over, use HMA SC "C, D, E or F" IL-9.5
   e) For Surface Lifts under 1½", use HMA SC "C, D, E or F" IL-9.5

3. Choose the compaction level
   a) For ESALs <0.3, use N30 (old Type III mixes, frontage roads, etc.) **District 2 uses N50 at 3% voids instead of N30**
   b) For ESALs 0.3 to 3, use N50 (old Type II mixes, normal duty 2-lane roads)
   c) For ESALs 3 to 10, use N70 (old Type I mixes for 4-lanes, heavy 2-lane intersections)
   d) For ESALs 10 to 30, use N90 (old Type I heavy traffic interstates and major urban intersections)
   e) For ESALs exceeding 30, use N105

4. Choose the Surface Friction Aggregate Type
   a) For 0 to 5,000 ADT, use "C"
   b) For 2 & 4 lane 5K to 25K ADT, use "D"
   c) For 6-lane under 60k ADT, use "D"
   d) For 4-lane 25k to 100k ADT, use "E"
   e) For 6-lane 60k to 100k ADT, use "E"
   f) For 100k ADT, use "F"
   g) For high accident locations due to skidding, use friction aggregate "F"
   h) For locations with existing high friction aggregate (old E Mix or new F Mix), use "F"

5. Choose Asphalt Grade
   a) For a & b above, use PG 64-22 (moderate to high traffic)
   b) For c & d above, use SBS PG 70-22 (polymer) (high traffic)
   c) For e & f above, use SBS PG 76-22 (heavy duty polymer) (high/heavy traffic)
   d) For shoulders, widening or frontage roads, use PG 64-22
   e) For more severe conditions, "bump" up on asphalt grade, i.e. stop, turning, trucks
   f) For large full depth pavement projects, use -28

Example:
The project's 10-year Structural Traffic is 14,500 ADT with 13,000 PV, 800 MU, 700 SU. It is an urban 2-lane with multiple intersections. We will place 1" of Level Binder and 2 ¼" additional of binder with 1 ½" of surface mix. The existing surface is a high friction type due to past skidding accidents. Rutting is evident at the intersections. Calculate 20 year Esals = 5.1 The job is in English.

For each mix we begin by determining the following from the above information:

Level Binder Mix

Choose Aggregate Top Size	= IL 9.5FG
Choose Compaction Level	= N70
Choose Asphalt	= PG 64-22

Binder Mix

Choose Aggregate Top Size	= HMA BC SUP IL-19.0
Choose Compaction Level	= N70
Choose Asphalt	= PG 64-22

Surface Mix

Choose Aggregate Top Size	= 9.5
Chose Friction Aggregate Type	= D
Choose Compaction Level	= N70
Choose Asphalt	= PG 64-22

Due to the stop conditions at the intersections and rutting, we decided to “bump” from PG 64-22 to polymer asphalt SBS PG 70-22. For safety reasons, we must use “F” friction aggregate since the existing surface is a high friction type aggregate. Therefore, our pay items are:

40600837	P Lev Bind MM N70	TON
40603235	P HMA BC IL 19.0 N70	TON
40603590	P HMA SC “F” N70	TON

We are attempting to simplify the pay items supplied by Springfield. Pay Items shown **bold** on the attached list will typically be what our District will be using.

If you are unsure what to specify, see the Mixtures Control Engineer in Materials. Be sure to obtain all the information needed before initiating contact.

SUPERPAVE ESAL CALCULATION

Contract:
Route:
Description:

Instructions: Enter the present ADT, PV, SU, MU, #lanes, U or R, DP and % growth under the traffic heading.
Also enter the number of growth years to the 10 year traffic or use 10 year with 0 growth.

TRAFFIC

		Present	Future	
(Average daily traffic)	ADT	14500	14500	
(Passenger vehicles)	PV	13000	13000	
(Straight trucks)	SU	800	800	
(Semis)	MU	700	700	
(Total travel lanes)	# LANES	2	2	
(Urban or Rural)	U or R ?	u	u	
(Calc the 10 year traff)	Growth yrs	0	20	Design period years
	% Growth	2		

Growth yrs = 0 if using 10 yr traffic

Results	
CLASS	2
P factor	0.5
S factor	0.5
M factor	0.5
ESALS	**5.1**

Compaction Level	N70
Surface Friction Aggregate Type	D

Street Classification Equations	
Class I	6.04492
Class II	5.07621
Class III & IV ADT > 400	4.99343
Class III & IV ADT < 400	4.9328

Notes:

Traffic and the design period can be obtained from the project report in Studies or from the Designer. Other sources are traffic maps available from the Programming section of the Bureau of Program Developement. All formulas and multiplication factors were taken from the IDOT design manual section 7 - 300 for composite pavements. Paragraph one explains the assumptions made for using these figures. 80,000 lbs trucks are also assumed. Slow moving traffic may require increasing the upper temperature value for PG graded asphalt.

PI/shared/mixtures/lotus/ESALS

N70 (normal)

Mixture Uses(s):	Surface	Level Binder	Binder	Top Shoulder	Bottom Shldr
PG:	PG 64-22	PG 64-22	PG 64-22	PG 58-22	PG 58-22
RAP%: (Max)	10	15	15	30	50
Design Air Voids	4.2 @ N70	4.2 @ N70	4.2 @ N70	3 @ N50	2 @ N50
Mixture Composition (Gradation Mixture)	IL 9.5 or 12.5	IL 9.5	IL 19.0	IL 9.5 or 12.5	BAM
Friction Aggregate	D	N/A	N/A	C	N/A
20 Year ESAL				N/A	N/A

Full-depth pavement will have SBS PG 64-28 when over 500 tons

N70 (high level)

Mixture Uses(s):	Surface	Level Binder	Binder	Top Shoulder	Bottom Shldr
PG:	SBS PG 70-22	SBS PG 70-22	SBS PG 70-22	PG 58-22	PG 58-22
RAP%: (Max)	0	0	0	30	50
Design Air Voids	4.2 @ N70	4.2 @ N70	4.2 @ N70	3 @ N50	2 @ N50
Mixture Composition (Gradation Mixture)	IL 9.5 or 12.5	IL 9.5	IL 19.0	IL 9.5 or 12.5	BAM
Friction Aggregate	~~D~~ F	N/A	N/A	C	N/A
20 Year ESAL				N/A	N/A

Full-depth pavement will have SBS PG 70-28 when over 500 tons

RECOMMENDED SPACING OF DITCH CHECK MATERIALS BASED UPON THE PERCENT OF SLOPE

PERCENT SLOPE IS THE AMOUNT OF ELEVATION CHANGE OR, FALL IN 100'

The 1' height is recommended

% SLOPE	HT. AT CENTER / OVERFLOW PT.OF DITCHCHECK	SPACING OF DITCHCHECK IN FT.	
8%	1.0'	13'	
	1.5'	20'	
	2.0'	26'	
7%	1.0'	14'	
	1.5'	21'	
	2.0'	28'	
6%	1.0'	17'	
	1.5'	26'	
	2.0'	34'	
5%	1.0'	20'	
	1.5'	30'	
	2.0'	40'	
4%	1.0'	25'	
	1.5'	38'	
	2.0'	50'	
3%	1.0'	33'	
	1.5'	50'	
	2.0'	66'	
2%	1.0'	50'	
	1.5'	75'	
	2.0'	100'	
1%& BELOW	1.0'	100'	
	1.5'	150'	
	2.0'	200'	

IF IT IS KNOWN THAT YOU WERE DEALING WITH (HIGHLY) ERODIBLE SOILS, AND OR, YOU KNOW THAT YOUR DITCH WILL BE RECEIVING A LARGE SHEET FLOW OF SURFACE WATER DUE TO THE TOPOGRAPHY OF SURROUNDING FIELDS, THEN MULTIPLY THE ABOVE SPACING BY 0.9 TO REDUCE THE DISTANCE BETWEEN STRUCTURES.

THE ABOVE CALCULATIONS WERE DERIVED BY DIVIDING THE HEIGHT OF THE DITCHCHECK BY THE % SLOPE. EXAMPLE

BALE (1.5')
SLOPE (.05)
EQUALS 30 FT SPACING

Estimating Unit (11-72)
Revised (2-80)
Revised (7-80)

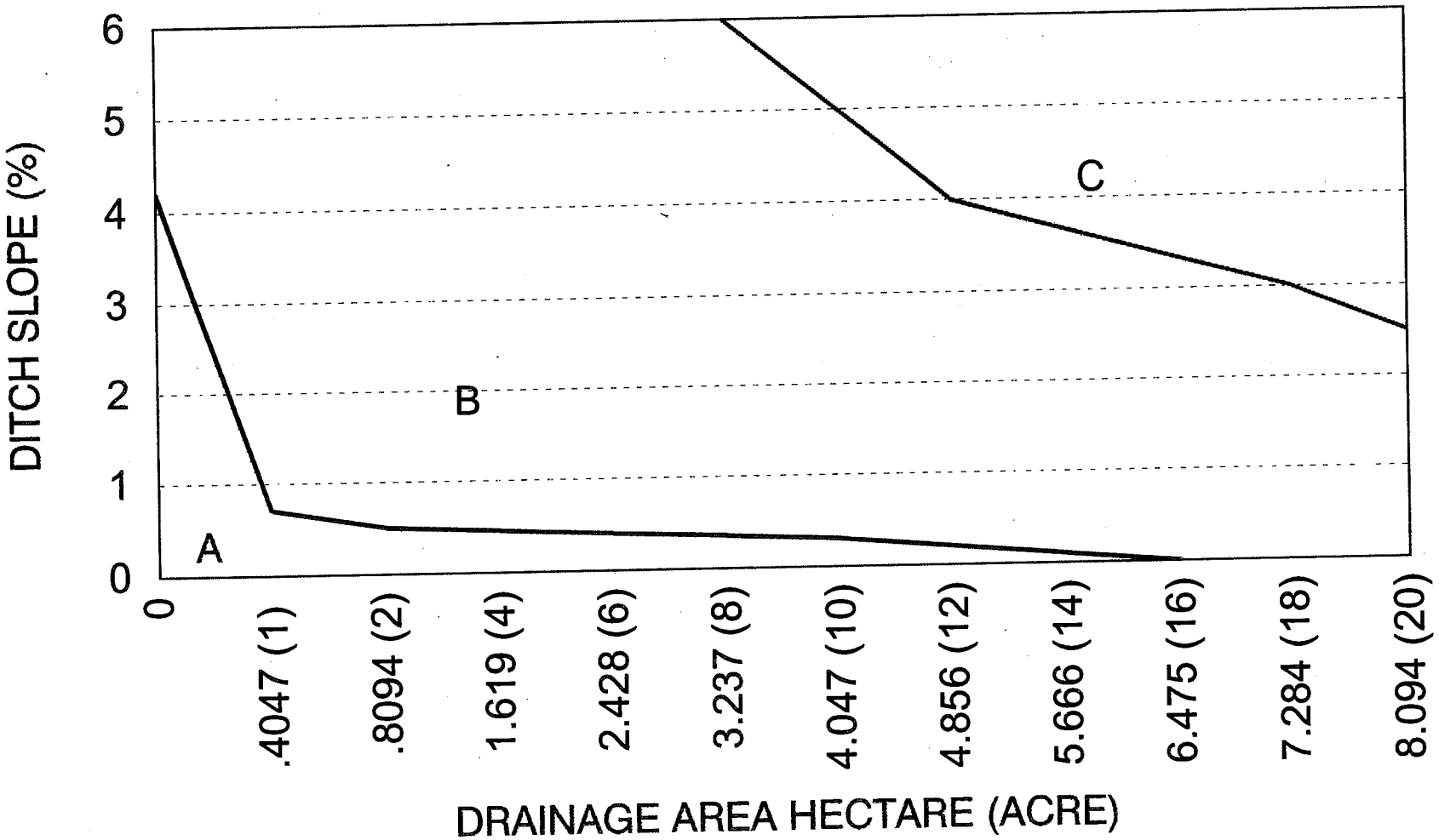
DATA FOR UNIT COST OF EARTH EXCAVATION

EQUIPMENT SPREAD	PRODUCTION CU. YDS./MO	PRODUCTION CU. YDS/DAY*	EQUIPMENT DEPRECIATION	MOVE IN FACTOR	LABOR FACTOR	FUEL, OIL, GREASE & REPAIR FACTOR	BRUSH & WEED DISPOSAL FACTOR
0. Wheel Tractor & Scraper - Up to 2,000 Ft. Average Haul - Large Quantity	211,600	11,756	0.588	988	0.018	0.519	
1. Wheel Tractor & Scraper - Up to 2,000 Ft. Average Haul	115,220	6,401	0.660	714	0.026	0.568	
2. Wheel Tractor & Scraper - Maximum 1300 Ft. Average Haul	92,700	5,150	0.480	369	0.026	0.509	
3. Wheel Tractor & Scraper - Maximum Ft. Average Haul - Limited Working Area	50,600	2,811	0.611	306	0.037	0.535	
4. Crawler Tractor & Scaper - Maximum 400 Ft. Average Haul - Wet Excavation	66,200	3,678	0.586	264	0.025	0.363	Two Lane 1.25
5. Motor Grader & Wheel Tractor & Scraper - Pregrading or Shoulder Widening & Ditching	18,400	1,022	0.814	171	0.060	0.703	
6. Wheel Type Enloader & Trucks - Maximum 1 Mile Average Haul - Borrow Excavation	49,900	2,772	0.819	317	0.053	0.729	
7. Track Type Enloader & Trucks - Maximum 1 Mile Average Haul - City Work	15,300	850	1.651	216	0.137	1.369	Four Lane 2.50
8. Dragline & Trucks - Cast, Load, Waste Maximum 1 Mile Average Haul - Extreme Wet Excavation	11,400	633	1.374	203	0.124	0.943	
9. Motor Grader W/Elevating Loader & Trucks - Maximum 1 Mile Average Haul - Pavement Widening	10,000	556	0.919	90	0.143	0.732	
10. All Purpose Excavator W/Trucks - Waste Maximum 1 Mile Average Haul - Bridge & Misc. Clean Up & Sloping	5,700	317	1.228	66	0.180	1.869	
11. Wheel Type Enloader W/Off Highway Trucks - Maximum 1 Mile Average Haul Large Rock Excavation	34,500	1,917	1.908	406	0.066	1.472	

*Calculated using 18 working days per month.

Move In	=	Move In Factor X Scraper Operator Rate X Number Of Equipment Spreads Required / Volume
Labor	=	Labor Factor X Scraper Operator Rate
Brush & Weed Disposal	=	Brush & Weed Disposal Factor X Scraper Operator Rate X Stations / Volume
Fuel, Oil, Grease & Repair	=	Factor Times Cost of Dielsel Fuel Per Gallon "$/Gallon"

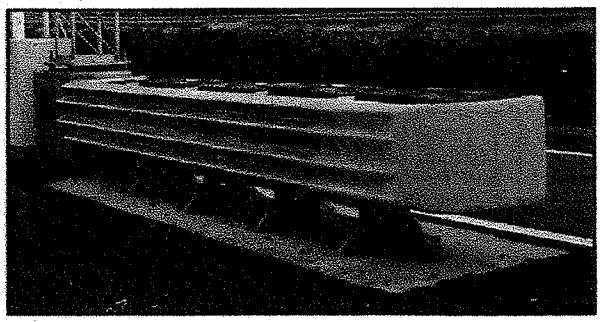
DITCH LINING HELP SHEET



A NO LINING 0-3
B EROSION CONTROL 3-6
BLANKET
C FIBER MAT (RR3) 6-12
D STONE LINED DITCH >12

DITCH LINING HELP SHEET

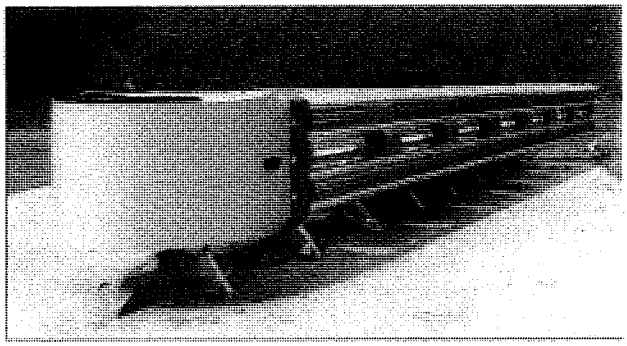
Quadguard



Performance:
Meets NCHRP 350 TL 2 & TL 3 Redirective/Nongating
Unit Size:
2ft. to 7ft. 6in. wide x 12ft. 9in. to 38ft. 8in. long
Pad Requirement: yes, concrete
Connects to: Generic
Self Restoring: no
Function: The system telescopes rearward and crushes the cartridges to absorb the energy of the impact. The telescoped unit is pulled out and the crushed cartridges replaced after an impact.
Manufacturer: Energy Absorption Systems

Quadguard Elite

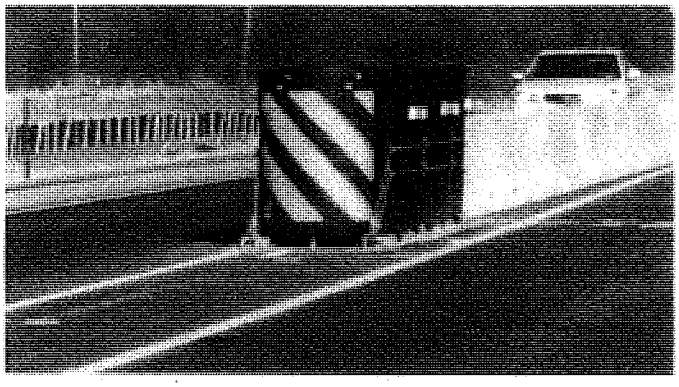
Performance:
Meets NCHRP 350 TL 2 & TL 3 Redirective/Nongating
Unit Size:
2ft. to 7ft. 6in. wide x 12ft. 9in. to 38ft. 8in. long
Pad Requirement: yes, concrete
Connects to: Generic
Self Restoring: yes
Function: The system telescopes rearward and condenses the HDPE cylinders to absorb the energy of the impact. The HDPE cylinders will regain their shape after the event.
Manufacturer: Energy Absorption Systems



CAT-350

Performance:
Meets NCHRP 350 TL3 Redirective/Gating
Unit Size:
2ft 7in. x 31ft. 3in.
Pad Requirement: no
Connects to: Guardrail, Concrete Barrier
Self Restoring: no
Function: During a head on impact the System telescopes shearing the slots in the rail and breaking the wood posts. The components affected during the impact will need to be replaced after the event.
Manufacturer: Trinity Industries

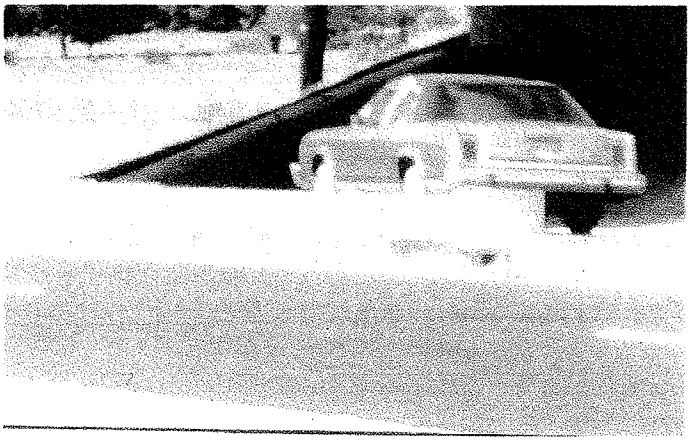
REACT 350



Performance:
Meets NCHRP 350 TL3 Redirective/Nongating
Unit Size:
3ft. x 16ft. 7in. to 31ft. 7in.
Pad Requirement: yes, concrete or asphalt
Connects to: Generic
Self Restoring: yes
Function: During an event the hollow HDPE cylinders collapse to attenuate the impact. After the impact the HDPE cylinders self restore.
Manufacturer: Energy Absorption Systems

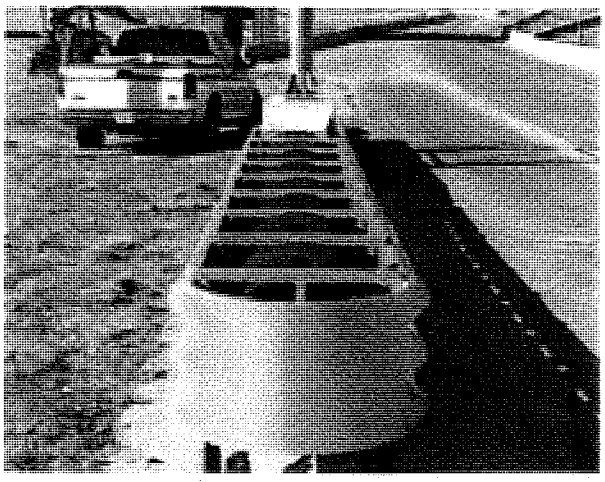
Brakemaster 350

Performance:
Meets NCHRP 350 TL3 Redirective/Gating
Unit Size:
2ft 1in. x 31ft. 6in.
Pad Requirement: no
Connects to: Guardrail, Concrete Barrier
Self Restoring: no
Function: During a head on impact the framework of w-beam guardrail and the diaphrams move rearward. The components affected during the impact will need to be replaced after the event.
Manufacturer: Energy Absorption Systems

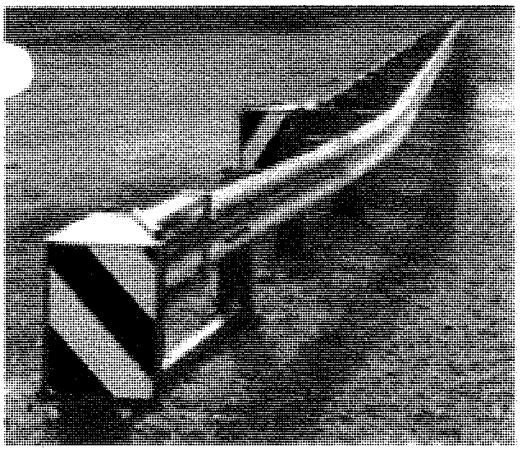


Tau II

Performance:
Meets NCHRP 350 TL 2 & TL 3 Redirective/Nongating
Unit Size:
2ft. 11in. wide x 15ft. 5in. to 26ft. 11in. long
Pad Requirement: yes, concrete
Connects to: Guardrail, Concrete Barrier
Self Restoring: no
Function: During a head-on impact the systems thrie beam side panels telescope rearward and condense the airbags to absorb the energy of the event. The telescoped unit is pulled out and the airbags are replaced after an impact.
. **Manufacturer:** Barrier Systems



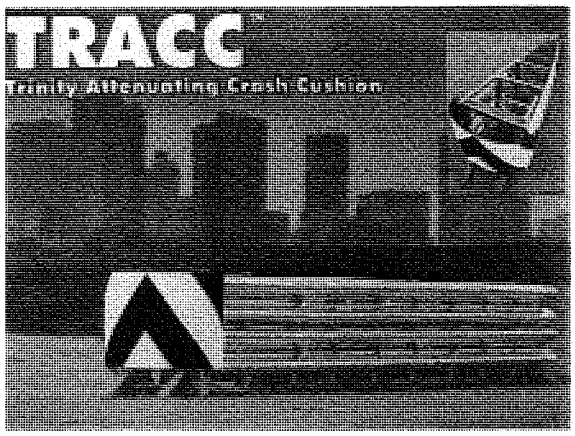
Fleat MT



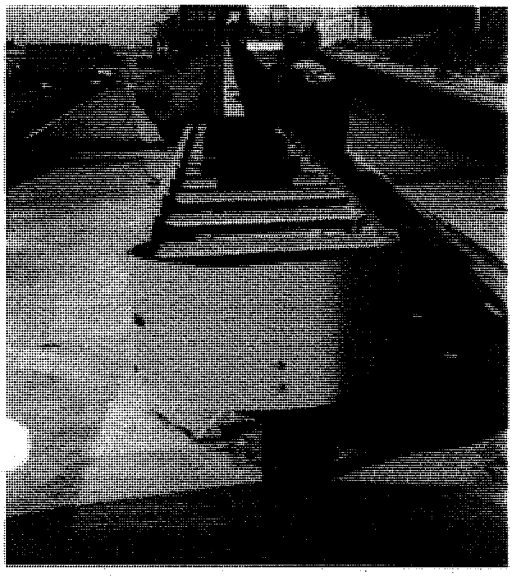
Performance:
Meets NCHRP 350 TL3 Redirective/Gating
Unit Size:
37ft. 6in. long
Pad Requirement: no
Connects to: guardrail
Self Restoring: no
Function: During head on impacts the first impact head pushes back and sequentially kinks the w-beam rail. If the impact is severe the second impact head will operate in the same manner. The components affected during the impact will need to be replaced after the event.
Manufacturer: Road Systems Inc.

TRACC

Performance:
Meets NCHRP 350 TL 2 & TL 3 Redirective/Nongating
Unit Size:
2ft. 7in. wide x 14ft. to 21ft. long
Pad Requirement: yes, concrete or asphalt
Connects to: Concrete Barrier
Self Restoring: no
Function: The system telescopes rearward and engages the cutter which shears the rip plate to absorb the energy of the impact. For cosmetic damage the unit can be repaired in the field. The unit should be replaced after a head-on impact or an event that causes the sled to move
Manufacturer: Trinity Industries

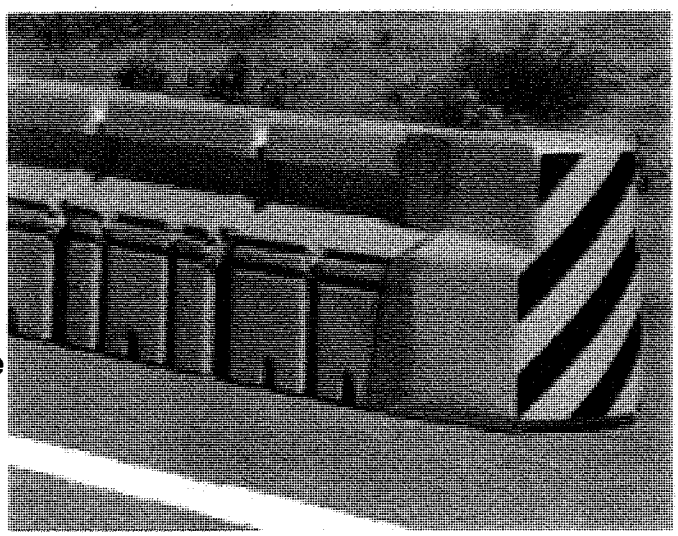


Quadguard LMC

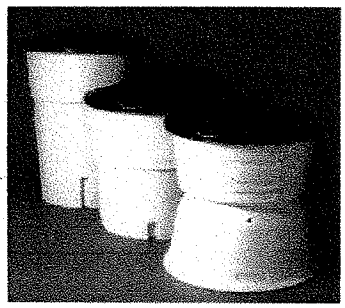


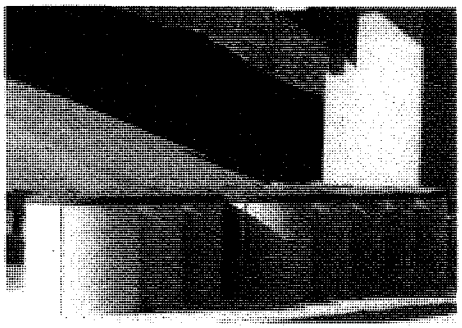
Performance:
Meets NCHRP 350 TL2 & TL3 Redirective/Nongating
Unit Size:
3ft to 7ft 6in. x 14ft. 8in. to 38ft. 8in.
Pad Requirement: yes, concrete
Connects to: Generic
Self Restoring: yes
Function: During an event the hollow elastomeric cylinders collapse to attenuate the impact. After the event the elastomeric cylinders self restore.
Manufacturer: Energy Absorption Systems

Absorb 350



Performance:
Meets NCHRP 350 TL 2 & 3 Non-Redirective/ Gating
Unit Size:
2ft. wide x 3ft. 3-1/2in. long
Pad Requirement: no
Connects to: Concrete Barrier
Self Restoring: no
Function: The system consists of external steel reinforced plastic sections. TL2 applications require five units and TL3 applications require eight units. The front unit remains empty and all other units are filled with approximately 300 gallons of water. After an event it is necessary to replace the damaged units.
Manufacturer: Barrier Systems





Sand Barrels

Performance:
Meets NCHRP 350 TL1, 2 & 3 Non-Redirective/ Gating
Unit Size:
Array sizes vary and are determined by the posted speed and hazard size.
Pad Requirement: no
Connects to: N/A
Self Restoring: no
Function: The system consists of plastic modules that are installed in a specific geometric array. The modules are filled with a varying amount of clean dry sand dependant on the module position and array size. Upon impact the modules break apart to attenuate the event. It is necessary to replace damaged modules after an event.
Manufacturer: Energy Absorption Systems
TrafFix Devices

NCHRP 350 Categories

NCHRP 350 combines end terminals and crash cushions, but separates them into three device types:

1) Redirective – Non-Gating
2) Non-Redirective
3) Gating

A ***Redirective***, *non-gating* crash cushion is designed to absorb vehicle impacts such that it may be impacted head-on and telescope toward the rear, and also be capable of controlling side impacts by smoothly redirecting a vehicle away from the hazard without pocketing or penetration. Redirection is provided over the entire length of the device, therefore, the length of need (LON) is established at the beginning of the device.

A ***Non-Redirective*** crash cushion provides protection when hit head-on by an errant vehicle. It absorbs an impacting vehicle's kinetic energy. However, it does not control a vehicle angle impact and may allow pocketing or penetration. A non-redirective system does allow gating. LON is established at the end/rear of the device.

A ***Gating*** device is one designed to allow controlled penetration. When impacted on the nose or the side of the device at an angle, the system allows the vehicle to pass through. The beginning of LON will vary from system to system. It is typically located near the midpoint. The widely used BCT (Breakaway Cable Terminal) is a gating device.

NCHRP 350 addresses each of the three device types for Test Level 1 (50 km/h), Test Level 2 (70 km/h) and Test Level 3 (100 km/h). The combination of three device types and three performance categories results in the nine potential performance categories.

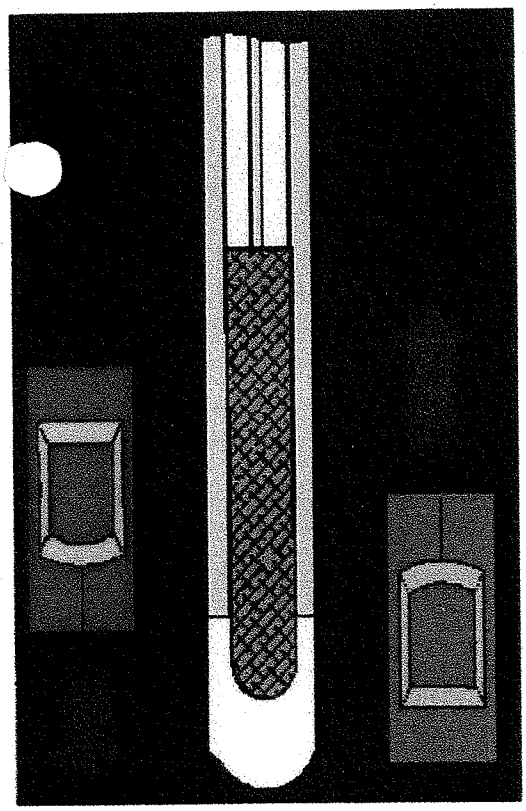
NCHRP 350

Test Level	Speed	Redirective Non-Gating	Redirective Gating	Non-Redirective
1	31mph (50 km/h)	X	X	X
2	43.5mph (70km/h)	X	X	X
3	62.1mph (100km/h)	X	X	X

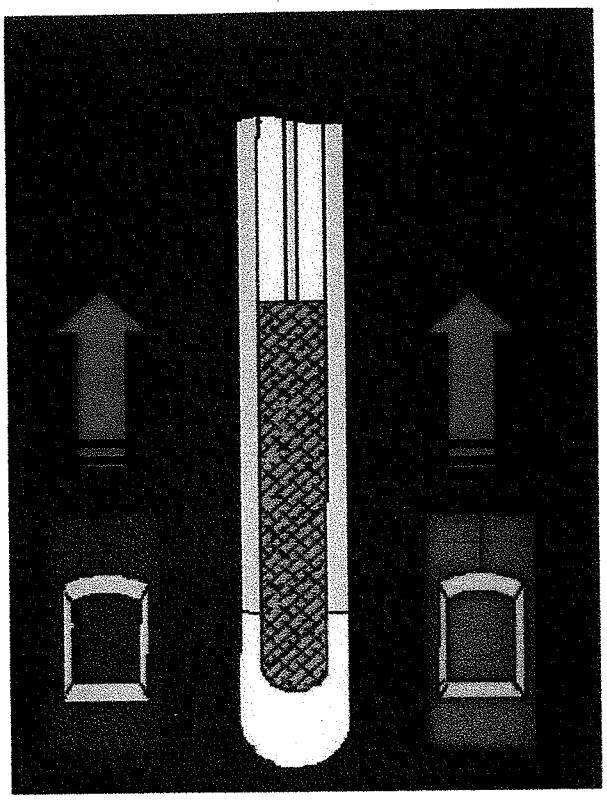
Test Level 1
Acceptable for some work zones and very low-volume, low-speed local streets and highway.

Test Level 2
Acceptable for most local and collector roads and most work zones

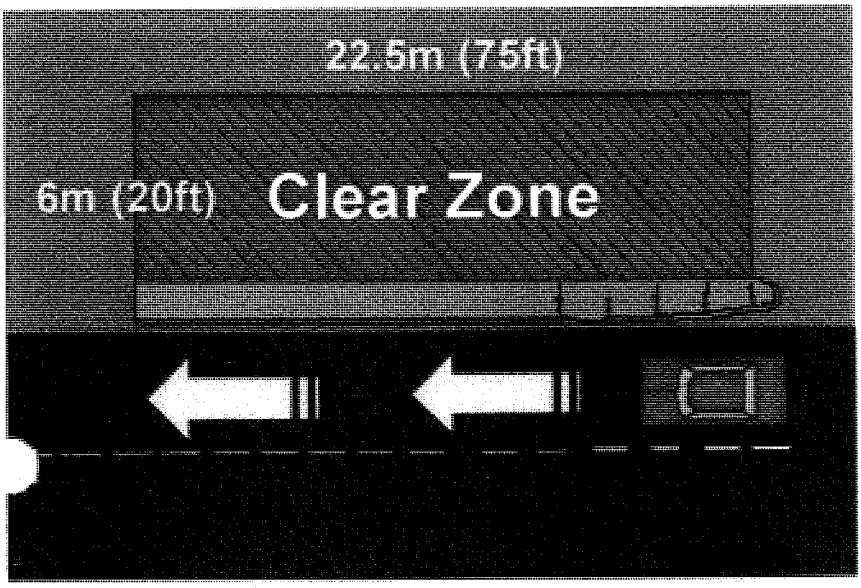
Test Level 3
Acceptable for a wide range of high-speed roadways.



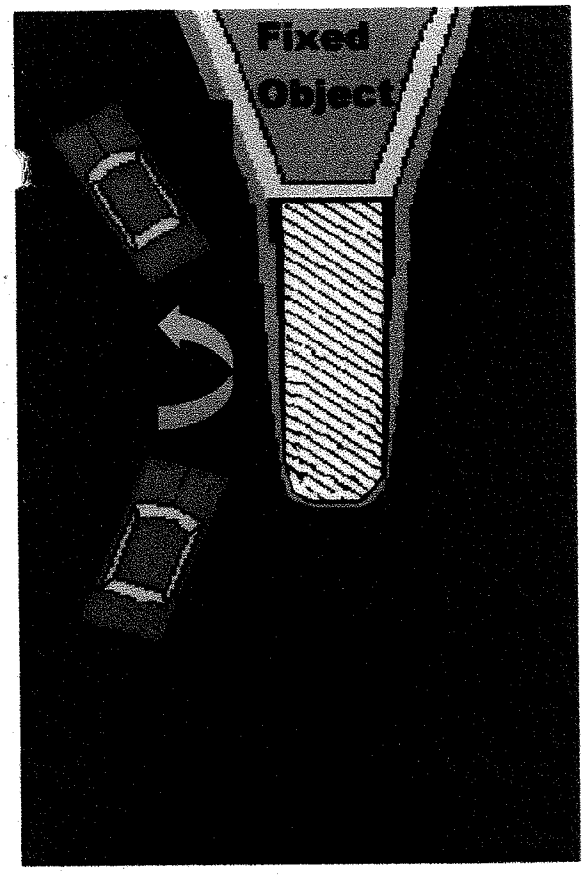
Bi-Directional



Unidirectional

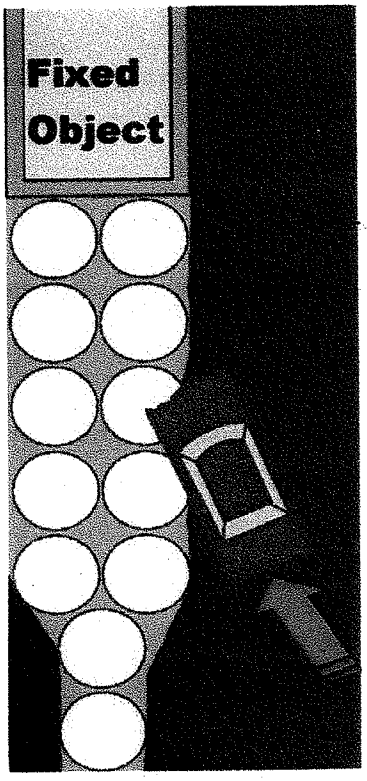


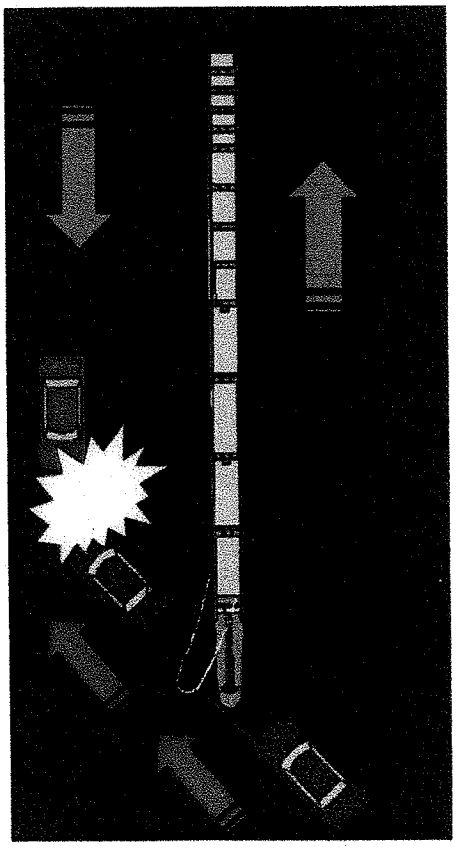
Clear Zone



Redirective

Non-Redirective



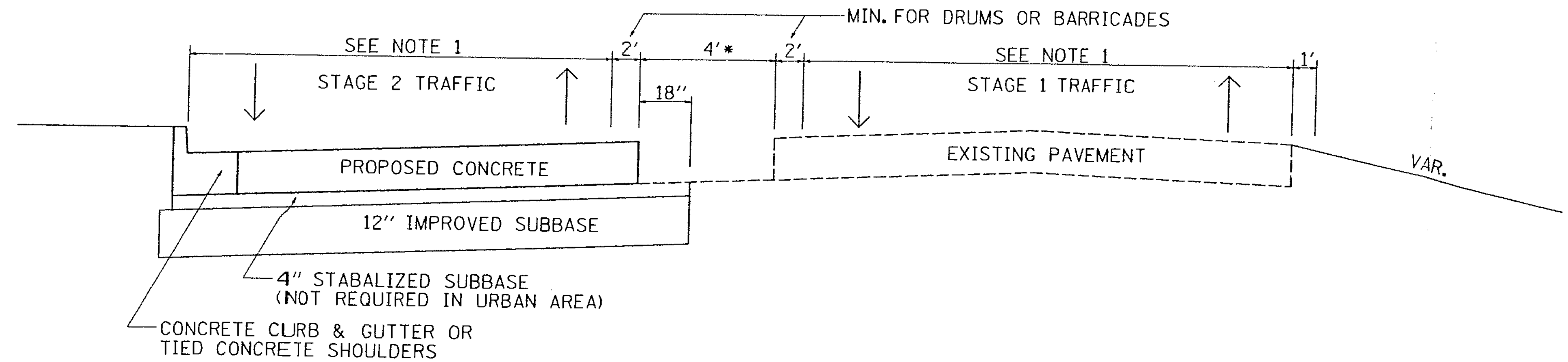


Gating

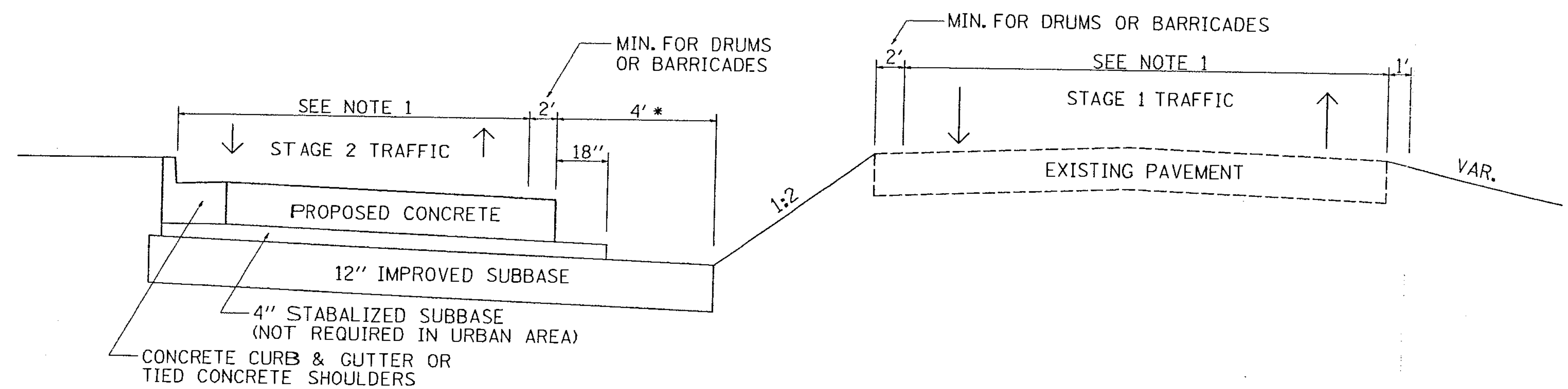
STAGING CONCRETE PAVEMENT

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONCRETE



STAGING A CUT SECTION

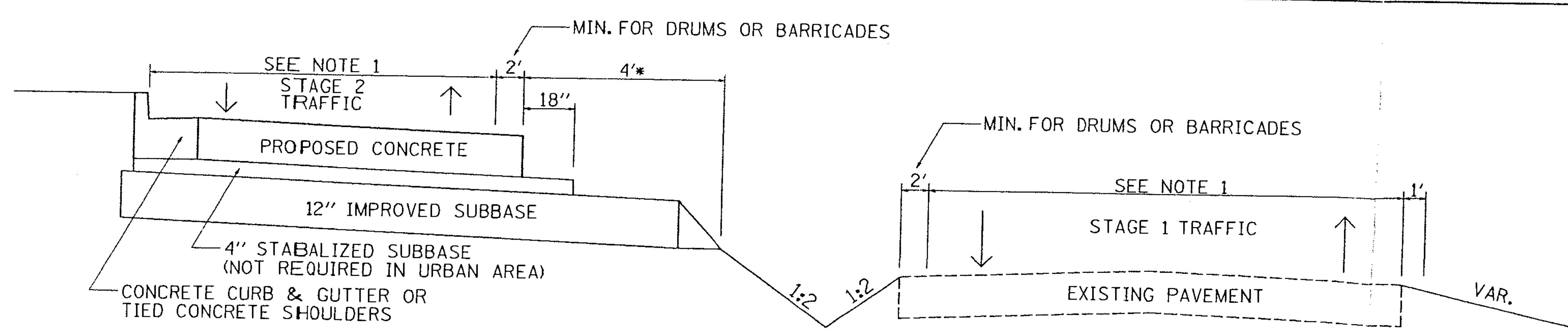


* 4' FOR PAVER & STRINGLINE

THE MAXIMUM PAVER TRACK IS 27" WIDE, TO MAKE SLIGHT TURNS A 30" WIDTH IS NEEDED. THE STRINGLINE REQUIRES 12" AND ANOTHER 6" IS INCLUDED FOR ADDITIONAL WORK SPACE.

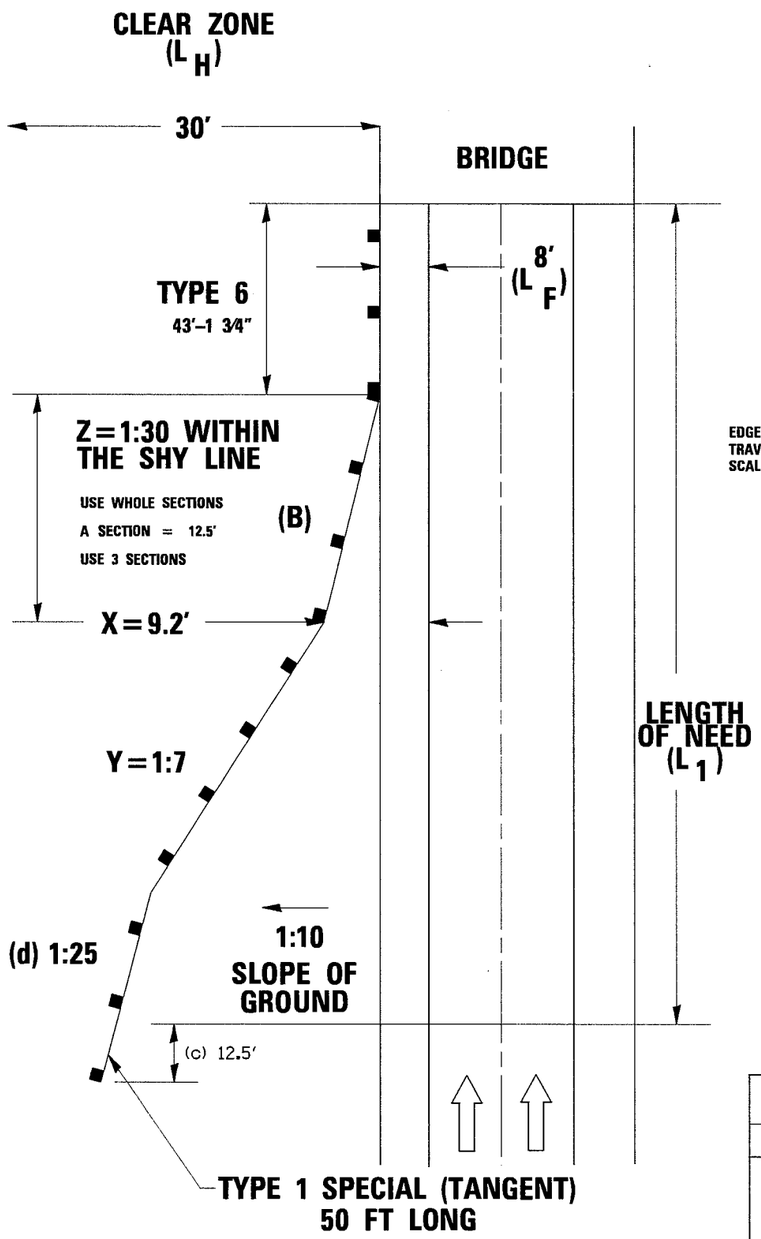
THE DESIRABLE WIDTH IS 48" AND THE MINIMUM WIDTH IS 36".

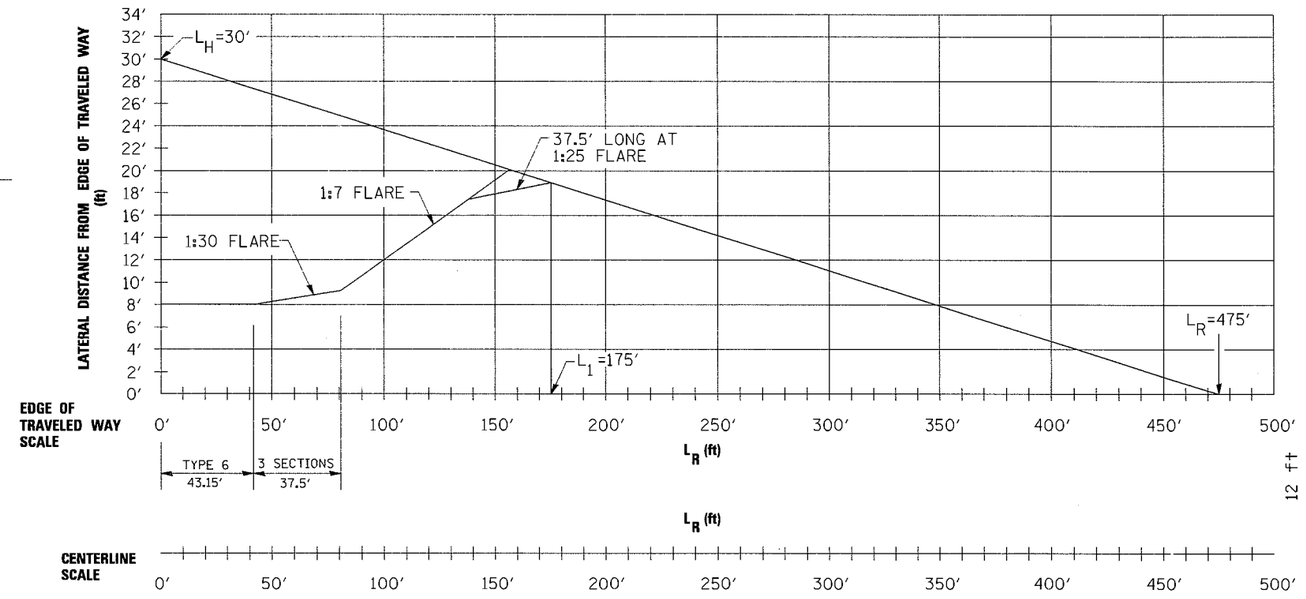
STAGING A FILL SECTION



NOTE 1: FOR ADDITIONAL INFORMATION ON LANE/SHOULDER WIDTHS SEE BDE SECTION 55-3.02. THE INSIDE SHOULDER MUST BE 2' WIDE TO ACCOMODATE TRAFFIC CONTROL DEVICES.

MEDIAN FREEWAY GUARDRAIL DESIGN





L_H = DISTANCE TO BACK OF HAZARD OR CLEARZONE (FIGURE 38-3A IN CHAPTER 38 OF BDE MANUAL)

L_R = RUN OUT LENGTHS FOR BARRIER DESIGN (FIGURE 38-6E IN CHAPTER 38 OF BDE MANUAL

L_F = DISTANCE TO FRONT OF HAZARD

BARRIER LENGTH OF NEED CALCULATION

US CUSTOMARY		METRIC	
DESIGN SPEED (mph)	SHY LINE OFFSET (ft) = X	DESIGN SPEED (km/h)	SHY LINE OFFSET (m)
70	9.2	120	3.2
65	8.6	110	2.8
60	7.9	100	2.4
55	7.2	90	2.2
50	6.6	80	2.0
45	5.6	70	1.7
40	4.6	60	1.4
35	4.1	50	1.1
30	3.6		

SUGGESTED SHY LINE OFFSET

DESIGN SPEED		Z=FLARE RATE FOR BARRIER INSIDE SHY LINE 1:d	FLARE RATE FOR BARRIER BEYOND SHY LINE	
(mph)	(km/h)		RIGID (CONCRETE)	Y=SEMI-RIGID (GR)
70	110-120	1:30	1:20	1:7
60	100	1:26	1:18	1:7
55	90	1:24	1:16	1:7
50	80	1:21	1:14	1:7
45	70	1:18	1:12	1:7
40	60	1:16	1:10	1:7
30	50	1:13	1:8	1:7

SUGGESTED FLARE RATES FOR BARRIER DESIGN

EXAMPLE FOR 1:7 FLARE

GIVEN: DESIGN ADT = 13100
V = 70mph
SLOPE = 1V:10H FRONT SLOPE
TANGENT ROADWAY
SHOULDER WIDTH = 8ft = L_B
L_H= 30ft
ONE-WAY ROADWAY
L_F= 8ft
BARRIER (STEEL PLATE BEAM GUARDRAIL, TYPE A) WITH 1:7 FLARE

PROBLEM: DETERMINE THE BARRIER LENGTH OF NEED (L_1)

FROM GRAPHES AND CHARTS

Z= 1:30
Y= 1:7
X= 9.2 FT
L_R = 475 FT
L_1 = 168 FT

ANSWER = 175'

NOW DETERMINE WHAT B IS EQUAL TO:

$B = \frac{1}{Z}(X - L_F) = 30(9.2-8) = 36$ FT

36 FT IN GUARDRAIL LENGTH IS 37.5 FT, SO

B = 37.5 FT

ON THE GRAPH, DRAW A LINE WITH A 1:7 FLARE RATE STARTING AT THE END OF THE LINE WITH THE 1:30 FLARE.

NOW TAKE A 37.5' LINE AT A 1:25 FLARE, WHICH IS THE EFFECTIVE LENGTH OF A TYPE 1 SPECIAL END SECTION, AND INTERSECT THE 1:7 FLARE LINE AND THE RUN OUT LENGTH LINE. DRAW A VETICAL LINE FROM THE INTERSECTION OF THE 1:25 FLARE AND THE RUN OUT LENGTH LINE DOWN TO THE LR SCALES READ L1 = 175 FT.

Remainder:

Guardrail comes in 12.5ft lengths

(c) Not included in lenght of need

(d) 1:25 is the maximum flare for a type 1 Special End Section

NOT TO SCALE

FILE NAME = c:\pw_work\pwidot\hensonke\d0248159\Median_Freeway_GR_Design.dgn	USER NAME = hensonke	DESIGNED -	REVISED -
	PLOT SCALE = 50.0000 ' / IN.	DRAWN -	REVISED -
	PLOT DATE = Wed Nov 24 12:44:12 2010	CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MEDIAN FREEWAY GUARDRAIL DESIGN

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

Distress Types and Severity Ratings

Name of Distress: Blowup

Description: Blowups occur in hot weather at a transverse joint or crack which will not permit expansion of the concrete slabs. The insufficient expansion width of joints usually is caused by infiltration of incompressible materials into the joint space. When compressive expansion pressure cannot be relieved, a localized upward movement of the slab edges (buckling) or shattering occurs in the vicinity of the joint. Blowups also can occur at utility cut patches and drainage outlets. Blowups are accelerated due to a spalling away of the slab at the bottom, creating reduced joint contact area. The presence of D-cracking also weakens the concrete near the joint, resulting in increased spalling and blowup potential.

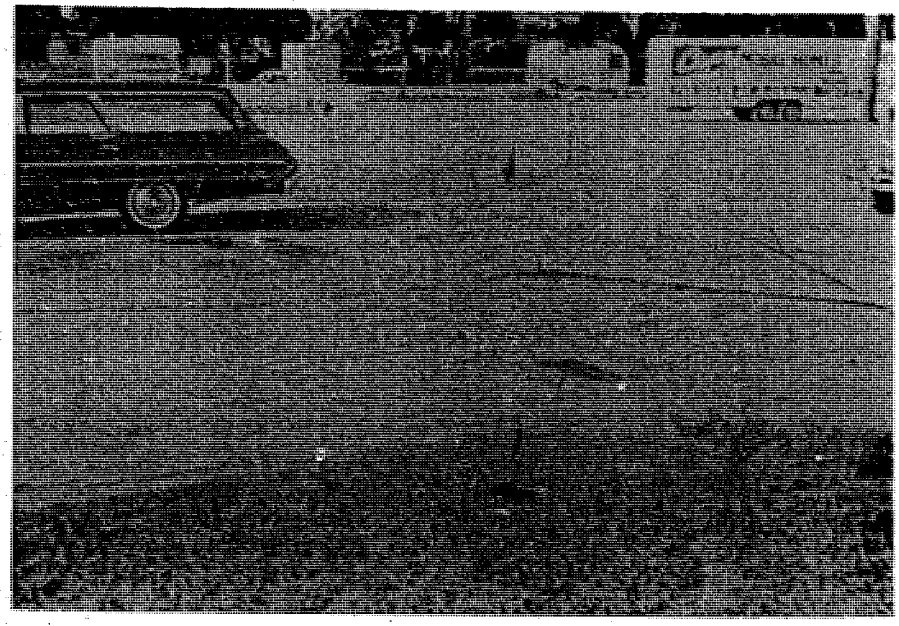
Severity Levels:

L - Buckling or shattering has occurred, but only causes some bounce of the vehicle which creates no discomfort.

M - Buckling or shattering causes a significant bounce of the vehicle which creates some discomfort. Temporary patching has been placed because of a blowup.

H - Buckling or shattering causes excessive bounce of the vehicle which creates substantial discomfort, and/or a safety hazard, and/or vehicle damage, requiring a reduction in speed for safety.

Patching Criteria: All blowups, regardless of severity, must be patched.



High Severity Buckling Type Blowup

High Severity Shattering Type Blowup

Name of Distress: Corner Break

Description: A corner break is a crack that intersects the joints at a distance less than 6 ft (1.8m) on either side measured from the corner of the slab. A corner break differs from a corner spall in that the crack extends vertically through the entire slab thickness. Load repetition combined with loss of support, poor load transfer across joint, and thermal curling and moisture warping stresses usually cause corner breaks.

Severity Levels:

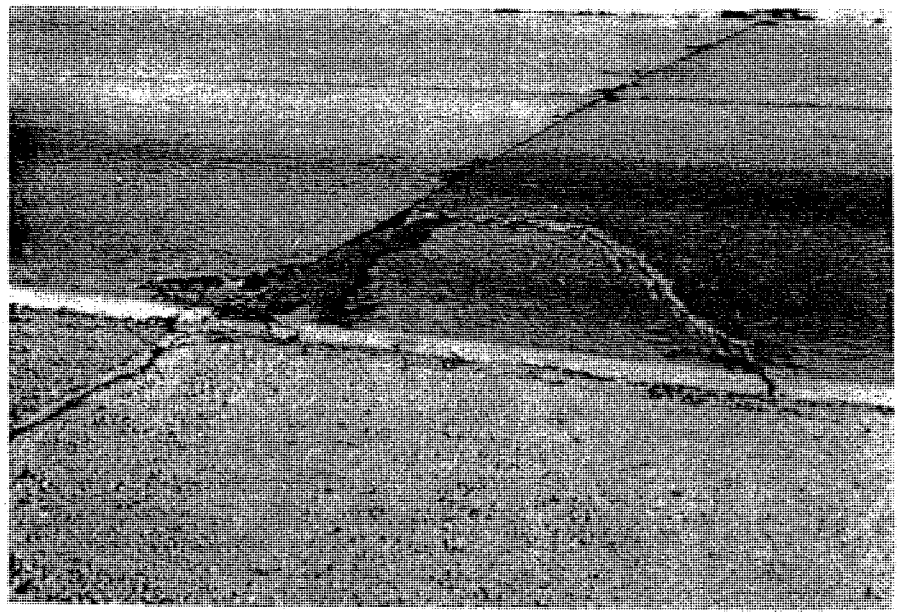
L - Crack is tight (hairline). Well-sealed cracks will be considered tight. No fault or breakup at broken corner exists. Crack is not spalled.

M - Crack is working and spalled at low or medium severity. Breakup of broken corner has not occurred. Faulting of crack or joint is less than 1/2 inch (13 mm). Temporary patching has been placed because of corner break.

H - Crack is spalled at high severity or the corner piece has broken into two or more pieces. If faulting of crack or joint is more than 1/2 in. (13 mm), it will be considered high severity.

Patching Criteria: Medium severity corner breaks should be patched if they extend to the wheelpath. High severity corner breaks must be patched.

Low Severity Corner Break



High Severity Corner Break

Name of Distress: D-Cracking

Description: D-cracking is a series of closely spaced crescent-shaped hairline cracks that appear at a PCC pavement slab surface adjacent and roughly parallel to transverse and longitudinal joints, transverse and longitudinal cracks, and free edges of the pavement slab. The fine surface cracks often curve around the intersection of longitudinal joints/cracks and transverse joints/cracks. These surface cracks often contain calcium hydroxide residue which causes a dark coloring of the crack and immediate surrounding area. This eventually may lead to disintegration of the concrete within 1 to 2 ft (0.30 to 0.6 m) or more of the joint or crack, particularly in the wheelpaths. D-cracking is caused by freeze-thaw expansive pressures of certain types of coarse aggregates.

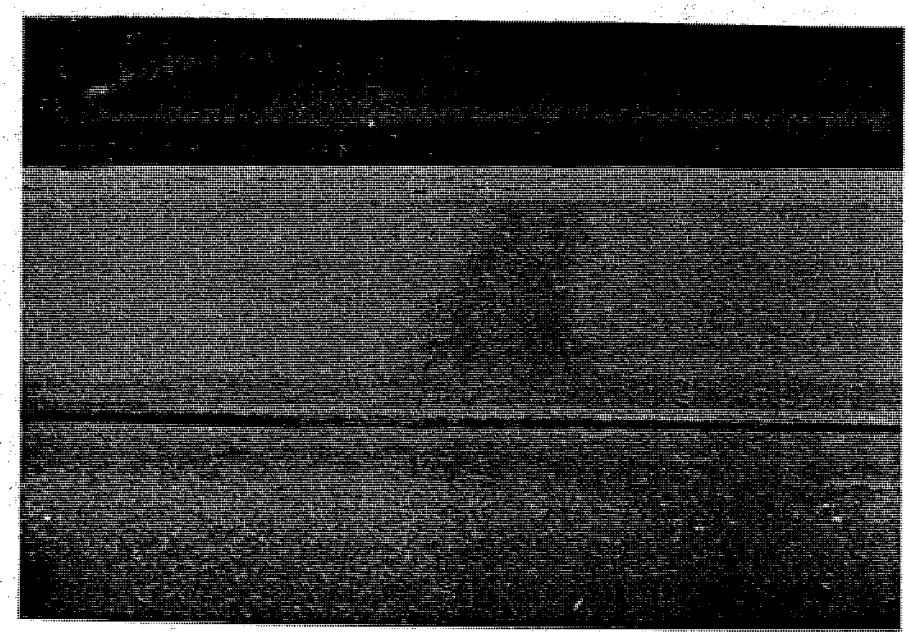
Severity Levels:

L - The characteristic pattern of closely spaced fine cracks appears near joints, cracks, and/or free edges; however, the width of the affected area generally is less than 12 in. at the center of the lane in transverse cracks and joints. The crack pattern may fan out at the intersection of transverse cracks/joints with longitudinal cracks/joints. No joint/crack spalling or only minor corner spalling is present.

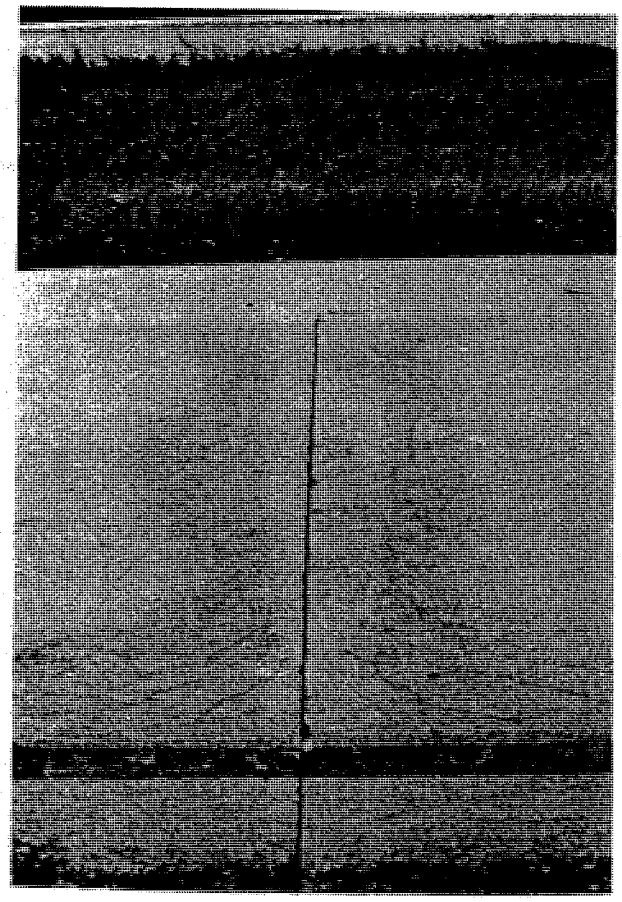
M The characteristic pattern of closely spaced fine cracks generally is wider than 12 in. at the center of the lane in transverse cracks and joints. A low or medium severity level of joint/crack or corner spalling has developed in the affected area. Temporary patching has been placed due to D-cracking induced spalling.

H The affected joint or crack has a high severity level of spalling at joints/cracks or corners. Considerable material is loose in the affected area.

Patching Criteria: Joints and cracks with high severity D-cracking should be patched. Low and medium severity need not be patched.

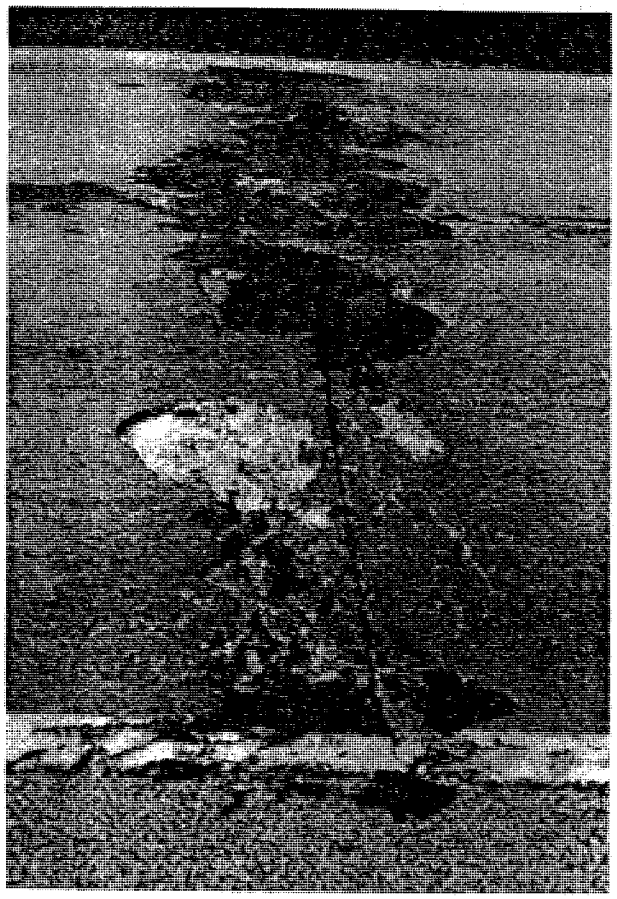


Low Severity D-Crack



Medium Severity D-Crack

Medium Severity D-Crack



High Severity D-Crack

High Severity D-Crack

Name of Distress: Joint Load Transfer System Associated Deterioration (Second Stage Cracking)

Description: This distress develops as a transverse crack a short distance from a transverse joint, usually at the end of joint load transfer dowels. This usually occurs when the dowel system fails to function properly due to extensive corrosion or misalignment.

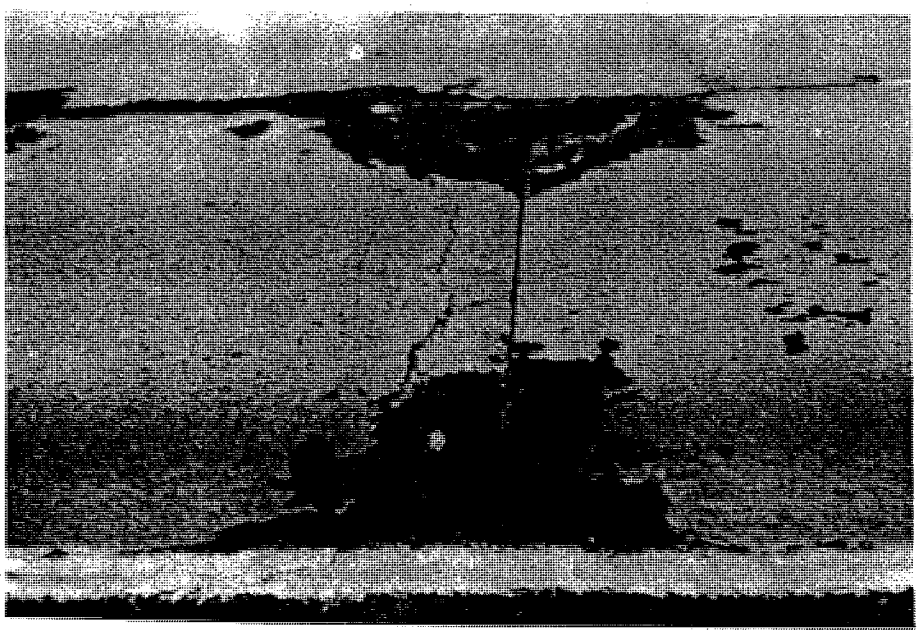
Severity Levels:

L - Hairline (tight) crack with no spalling or faulting. A well-sealed crack with no visible faulting or spalling.

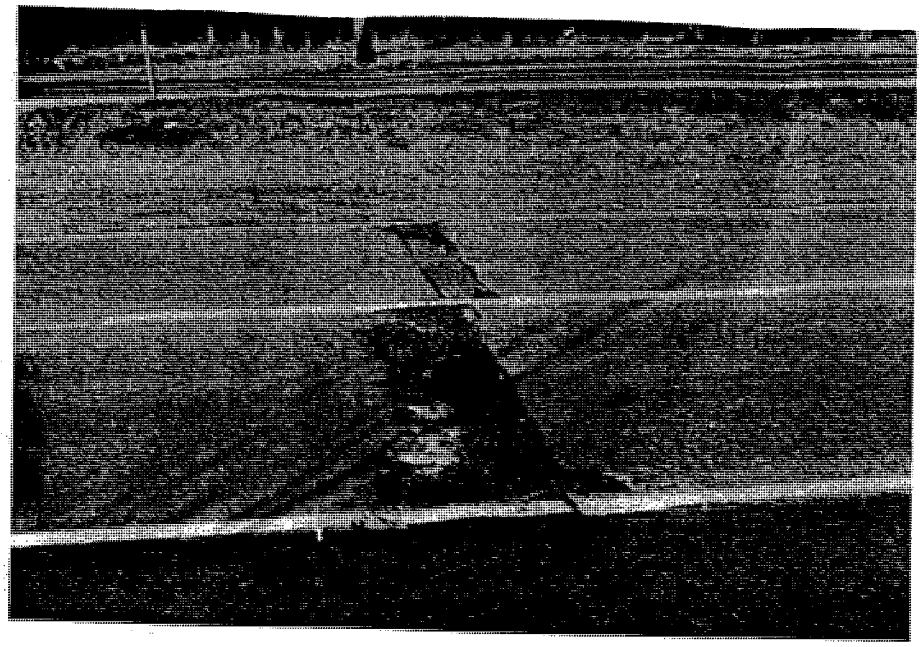
M - Any of the following conditions exist: the crack has opened to a width less than 1 in. (25 mm); the crack has faulted less than 1/2 in. (13 mm); the crack may have spalled to a low or medium severity level; or the area between the crack and joint has started to break up but pieces have not been dislodged to the point that a tire damage or safety hazard is present. Temporary patches have been placed due to this joint deterioration.

H - Any of the following conditions exist: A crack with width of opening greater than 1 in. (25 mm); a crack with a high severity level of spalling; a crack faulted 1/2 in. (13 mm) or more; or, the area between the crack and joint has broken up and pieces have been dislodged to the point that a tire-damage or safety hazard is present.

Patching Criteria: Joints with high severity spalling and joints where the concrete has broken into several pieces should be patched.



Medium Severity Joint Load Transfer
System Associated Distress



High Severity Joint Load Transfer
System Associated Distress

High Severity Joint Load Transfer
System Associated Distress

Name of Distress: Patch Deterioration

Description: A patch is an area where the original pavement has been removed and replaced by either similar or different material (i.e., concrete or asphalt). Only permanent patches should be considered.

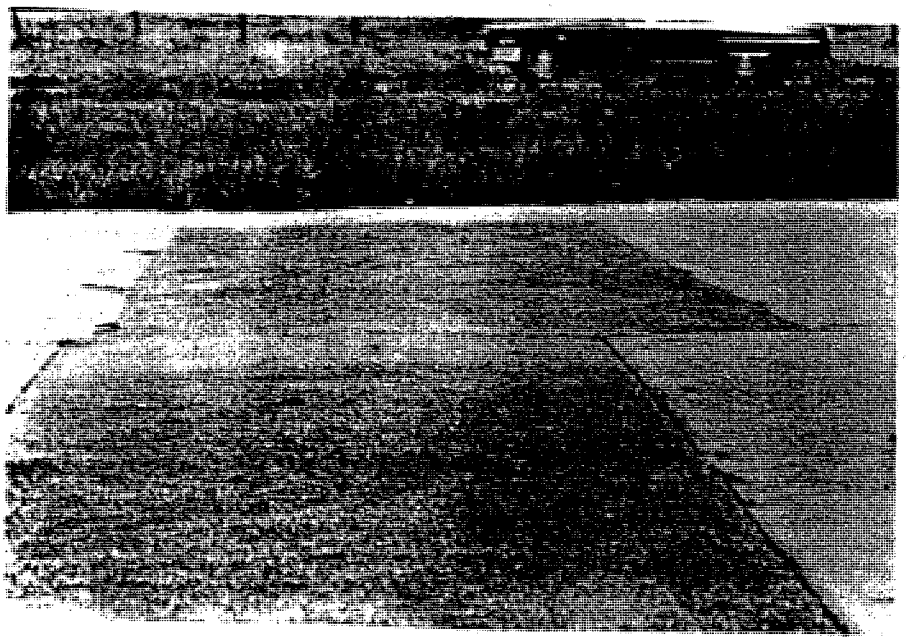
Severity Levels:

L - Patch is functioning well with little or no deterioration. Some low severity spalling of the patch edges may exist. Faulting across the slab-patch joint must be less than 1/4 in. (6 mm). Patch is rated low severity even if it is in excellent condition.

M - Patch has cracked (low severity level) and/or some spalling of medium severity level exists around the edges. Minor rutting may be present. Faulting at 1/4 to 3/4 in. (6 to 19 mm) exists. Temporary patches have been placed because of permanent patch deterioration.

H - Patch has ruts which will prevent water drainage. Faulting greater than 3/4 in. is present. Temporary patches have been placed.

Patching Criteria: Patches with high severity deterioration should be replaced.



Low Severity Asphalt Patch Deterioration

High Severity Asphalt Patch Deterioration

Low Severity PCC Concrete Patch Deterioration

Medium Severity PCC Concrete Patch Deterioration

High Severity PCC Concrete Patch Deterioration

Name of Distress: Spalling (Transverse and Longitudinal Joint/Crack)

Description: Spalling of cracks and joints is the cracking, breaking, or chipping of the slab edges within 2 ft of the joint. A joint spall usually does not extend vertically through the whole slab thickness, but extends to intersect the joint at an angle. Spalling usually results from (1) excessive stresses at the joint or crack caused by infiltration of incompressible materials and subsequent expansion or traffic loading, (2) disintegration of the concrete, (3) weak concrete at the joint (caused by overworking) combined with traffic loads, or (4) poorly designed or installed load transfer device.

Severity Levels:

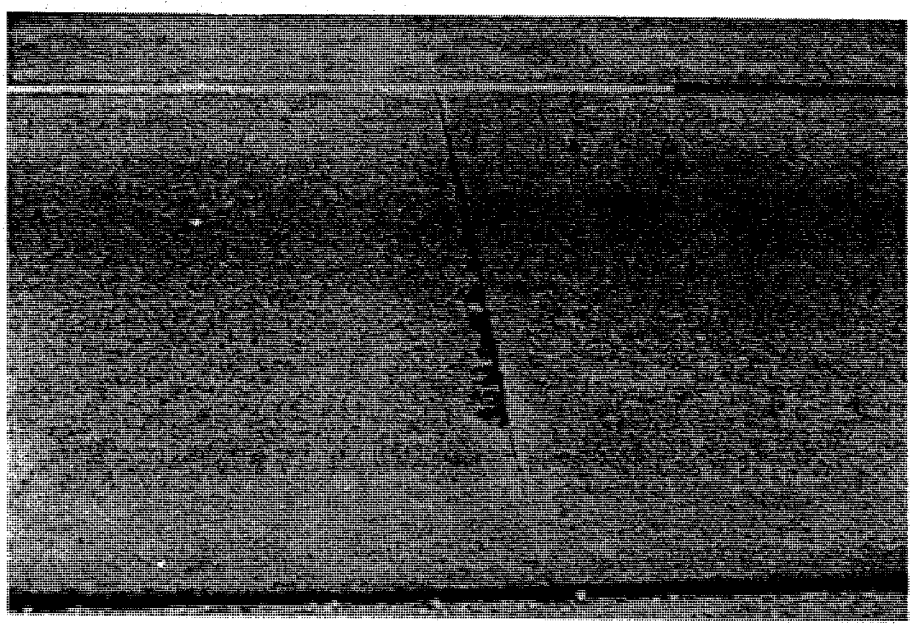
L - A spall less than 2 ft long; if spall is broken into pieces and fragmented, it must not extend more than 3 in. from the joint or crack. A spall more than 2 ft long with spall held tightly in place; if spall is cracked, it cannot be broken into more than three pieces. The joint is lightly frayed, with fray extending no more than 3 in. from the edge of the joint or crack.

M - A spall is broken into pieces or fragmented and spall extends more than 3 in. from joint or crack. Some pieces may be loose and/or missing, but the spalled area does not present a tire-damage or safety hazard. The joint or crack is moderately frayed, with fray extending more than 3 in. from the edge of the joint or crack but not causing a tire-damage or safety hazard. Temporary patching has been placed because of spalling.

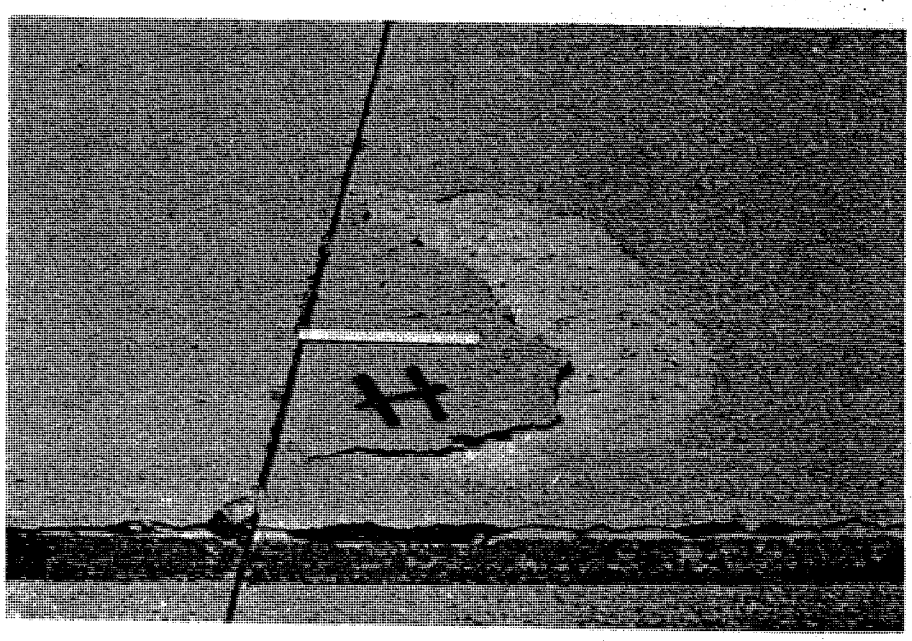
H - The joint is severely spalled or frayed to the extent that a tire-damage or safety hazard exists.

Patching Criteria: High severity spalling should be patched.

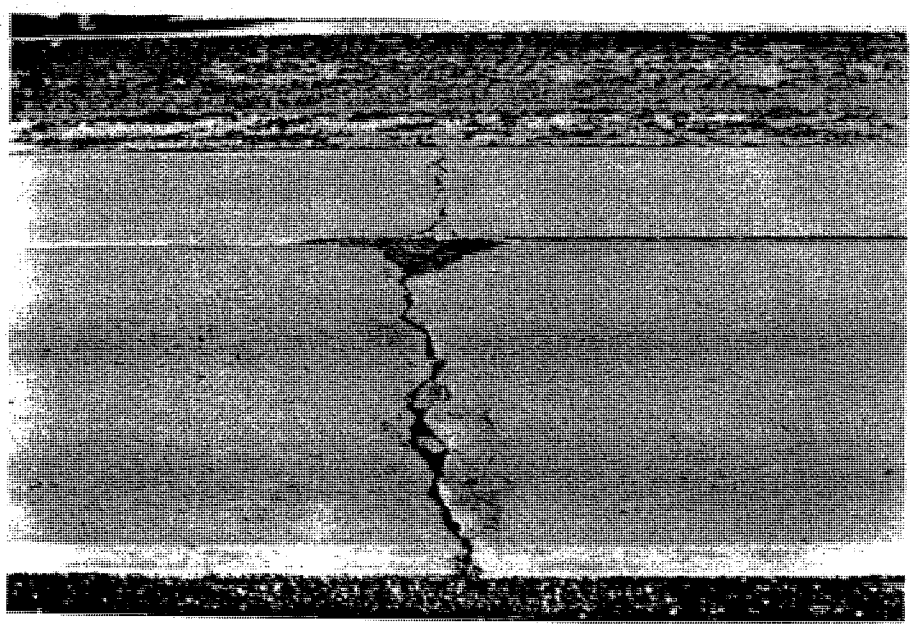
Low Severity Spalling



Low Severity Spalling

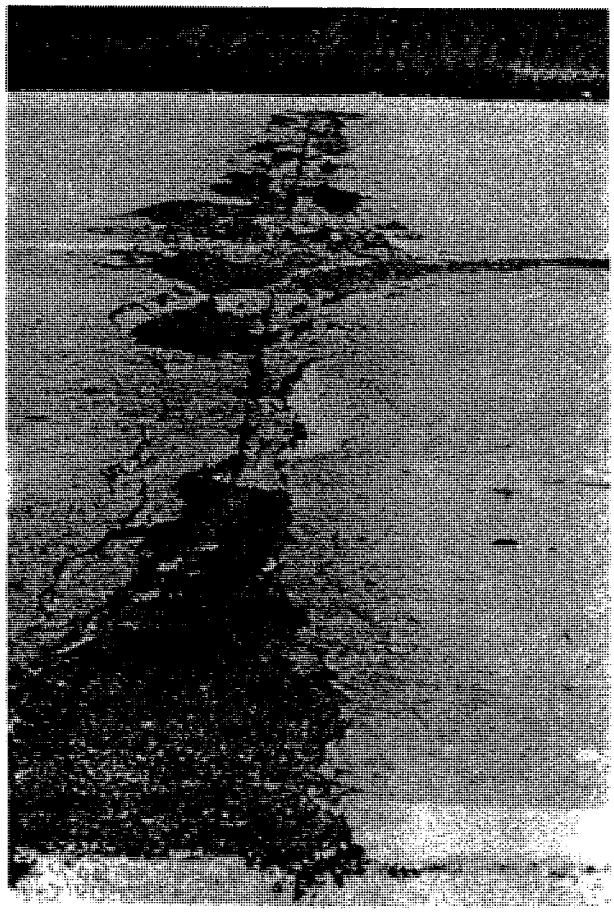


Medium Severity Spalling



Medium Severity Spalling

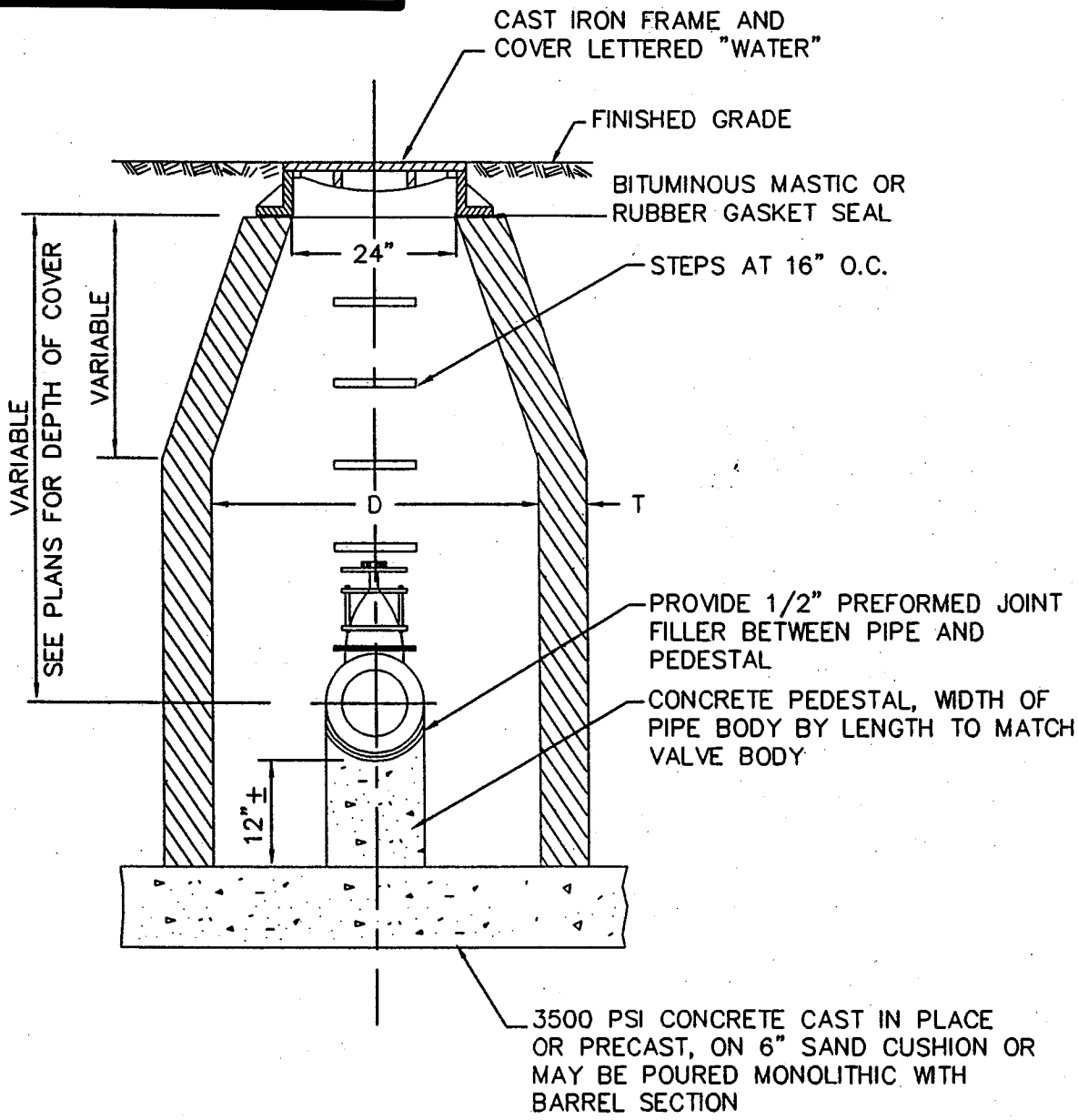
High Severity Spalling



High Severity Spalling

Pay item for adjustment
60265700 Valve Vaults
to be adjusted

MATERIAL WALL THICKNESS (T)
PRECAST CONC. – MIN. 1/12 "D"
CAST–IN–PLACE CONC. MIN. 6"

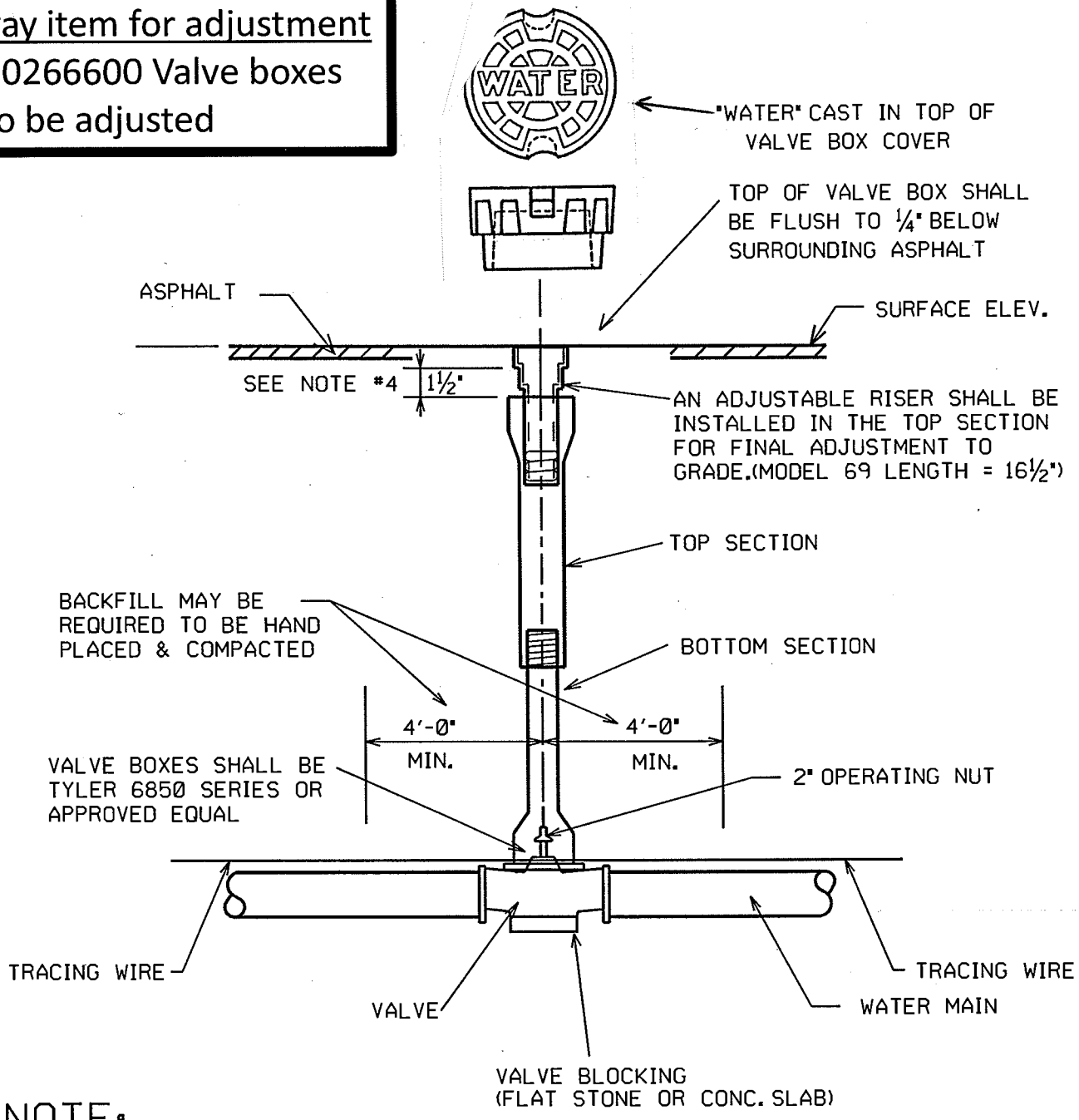


NOTE: VALVE VAULT DIA. SHALL BE 48" FOR 8" AND SMALLER VALVES AND 60" FOR 10" AND LARGER VALVES.
D = DIAMETER OF MANHOLE

TYPICAL VALVE VAULT DETAIL

DMS

Pay item for adjustment
60266600 Valve boxes to be adjusted



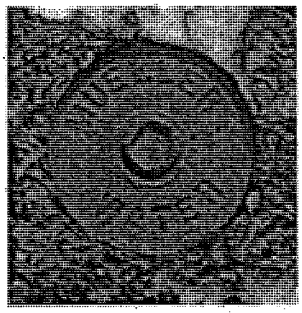
NOTE:

1) VALVE BOX SHALL NOT BE SUPPORTED BY THE WATER LINE.
2) VALVE BOX TO BE PLUMB AND CENTERED OVER NUT.
3) VALVE BOX DETAIL SHALL APPLY TO BOTH NEW INSTALLATION & ADJUSTMENT OF EXISTING VALVES.
4) THE MAXIMUM DISTANCE THAT THE SCREW-IN RISER MAY EXTEND ABOVE THE TOP SECTION, WHEN INITIALLY INSTALLED, SHALL BE 1½ INCHES.
5) WHEN ADJUSTING EXISTING VALVE BOXES, RECONNECT EXISTING TRACING WIRE IF PRESENT.

VALVE BOX DETAIL

Buffalo Boxes (b-box)

Understanding Your b-box



Have you ever seen this device in your yard? This is called a "b-box" or "buffalo box". It obtained its name because the b-box originated in Buffalo, New York.

The b-box is used by the Water Division to shut water off for customers who need to have internal repairs done and cannot have water running in their water line. It is also used to turn water off for nonpayment. Water Division employees use a special key to turn it on and off and although some plumbers acquire these keys, they are not supposed to operate this equipment.

The b-box may be located in the front parkway in the grass, or rear yard depending on the location of the water main, which makes it a common casualty of lawn mowers if it has raised up out of the ground. This displacement happens as a result of ground movement (cold to hot and hot to cold weather). When needed, the Water Division will come out and either raise the b-box to grade or lower it to grade. Sometimes they are located in the sidewalk and a few other places but these are not the normal places.

District Two Guidance for Curb Ramps

When a project *alters a crosswalk*, whether marked or not, the Department will construct curb ramps where none exist, or if curb ramps are inaccessible according to standards at the time of letting, the Department will reconstruct the curb ramps to meet the current standards. A milling and resurfacing project where the elevation of the road doesn't change and the cross-slope of the road doesn't change is *still an alteration of the crosswalk.* See BDE Manual, Chapter 58-1.09 for the definition of a crosswalk.

Curb ramps must be built to meet the requirements of the "Americans with Disabilities Act Accessibilities Guidelines (ADAAG) (http://www.access-board.gov/ada/), the Illinois Accessibility code (http://www.cdb.state.il.us/forms/download/iac.pdf) and the details in the plans" per Art. 424.08.

When designing sidewalks, curb ramps, or ramps, use 1% while designing the sidewalk, ramp cross-slopes, and landings to allow for variances in construction so we end up with 2% maximum. Every location where 2% is shown in the State Standards in a landing or sidewalk cross slope, shall be designed with 1%.

Sidewalks (see BDE Ch. 58-1.06):

- The running slope shall not exceed the general grade of the adjacent street. However we don't chase grades. A reasonable length to tie into existing sidewalks is 15' (transition section). The slope can exceed 1:12 for the length of this transition section. Follow BDE Ch. 58-1.09(b), #6.
- Cross slope shall be 1%.
- In tightly constrained areas with wider sidewalks, a minimum of 4' wide must have a cross slopes of 1%.

Ramps (BDE Ch. 58-1.08):

- The running slope exceeds 5% and doesn't follow the running grade of the adjacent road.
- Running slope shall be no more than 8.3%. Slopes exceeding 8.3% are allowed only for very small rises where there are tight constraints and to tie back into the existing sidewalk within a reasonable distance, which in most cases we have defined as 15'.
- Cross slopes shall be 1%.

Curb Ramps (BDE Ch. 58-1.09)

- Required to meet the current standards every time IDOT alters a roadway surface at a crosswalk.
- Connect sidewalks at each crosswalk.
- Need to be updated to meet accessibility guidelines when a project alters a crosswalk. This work can be deferred for a year on SMART or 3P jobs if there is a plan in place for the upgrades in the near future. A separate project for ramps may be required to get environmental clearances or ROW.
- Are to be built according to Hwy Std. 424001 through 424031. Where there is no marked cross walk, place the curb ramp where you would reasonably expect people to cross.
- A curb ramp is <u>not</u> the same as a ramp.

Sidewalk, curb ramp, and entrance details are required to be included in plans. See examples.

If you are not doing a 3R project, only curb ramps are required to be fixed, not the adjacent sidewalk runs.

If side road milling and resurfacing doesn't alter the side road crosswalk, (i.e.: when the limits of construction do not enter a crosswalk,) those ramps will not need to revised, unless revising the mainline curb ramp will affect the side road ramp. Usually, this will be the case—fixing the mainline ramp, will require fixing the upper landing area, which will require the side road ramp to be fixed. Side roads which are resurfaced through a side road crosswalk must have accessible ramps constructed.

Field surveys of sidewalks on every urban job whether a 3R, 3P, or SMART. 20' behind every inside corner will be required—steep grades may need to go farther. Surveys has standard practices for shots on existing sidewalks, ramps, curb ramps, and returns. If you are planning to move crosswalk locations, they would need to be informed.

Standards

Highway Standard 424001—this standard will be used whenever we can use two separate ramps (which is a good goal).

424006—allowed, but not the first choice. Curb return radii must be at least 20'. It requires a level landing in the road which can be difficult to build with the grades that pavements have around returns.

424011—this is for sidewalks with no raceways and sidewalks where the width is less than 8'.

424016—this is used at mid-block crosswalks. (Try to avoid mid-block crosswalks unless there is a school zone. People can go to an intersection to cross the street in an urban setting.)

424021—depressed corner is for sidewalks with no raceways and the width ≥ 8'. The standard shows the entire return depressed, which may not be the case in all situations, depending on crosswalk layout.

424026—this is for sidewalks that cross an entrance or alley. Detectable warnings are only included if there are permanent traffic control devices present (typically a stop sign).

424031—this is for sidewalks that cross a median. Used with D2 Std. 4.1.

606001—depressed curb at curb ramps have a ½" height of the depression; 1 ½" for a depressed curb at a driveway. The correct type of depressed curb must be used.

District Standard 4.1—is used for crosswalks through a median or island.

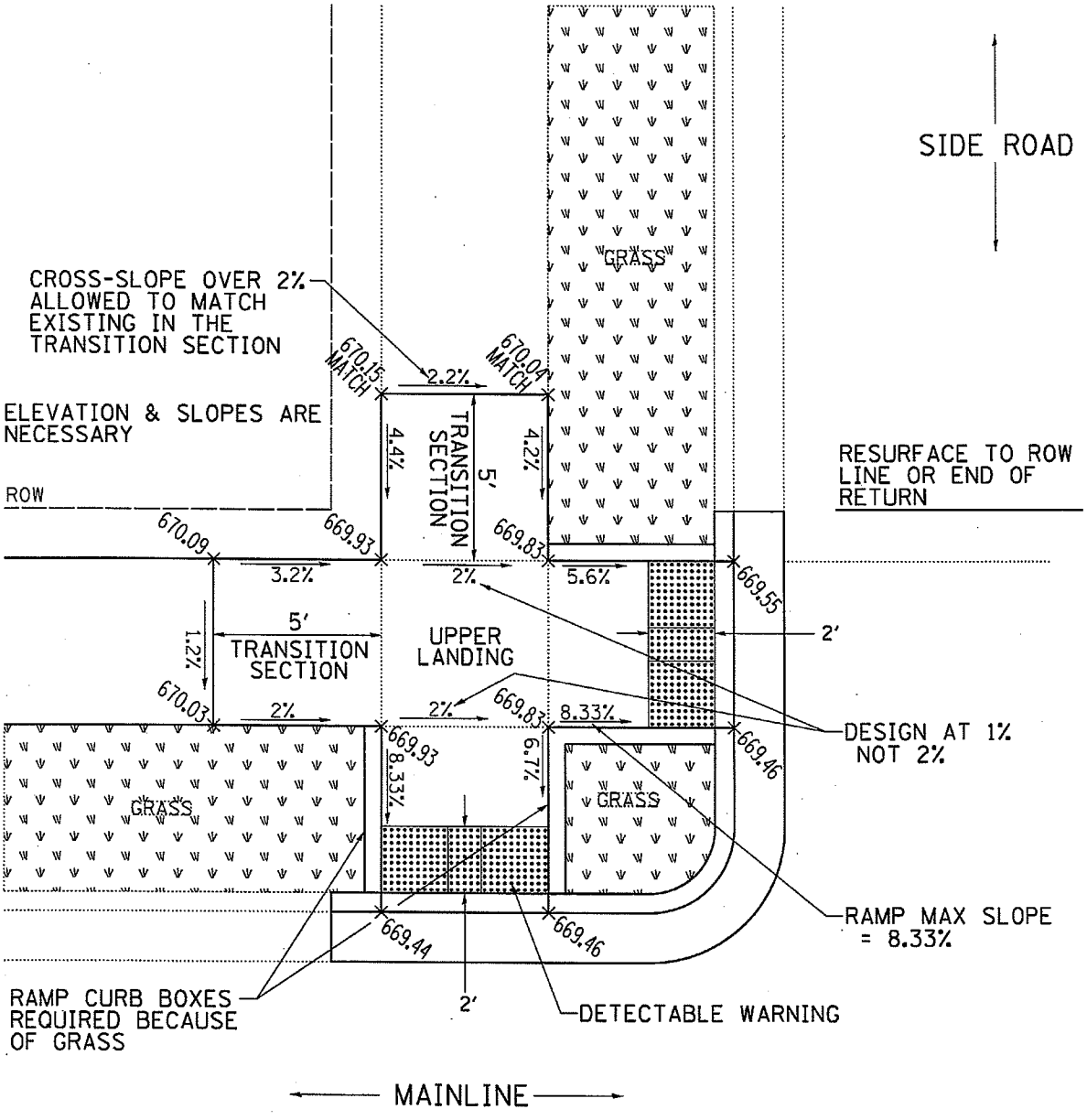
25.1—this is used to show sidewalks that go through a driveway. They require the driveway grade at 1% through the entrance for the width of the sidewalk.

41.1—this is to show the locations of the stop bar in relation to the crosswalk lines.

Temporary ramps are required for milling next to ADA curb ramps. Two-lift projects will need two temporary ramps, one-lift projects one. The temporary ramps are required from the gutter flag to the road surface, and are to be at an 8.33% (1:12) or flatter slope.

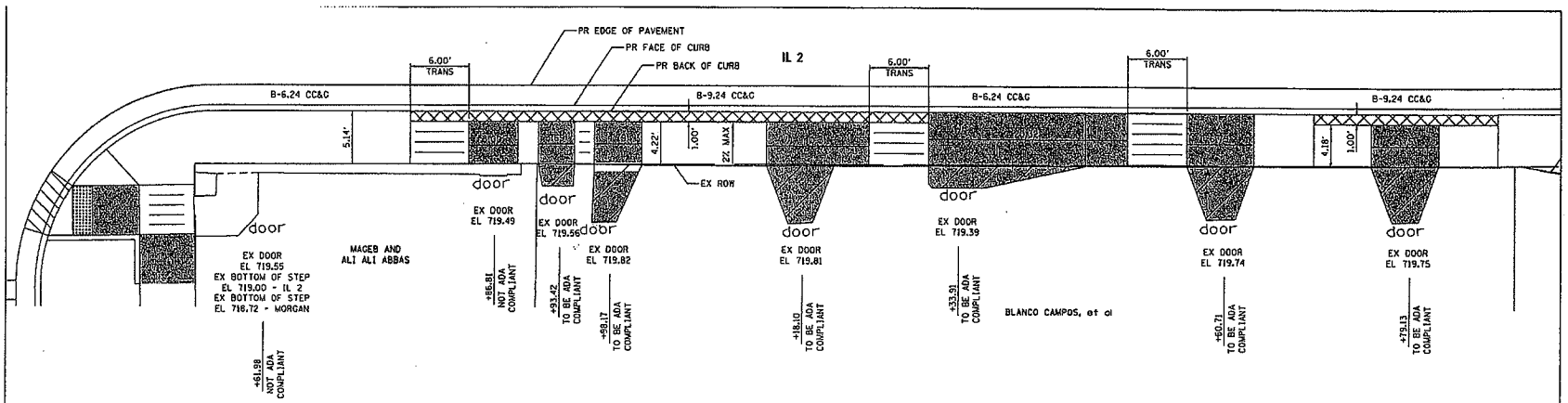
1:50 = 2% 1:20 = 5% 1:12 = 8.33% 1:10 = 10%

TYPICAL CURB RAMP DETAIL



NW QUADRANT
3RD STREET & 5TH AVE.

BUILT IN ACCORDANCE WITH 424001-06
RAMP IN LANDSCAPE AREA, SETBACK ≤ 5'



ENTRANCE DETAIL – STA 407+38.00 TO STA 408+90.00, RT

LEGEND

- DETECTABLE WARNINGS
- LEVEL LANDING WITH DIMENSIONS
- RAMP
- IMPROVEMENTS TO BE DONE BY PROPERTY OWNER
- VAR. SLOPED MEDIAN SURFACE SLOPED TO DRAIN
- DEPRESSED CURB AND GUTTER
- (XXX.XX) EXISTING ELEVATION TO BE MATCHED

NOTES:
THIS DETAIL HAS BEEN DESIGNED BASED ON THE OWNERS INDICATION THAT THEY ARE GOING TO MAKE IMPROVEMENTS ON PRIVATE PROPERTY TO MATCH THE PROPOSED ROADWAY IMPROVEMENTS IN ORDER TO MAKE THE BUSINESS ENTRANCE ADA COMPLIANT.

THE CONTRACTOR SHALL VERIFY THE EXISTING DOOR ELEVATIONS AND COORDINATE PROPOSED IMPROVEMENTS WITHIN THE STATE ROW WITH THE PROPERTY OWNER SO THAT PROPERTY OWNERS CAN SCHEDULE THEIR IMPROVEMENTS.

THE ENTIRE AREA BETWEEN THE BUILDING/RIGHT-OF-WAY AT THIS BUILDING SHALL BE PAVED WITH PORTLAND CEMENT CONCRETE SIDEWALK 5", UNLESS NOTED OTHERWISE.

SEE CROSS SECTIONS FOR BUSINESS ENTRANCE FOR ADDITIONAL INFORMATION

Contract 64821

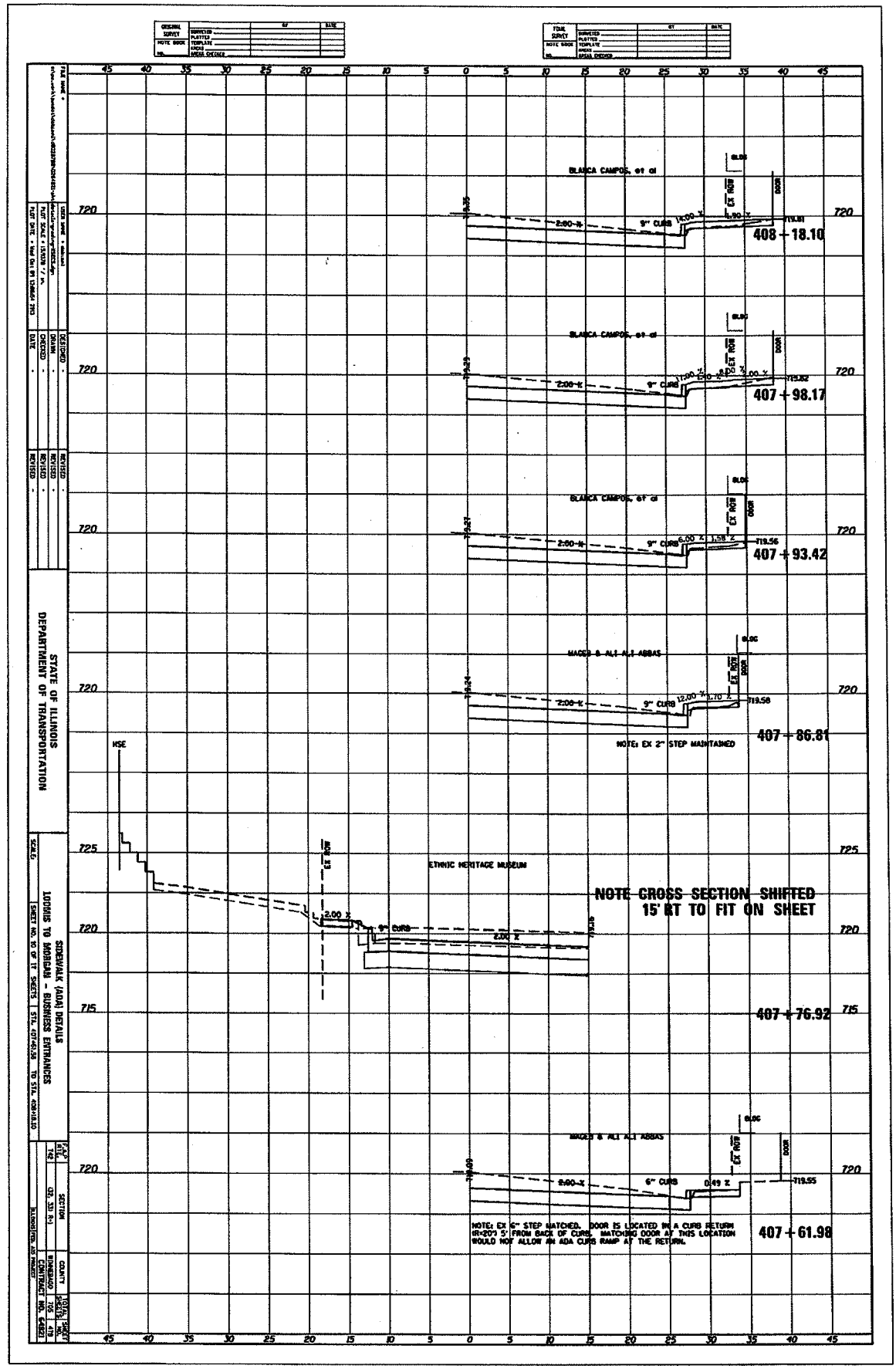
FILE NAME = *FILE*	USER NAME = *USER*	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = *SCALE*	CHECKED -	REVISED -
	PLOT DATE = *DATE*	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIDEWALK (ADA) DETAILS

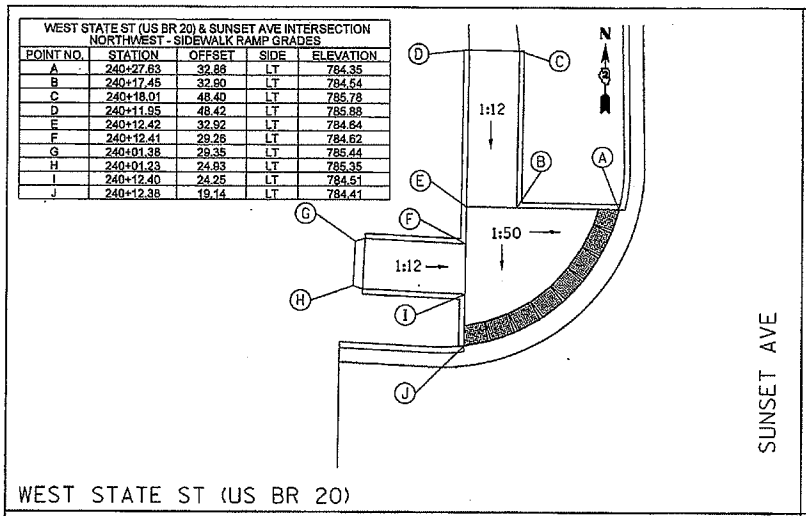
SCALE: 1:5 | SHEET NO. 2 OF 17 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
742	132, 331 R-1	WINNEBAGO	689	459
		CONTRACT NO. 64821		
		ILLINOIS FED. AID PROJECT		


BLANCA CAMPOS, et al
408 + 18.10
BLANCA CAMPOS, et al
407 + 98.17
BLANCA CAMPOS, et al
407 + 93.42
MAGED S. ALI A.I ABBAS
407 + 86.81
NOTE: EX 2" STEP MAINTAINED
ETHNIC HERITAGE MUSEUM
NOTE CROSS SECTION SHIFTED
15' RT TO FIT ON SHEET
407 + 76.92
MAGED S. ALI A.I ABBAS
NOTE: EX 6" STEP MATCHED. DOOR IS LOCATED IN A CURB RETURN (R=20') 5' FROM BACK OF CURB. MATCHING DOOR AT THIS LOCATION WOULD NOT ALLOW AN ADA CURB RAMP AT THE RETURN.
407 + 61.98
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
SIDEWALK (ADA) DETAILS
LOOMIS TO MORGAN - BUSINESS ENTRANCES

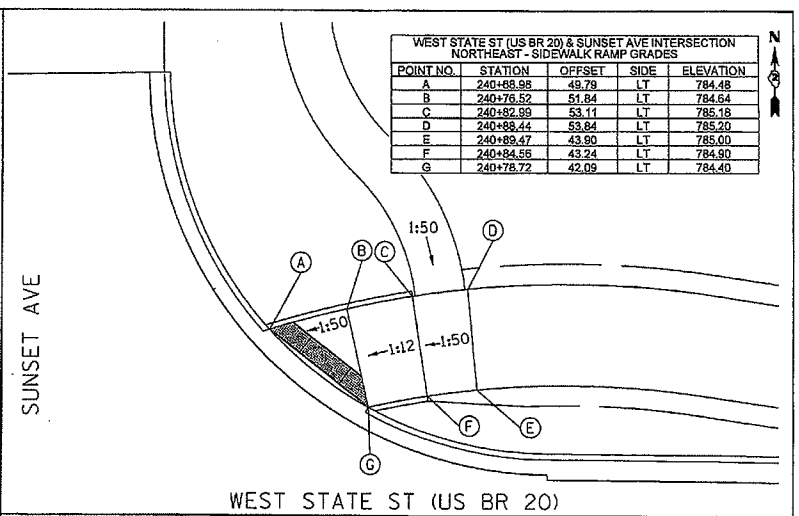
WEST STATE ST (US BR 20) & SUNSET AVE INTERSECTION
NORTHWEST - SIDEWALK RAMP GRADES

POINT NO.	STATION	OFFSET	SIDE	ELEVATION
A	240+27.63	32.86	LT	784.35
B	240+17.45	32.90	LT	784.54
C	240+18.01	48.40	LT	785.78
D	240+11.95	48.42	LT	785.88
E	240+12.42	32.92	LT	784.64
F	240+12.41	29.26	LT	784.62
G	240+01.38	29.35	LT	785.44
H	240+01.23	24.93	LT	785.35
I	240+12.40	24.25	LT	784.51
J	240+12.38	19.14	LT	784.41



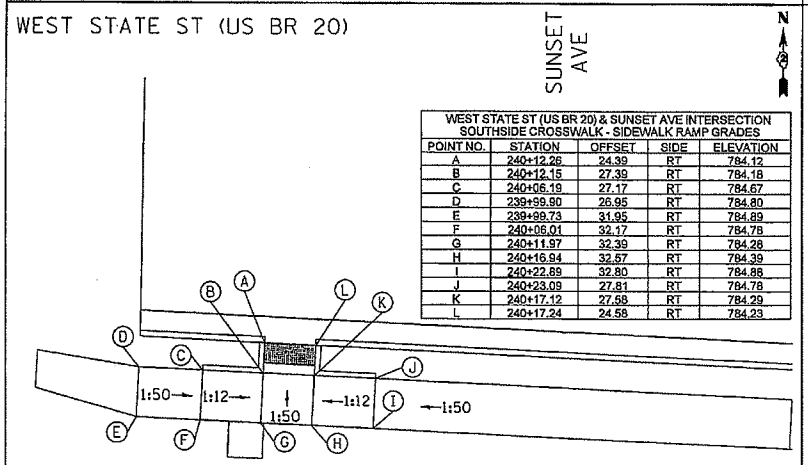
WEST STATE ST (US BR 20) & SUNSET AVE INTERSECTION
NORTHEAST - SIDEWALK RAMP GRADES

POINT NO.	STATION	OFFSET	SIDE	ELEVATION
A	240+68.98	49.79	LT	784.48
B	240+76.52	51.84	LT	784.64
C	240+82.99	53.11	LT	785.18
D	240+88.44	53.84	LT	785.20
E	240+89.47	43.90	LT	785.00
F	240+84.56	43.24	LT	784.90
G	240+78.72	42.09	LT	784.40



WEST STATE ST (US BR 20) & SUNSET AVE INTERSECTION
SOUTHSIDE CROSSWALK - SIDEWALK RAMP GRADES

POINT NO.	STATION	OFFSET	SIDE	ELEVATION
A	240+12.26	24.39	RT	784.12
B	240+12.15	27.39	RT	784.18
C	240+06.19	27.17	RT	784.67
D	239+99.90	26.95	RT	784.80
E	239+99.73	31.95	RT	784.89
F	240+06.01	32.17	RT	784.78
G	240+11.97	32.39	RT	784.26
H	240+16.94	32.57	RT	784.39
I	240+22.89	32.80	RT	784.88
J	240+23.09	27.81	RT	784.78
K	240+17.12	27.58	RT	784.29
L	240+17.24	24.58	RT	784.23



FILE NAME =	USER NAME = donald	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WEST STATE ST (US BR 20) AND SUNSET AVE SIDEWALK RAMP DETAIL
Default	PLOT SCALE = 10.3122 ' / in.	DRAWN -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.
	PLOT DATE = Thu Dec 06 11:07:08 2012	CHECKED -	REVISED -		
		DATE -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
303	140B, 41B	WINNEBAGO		
		CONTRACT NO. 64750		
		ILLINOIS FED. AID PROJECT		

STORM SEWER & CULVERTS

EXISTING BOX	EQUIVALENT CONCRETE END SECTIONS				
	ELLIPTICAL	ARCHED	CIRCULAR	BOX	REMARKS
2' X 1.5'	24"	30"			
2' X 2'			30"		
3' X 1.5'	30"	36"			
3' X 2'	36"	42"			
3' X 2.5'			36"		
3' X 3'			42"		
3.5' X 1.5'				***	
4' X 1.5'	36"	42"			
4' X 2'	36"	42"			
4' X 2.5'	42"	48"			
4' X 3'	48"	54"			
4' X 4'			60"		
5' X 3'		60"			

*** USE BOX CULVERT END SECTION

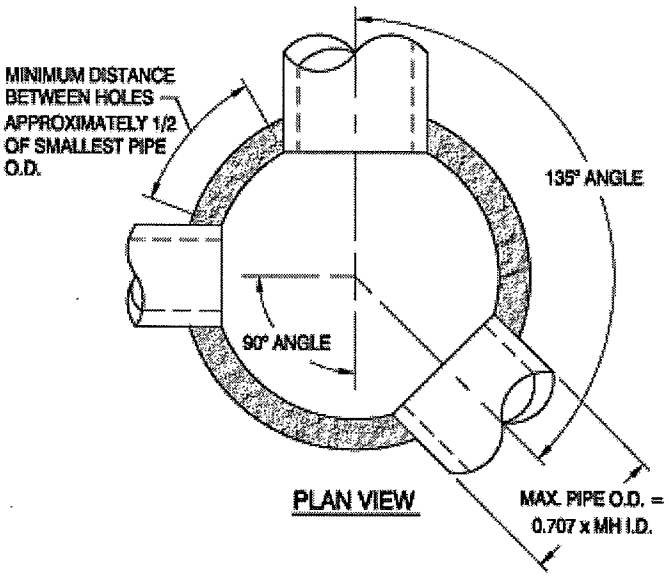
.CROSS SECTION AREA OF CULVERT PIPES AND ARCHES

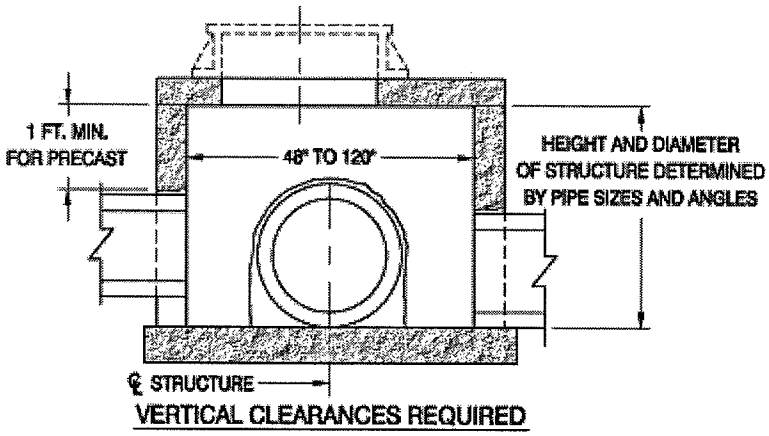
PIPE CULVERTS AND CORR. STR. PLATE PIPE		ELIPTICAL PIPE CULVERTS		CORRUGATED STRUCTURAL PLATE PIPE ARCHES		PIPE ARCH CULVERTS			
						CORRUGATED METAL		REINFORCED CONCRETE	
DIAMETER INCHES	AREA SQ FT	SPAN X RISE INCHES	AREA SQ FT	SPAN X RISE INCHES	AREA SQ FT	SPAN X RISE INCHES	AREA SQ FT	SPAN X RISE INCHES	AREA SQ FT
6	0.2								
8	0.4								
10	0.5								
12	0.8								
15	1.2					17 X 13	1.1	18 X 11	1.1
18	1.8	23 X 14	1.8			21 X 15	1.6	22 X 13 1/2	1.6
21	2.4					24 X 18	2.2	26 X 15 1/2	2.2
24	3.1	30 X 19	3.3			28 X 20	2.8	28 1/2 X 18	2.8
27	4.0	34 X 22	4.1						
30	4.9	38 X 24	5.1			35 X 24	4.4	36 1/4 X 22 1/2	4.4
36	7.1	45 X 29	7.4			42 X 29	6.4	43 3/4 X 26 5/8	6.4
42	9.6	53 X 34	10.2			49 X 33	8.7	51 1/8X315/16	8.8
48	12.6	60 X 38	12.9			57 X 38	11.4	58 1/2 X 36	11.4
54	15.9	68 X 43	16.6			64X43	14.3	65 X 40	14.3
60	19.6	76 X 48	20.5			71 X 47	17.6	73 X 45	17.7
66	23.8	83 X 53	24.8			77 X 52	21.3		
72	28.3	91 X 58	29.5			83 X 57	25.3	88 X 54	25.6
78	33	98 X 63	35	6 – 1 X 4 – 7	22	87 X 63	31		
				6 – 4 X 4 – 9	24				
				6 – 9 X 4 – 11	26				
84	38	106 X 68	40	7 – 0 X 5 – 1	28	95 X 67	35	102 X 62	34.6
				7 – 3 X 5 – 3	31				
90	44	113 X 72	46	7 – 8 X 5 – 5	33	103 X 71	40	115 X 72	44.5
				7 – 11 X 5 – 7	35				
96	50	121 X 77	52	8 – 2 X 5 – 9	38	112 X 75	46	122 X 77 1/4	51.7
				8 – 7 X 5 – 11	40				
102	57	128 X 82	59	8 – 10 X 6 – 1	43	117 X 79	52		
				9 – 4 X 6 – 3	46				
108	64	136 X 87	66	9 – 6 X 6 – 5	49	128 X 83	58	138 X 87 1/8	66.0
				9 – 9 X 6 – 7	52				
114	71	143 X 92	74	10 – 3 X 6 – 9	55	137 X 87	54		
				10 – 8 X 6 – 11	58				
120	78	151 X 97	82	10 – 11 X 7 – 1	61	142 X 91	71	154 X 96 7/8	81.8
				11 – 5 X 7 – 3	64				
126	87			11 – 7 X 7 – 5	67				
				11 – 10 X 7 – 7	71				
132	95	166 X 106	99	12 – 4 X 7 – 9	74			1683/4X1061/2	99.1
				12 – 6 X 7 – 11	78				
138	104			12 – 8 X 8 – 1	81				
				12 – 10 X 8 – 4	85				
144	113	180 X 116	119	13 – 5 X 8 – 5	89				
				13 – 11 X 8 – 7	93				
150	123			14 – 1 X 8 – 9	97				
				14 – 3 X 8 – 11	101				
156	133			14 – 10 X 9 – 1	105				
				15 – 4 X 9 – 3	109				
162	143			15 – 6 X 9 – 5	113				
				15 – 8 X 9 – 7	118				
168	154			15 – 10 X 9 – 10	122				
				16 – 5 X 9 – 11	126				
174	165			16 – 7 X 10 – 1	131				
180	177								

Cretex Concrete Products North, Inc.

Manhole Sizing Chart

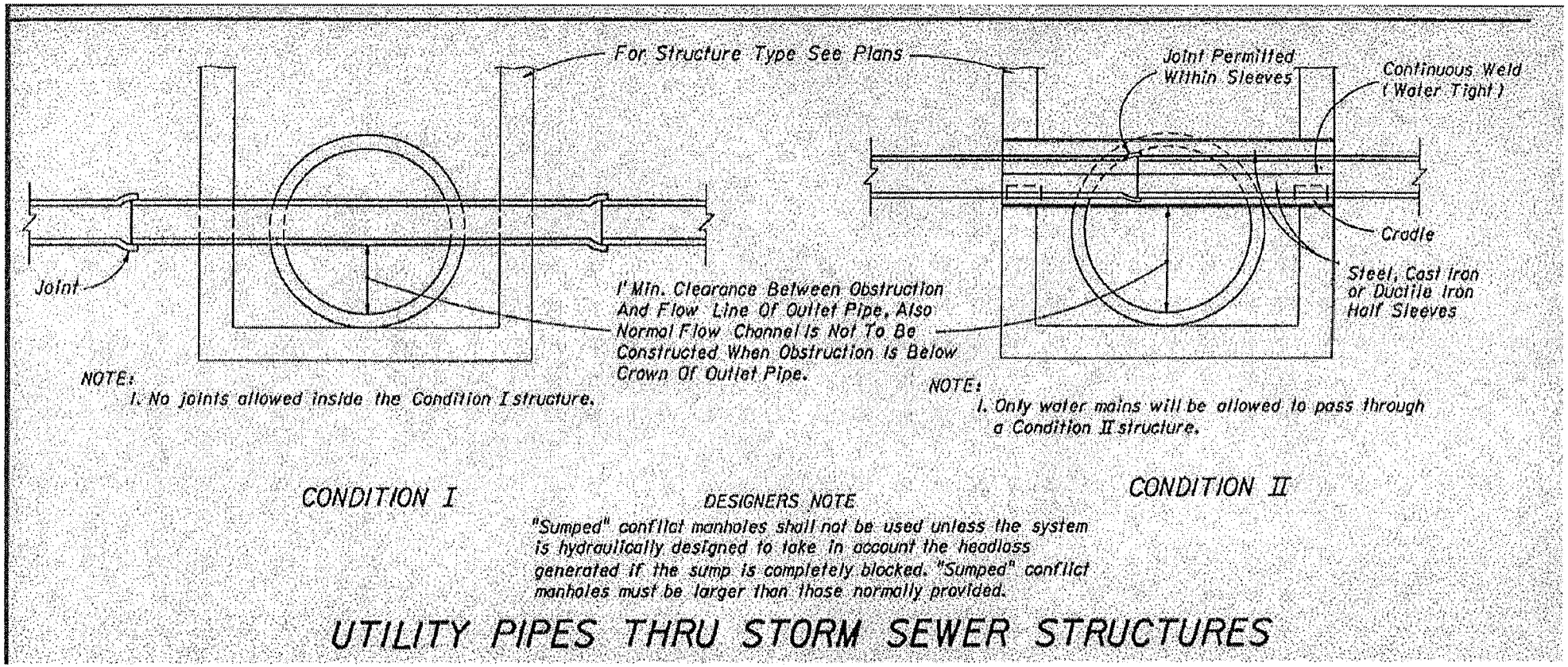
Minimum Circumferential Clearances Required





REINFORCED CONCRETE PIPE		
PIPE SIZE	WALL B O.D.	WALL C O.D.
12"	16"	18"
15"	19 1/2"	21"
18"	23"	24 1/2"
21"	26 1/2"	28"
24"	30"	31 1/2"
27"	33 1/2"	35"
30"	37"	38 1/2"
33"	40 1/2"	42"
36"	44"	45 1/2"
42"	51"	52 1/2"
48"	58"	59 1/2"
54"	65"	66 1/2"
60"	72"	73 1/2"
66"	79"	80 1/2"
72"	86"	87 1/2"
78"	93"	94 1/2"
84"	100"	101 1/2"
90"	107"	-
96"	114"	-
102"	121"	-
108"	128"	-
120"	142"	-

MAX. PIPE SIZE OF RCP			
MANHOLE DIA.	FROM STRAIGHT THRU TO 135° ANGLE	IF 90° ANGLE	IF 180° ANGLE
48"	24" RCP	18" RCP	24" RCP
60"	33" RCP	27" RCP	33" RCP
72"	36" RCP	33" RCP	36" RCP
84"	48" RCP	36" RCP	48" RCP
96"	54" RCP	42" RCP	54" RCP
Chart to be used to determine manhole sizing.			



NOTE:
1. No joints allowed inside the Condition I structure.

NOTE:
1. Only water mains will be allowed to pass through a Condition II structure.

CONDITION I

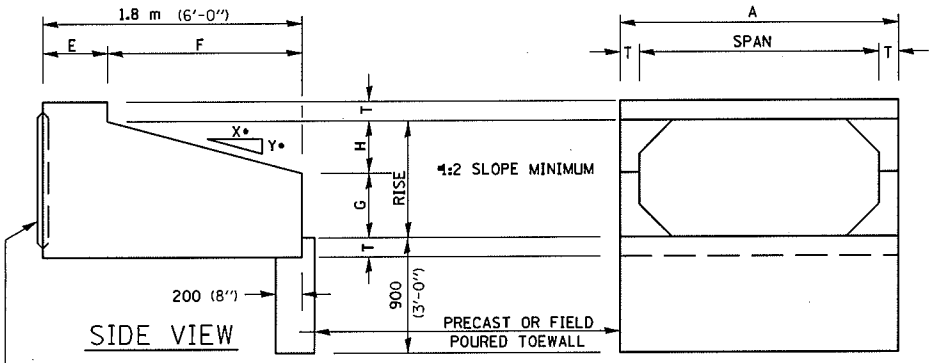
CONDITION II

DESIGNERS NOTE

"Sumped" conflict manholes shall not be used unless the system is hydraulically designed to take in account the headloss generated if the sump is completely blocked. "Sumped" conflict manholes must be larger than those normally provided.

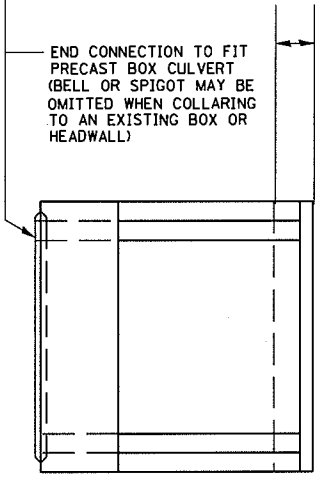
UTILITY PIPES THRU STORM SEWER STRUCTURES

DETAIL OF PRECAST CONCRETE BOX CULVERTS AND END SECTIONS

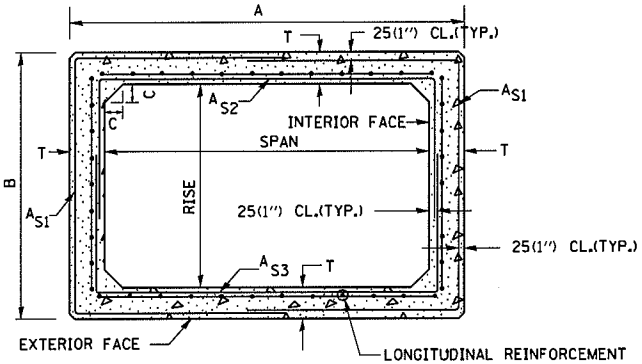


SIDE VIEW

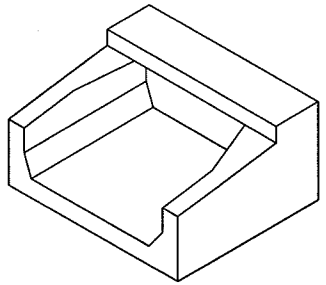
END VIEW



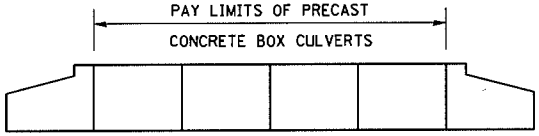
PLAN



CROSS-SECTION



ISOMETRIC VIEW



GENERAL NOTES

PRECAST CONCRETE BOX CULVERTS AND PRECAST CONCRETE BOX CULVERT END SECTIONS

THIS WORK CONSISTS OF FURNISHING AND INSTALLING PRECAST BOX CULVERTS AND BOX CULVERT END SECTIONS AS SHOWN ON THE PLANS AND SPECIFIED HEREIN.

IF THE EARTH COVER IS 600 (2 ft) OR MORE, THE PRECAST CONCRETE BOX CULVERT SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C789 EXCEPT THAT THE AGGREGATE SHALL CONFORM TO THE REQUIREMENTS OF ARTICLES 1003.02 AND 1004.02 OF THE STANDARD SPECIFICATIONS, WITH THE EXCEPTION OF A GRADATION.

IF THE EARTH COVER IS LESS THAN 600 (2 ft), THE PRECAST BOX CULVERT BARREL SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C850 AND THE END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C789. WITH THE EXCEPTION OF GRADATION, THE AGGREGATE SHALL CONFORM TO THE REQUIREMENTS OF ARTICLES 1003.02 AND 1004.02 OF THE STANDARD SPECIFICATIONS.

ALL APPLICABLE REQUIREMENTS OF ARTICLE 540 OF THE STANDARD SPECIFICATIONS.

THE EXCAVATION AND BACKFILLING FOR PRECAST CONCRETE BOX CULVERT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 502 OF THE STANDARD SPECIFICATIONS EXCEPT A LAYER OF POROUS GRANULAR BACKFILL, AT LEAST 150 (6") IN THICKNESS, SHALL BE PLACED BELOW THE ELEVATION OF THE BOTTOM OF THE BOX. THE POROUS GRANULAR BACKFILL SHALL BE PLACED TO EXTEND AT LEAST 600 (2 ft) EACH SIDE OF THE BOX. THE PRECAST CONCRETE BOX CULVERT SHALL BE LAID IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF ARTICLE 542.04 (d) OF THE STANDARD SPECIFICATIONS

SHOP PLANS FOR THE PRECAST CONCRETE BOX CULVERT SECTIONS AND THE END SECTIONS SHALL BE SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 1042.03 (b) OF THE STANDARD SPECIFICATIONS.

THE PRECAST CONCRETE BOX CULVERT EXCLUDING END SECTIONS WILL BE MEASURED ON A METER (LINEAL FOOT) BASIC. THE PRECAST BOX CULVERT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER METER (LINEAL FOOT) FOR PRECAST CONCRETE BOX CULVERT, OF THE SIZE SPECIFIED, AND INCLUDES POROUS GRADULAR BACKFILL EXCAVATION EXCEPT EXCAVATION OF ROCK AND/OR UNSTABLE OR UNSUITABLE MATERIAL BELOW BEDDING GRADE

THE PRECAST CONCRETE BOX CULVERT END SECTION WILL BE MEASURED ON AN EACH BASIS. THE END SECTIONS WILL BE PAID FOR AT THE CONCTRACT UNIT PRICE EACH FOR BOX CULVERT END SECTIONS, OF THE CULVERT NUMBER SPECIFIED, AND INCLUDE EXCAVATION, TOEWALL AND COLLARS.

Page 5

FILE NAME = c:\pw_work\pwidot\hogensonjd\d0248159\PCBC_and_End_Sections.dgn USER NAME = hogensonjd PLOT DATE = Mon Nov 29 13:51:20 2010	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	REGION 2 / DISTRICT 2 STANDARD	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
					CONTRACT NO.	
		STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

DETAIL OF PRECAST CONCRETE BOX CULVERTS AND END SECTIONS 71.1

DETAIL OF PRECAST CONCRETE BOX CULVERTS AND END SECTIONS

DIMENSIONS (FOR ASTM C789) *

SPAN X RISE (ft) meter	T mm (INCHES)	A mm (FT.-IN.)	B mm (FT.-IN.)	C mm (INCHES)	E mm (FT.-IN.)	F mm (FT.-IN.)	G mm (FT.-IN.)	H mm (FT.-IN.)	SLOPE (X : Y)
0.6 x 0.6 (2'x2')	100 (4)	800 (2-8)	800 (2-8)	100 (4)	900 (3-0)	900 (3-0)	300 (1-0)	300 (1-0)	1:3
0.9 x 0.6 (3'x2')	100 (4)	1100 (3-8)	800 (2-8)	100 (4)	900 (3-0)	900 (3-0)	300 (1-0)	300 (1-0)	1:3
0.9 x 0.75 (3'x2.5')	100 (4)	1100 (3-8)	950 (3-2)	100 (4)	900 (3-0)	900 (3-0)	375 (1-3)	375 (1-3)	1:3
0.9 x 0.9 (3'x3')	100 (4)	1100 (3-8)	1100 (3-8)	100 (4)	600 (2-0)	1200 (4-0)	500 (1-8)	400 (1-4)	1:3
1.2 x 0.6 (4'x2')	125 (5)	1450 (4-10)	850 (2-10)	125 (5)	900 (3-0)	900 (3-0)	300 (1-0)	300 (1-0)	1:3
1.2 x 0.9 (4'x3')	125 (5)	1450 (4-10)	1150 (3-10)	125 (5)	600 (2-0)	1200 (4-0)	500 (1-8)	400 (1-4)	1:3
1.2 x 1.2 (4'x4')	125 (5)	1450 (4-10)	1450 (4-10)	125 (5)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
1.5 x 0.6 (5'x2')	150 (6)	1800 (6-0)	900 (3-0)	150 (6)	900 (3-0)	900 (3-0)	300 (1-0)	300 (1-0)	1:3
1.5 x 0.9 (5'x3')	150 (6)	1800 (6-0)	1200 (4-0)	150 (6)	600 (2-0)	1200 (4-0)	500 (1-8)	400 (1-4)	1:3
1.5 x 1.2 (5'x4')	150 (6)	1800 (6-0)	1500 (5-0)	150 (6)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
1.5 x 1.5 (5'x5')	150 (6)	1800 (6-0)	1800 (6-0)	150 (6)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:3
1.8 x 0.6 (6'x2')	175 (7)	2150 (7-2)	950 (3-2)	175 (7)	900 (3-0)	900 (3-0)	300 (1-0)	300 (1-0)	1:3
1.8 x 0.9 (6'x3')	175 (7)	2150 (7-2)	1250 (4-2)	175 (7)	600 (2-0)	1200 (4-0)	500 (1-8)	400 (1-4)	1:3
1.8 x 1.2 (6'x4')	175 (7)	2150 (7-2)	1550 (5-2)	175 (7)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
1.8 x 1.5 (6'x5')	175 (7)	2150 (7-2)	1850 (6-2)	175 (7)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2

SPAN X RISE (ft) meter	T mm (INCHES)	A mm (FT.-IN.)	B mm (FT.-IN.)	C mm (INCHES)	E mm (FT.-IN.)	F mm (FT.-IN.)	G mm (FT.-IN.)	H mm (FT.-IN.)	SLOPE (X : Y)
2.7 x 1.8 (9'x6')	225 (9)	3150 (10-6)	2250 (7-6)	225 (9)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
2.7 x 2.1 (9'x7')	225 (9)	3150 (10-6)	2600 (8-6)	225 (9)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
2.7 x 2.4 (9'x8')	225 (9)	3150 (10-6)	2900 (9-6)	225 (9)	600 (2-0)	1200 (4-0)	1800 (6-0)	600 (2-0)	1:2
2.7 x 2.7 (9'x9')	225 (9)	3150 (10-6)	3150 (10-6)	225 (9)	600 (2-0)	1200 (4-0)	2100 (7-0)	600 (2-0)	1:2
3.0 x 0.9 (10'x3')	255 (10)	3550 (11-8)	1425 (4-8)	250 (10)	600 (2-0)	1200 (4-0)	500 (1-8)	400 (1-4)	1:3
3.0 x 1.2 (10'x4')	255 (10)	3550 (11-8)	1725 (5-8)	250 (10)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
3.0 x 1.5 (10'x5')	255 (10)	3550 (11-8)	2025 (6-8)	250 (10)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
3.0 x 1.8 (10'x6')	255 (10)	3550 (11-8)	2350 (7-8)	250 (10)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2
3.0 x 2.1 (10'x7')	255 (10)	3550 (11-8)	2650 (8-8)	250 (10)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
3.0 x 2.4 (10'x8')	255 (10)	3550 (11-8)	2950 (9-8)	250 (10)	600 (2-0)	1200 (4-0)	1800 (6-0)	600 (2-0)	1:2
3.0 x 2.7 (10'x9')	255 (10)	3550 (11-8)	3250 (10-8)	250 (10)	600 (2-0)	1200 (4-0)	2100 (7-0)	600 (2-0)	1:2
3.0 x 3.0 (10'x10')	255 (10)	3550 (11-8)	3550 (11-8)	250 (10)	600 (2-0)	1200 (4-0)	2400 (8-0)	600 (2-0)	1:2
3.3 x 0.9 (11'x3')	280 (11)	3900 (12-10)	1475 (4-10)	275 (11)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
3.3 x 1.2 (11'x4')	280 (11)	3900 (12-10)	1775 (5-10)	275 (11)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
3.3 x 1.5 (11'x5')	280 (11)	3900 (12-10)	2075 (6-10)	275 (11)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2

SPAN X RISE (ft) meter	T mm (INCHES)	A mm (FT.-IN.)	B mm (FT.-IN.)	C mm (INCHES)	E mm (FT.-IN.)	F mm (FT.-IN.)	G mm (FT.-IN.)	H mm (FT.-IN.)	SLOPE (X : Y)
1.8 x 1.8 (6'x6')	175 (7)	2150 (7-2)	2150 (7-2)	175 (7)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
2.1 x 0.9 (7'X3')	200 (8)	2500 (8-4)	1300 (4-4)	200 (8)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
2.1 x 1.2 (7'x4')	200 (8)	2500 (8-4)	1600 (5-4)	200 (8)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
2.1 x 1.5 (7'x5')	200 (8)	2500 (8-4)	1900 (6-4)	200 (8)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2
2.1 x 1.8 (7'x6')	200 (8)	2500 (8-4)	2200 (7-4)	200 (8)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
2.1 x 2.1 (7'x7')	200 (8)	2500 (8-4)	2500 (8-4)	200 (8)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
2.4 x 0.9 (8'x3')	200 (8)	2800 (9-4)	1300 (4-4)	200 (8)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
2.4 x 1.2 (8'x4')	200 (8)	2800 (9-4)	1600 (5-4)	200 (8)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
2.4 x 1.5 (8'x5')	200 (8)	2800 (9-4)	1900 (6-4)	200 (8)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2
2.4 x 1.8 (8'x6')	200 (8)	2800 (9-4)	2200 (7-4)	200 (8)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
2.4 x 2.1 (8'x7')	200 (8)	2800 (9-4)	2500 (8-4)	200 (8)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
2.4 x 2.4 (8'x8')	200 (8)	2800 (9-4)	2800 (9-4)	200 (8)	600 (2-0)	1200 (4-0)	1800 (6-0)	600 (2-0)	1:2
2.7 x 0.9 (9'x3')	225 (9)	3150 (10-6)	1350 (4-6)	225 (9)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
2.7 x 1.2 (9'x4')	225 (9)	3150 (10-6)	1650 (5-6)	225 (9)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
2.7 x 1.5 (9'x5')	225 (9)	3150 (10-6)	1950 (6-6)	225 (9)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2

SPAN X RISE (ft) meter	T mm (INCHES)	A mm (FT.-IN.)	B mm (FT.-IN.)	C mm (INCHES)	E mm (FT.-IN.)	F mm (FT.-IN.)	G mm (FT.-IN.)	H mm (FT.-IN.)	SLOPE (X : Y)
3.3 x 1.8 (11'x6')	280 (11)	3900 (12-10)	2400 (7-10)	275 (11)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
3.3 x 2.1 (11'x7')	280 (11)	3900 (12-10)	2700 (8-10)	275 (11)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
3.3 x 2.4 (11'x8')	280 (11)	3900 (12-10)	3000 (9-10)	275 (11)	600 (2-0)	1200 (4-0)	1800 (6-0)	600 (2-0)	1:2
3.3 x 2.7 (11'x9')	280 (11)	3900 (12-10)	3300 (10-10)	275 (11)	600 (2-0)	1200 (4-0)	2100 (7-0)	600 (2-0)	1:2
3.3 x 3.0 (11'x10')	280 (11)	3900 (12-10)	3600 (11-10)	275 (11)	600 (2-0)	1200 (4-0)	2400 (8-0)	600 (2-0)	1:2
3.3 x 3.3 (11'x11')	280 (11)	3900 (12-10)	3900 (12-10)	275 (11)	600 (2-0)	1200 (4-0)	2700 (9-0)	600 (2-0)	1:2
3.6 x 0.9 (12'x3')	300 (12)	4250 (14-0)	1525 (5-0)	300 (1-0)	600 (2-0)	1200 (4-0)	300 (1-0)	600 (2-0)	1:2
3.6 x 1.2 (12'x4')	300 (12)	4250 (14-0)	1825 (6-0)	300 (1-0)	600 (2-0)	1200 (4-0)	600 (2-0)	600 (2-0)	1:2
3.6 x 1.5 (12'x5')	300 (12)	4250 (14-0)	2125 (7-0)	300 (1-0)	600 (2-0)	1200 (4-0)	900 (3-0)	600 (2-0)	1:2
3.6 x 1.8 (12'x6')	300 (12)	4250 (14-0)	2425 (8-0)	300 (1-0)	600 (2-0)	1200 (4-0)	1200 (4-0)	600 (2-0)	1:2
3.6 x 2.1 (12'x7')	300 (12)	4250 (14-0)	2725 (9-0)	300 (1-0)	600 (2-0)	1200 (4-0)	1500 (5-0)	600 (2-0)	1:2
3.6 x 2.4 (12'x8')	300 (12)	4250 (14-0)	3025 (10-0)	300 (1-0)	600 (2-0)	1200 (4-0)	1800 (6-0)	600 (2-0)	1:2

* ALL DIMENSIONS SHOULD BE VERIFIED WITH SUPPLIER.

Page 6

FILE NAME = c:\pw_work\pwidot\hogensonjd\d0248159\PCBC_and_End_Sections.dgn

USER NAME = hogensonjd

PLOT DATE = Mon Nov 29 13:51:21 2010

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REGION 2 / DISTRICT 2 STANDARD

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.

CONTRACT NO.

STA. TO STA. | FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

DETAIL OF PRECAST CONCRETE BOX CULVERTS AND END SECTIONS 71.1

Preferred culvert excavation trench slope by soil type

Note: Request soil type for each culvert from the Geotechnical Engineer

Occupational Safety & Health Administration (OSHA)

Type A Soils: are cohesive soils with an unconfined compressive strength of 1.5 tons/sq ft or greater.

Examples of Type A Soils: clay, silty clay, sandy clay , clay loam.

Type B Soils: are cohesive soils with an unconfined compressive strength greater than 0.5 but less than 1.5 tons/sq ft.

Examples of Type B Soils: angular gravel silt, silt loam, previously disturbed soils, and others.

Type C Soils: are cohesive soils with an unconfined compressive strength of 0.5 tons/sq ft. or less

Examples of Type C Soils: gravel, sand, and loam sand and others.

Occupational Safety & Health Administration (OSHA)

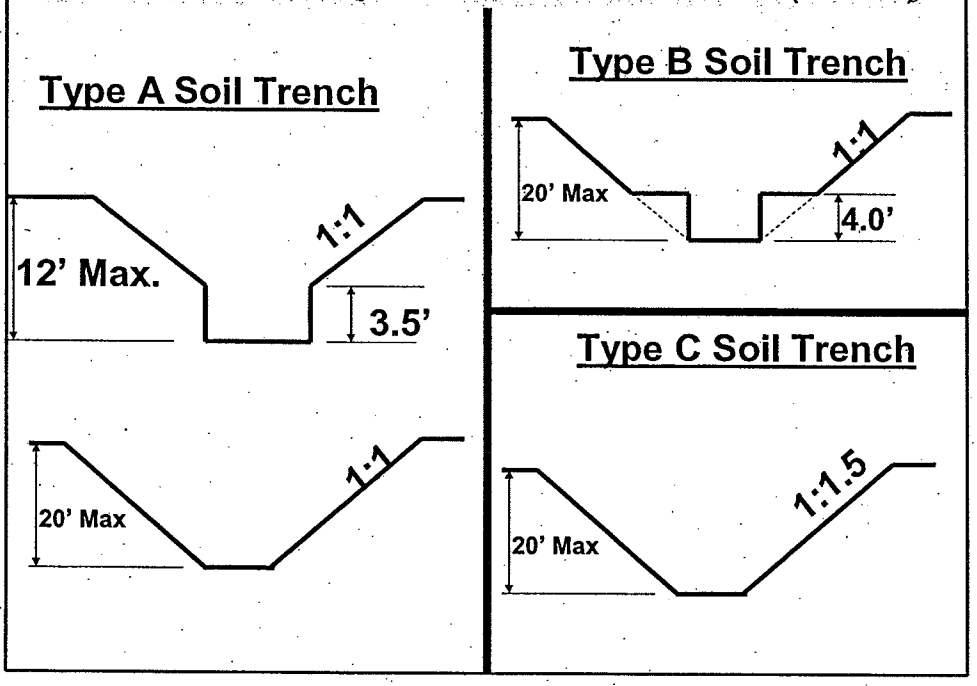
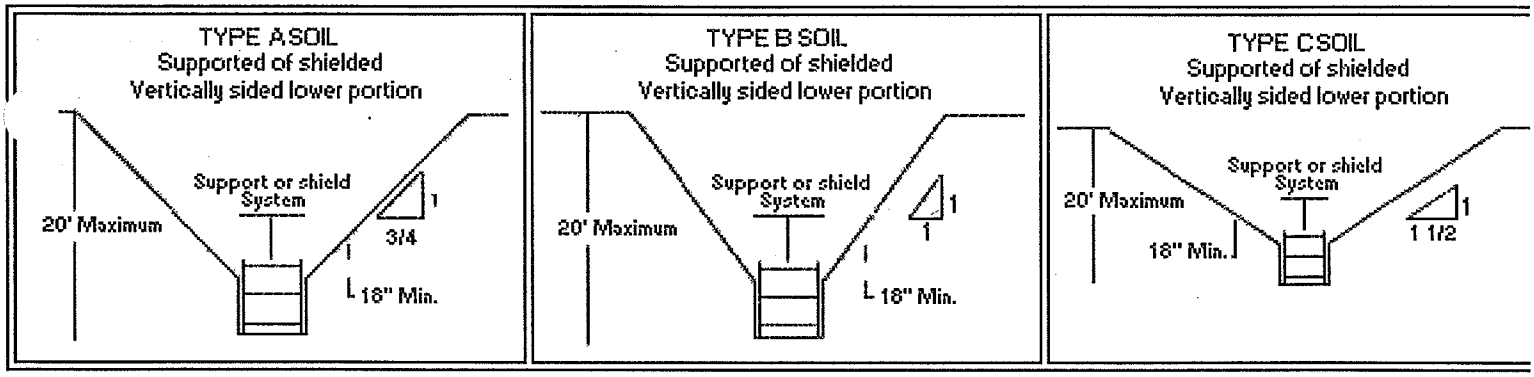


FIGURE V:2-12. SLOPE AND SHIELD CONFIGURATIONS.



III. SLOPING AND BENCHING.

A. **SLOPING.** Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soil type and angle to the horizontal are as follows:

TABLE V:2-1. ALLOWABLE SLOPES.

Soil type	Height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 ft)		

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.

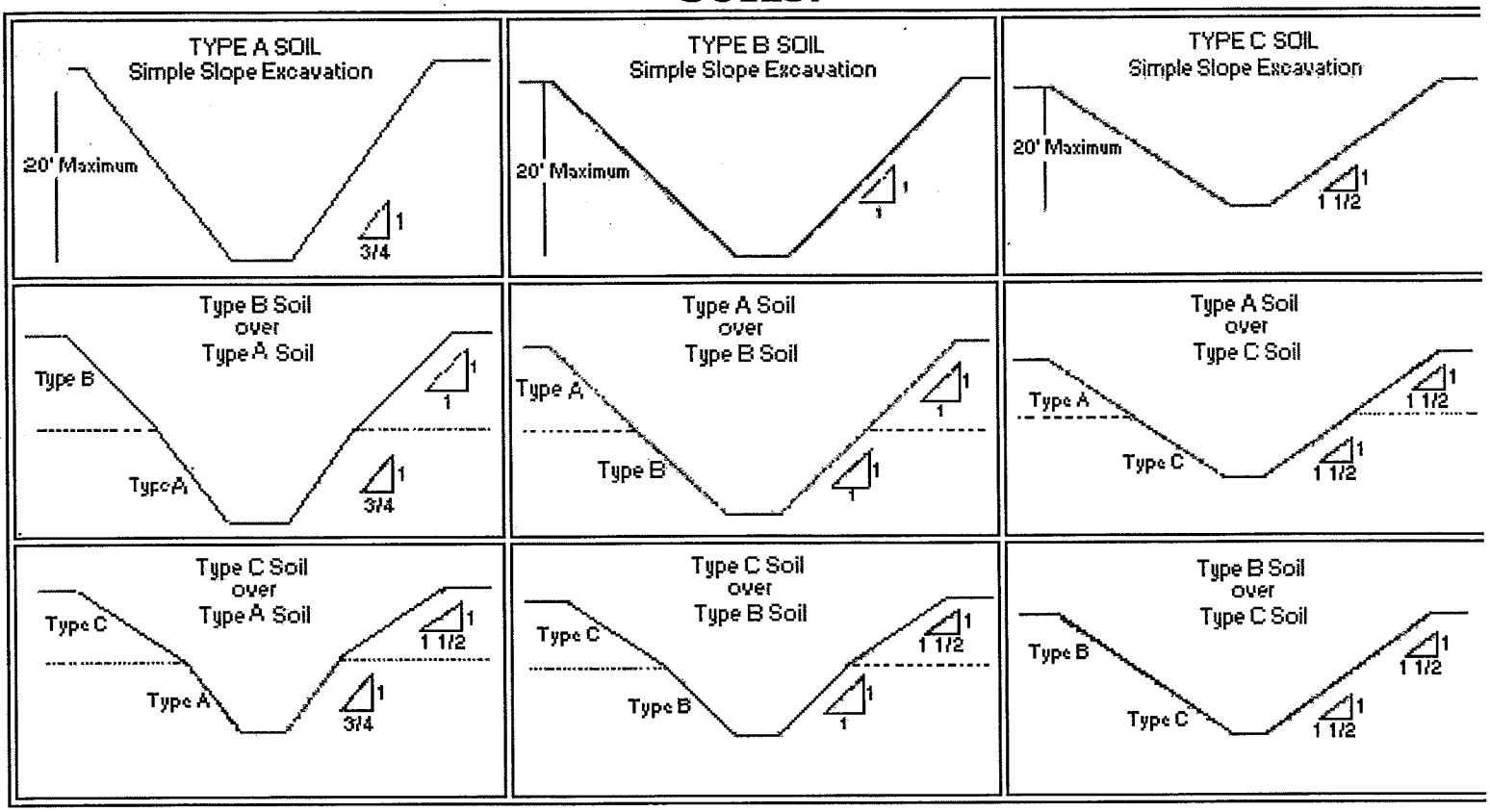
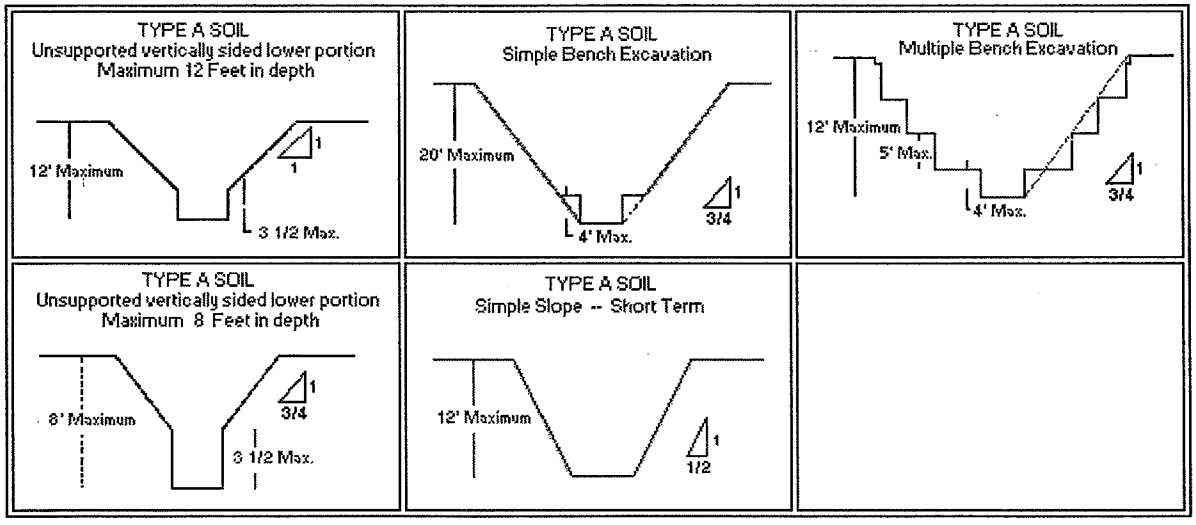


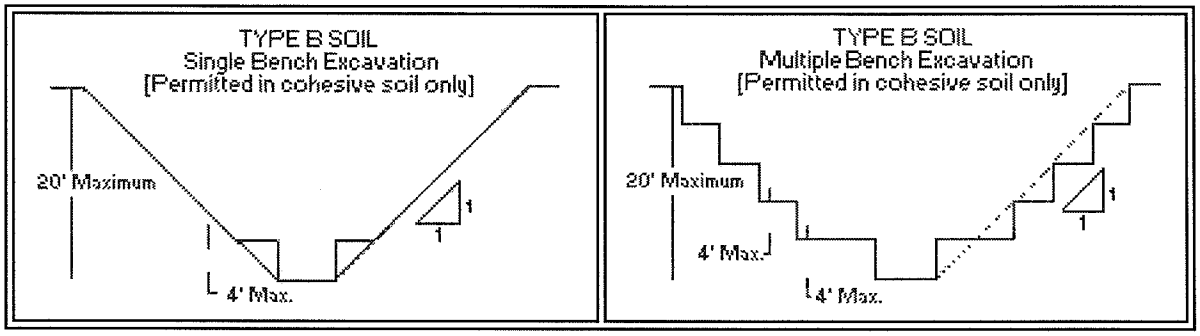
FIGURE V:2-14. EXCAVATIONS MADE IN TYPE A SOIL.



IX. **BENCHING.** There are two basic types of benching, simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

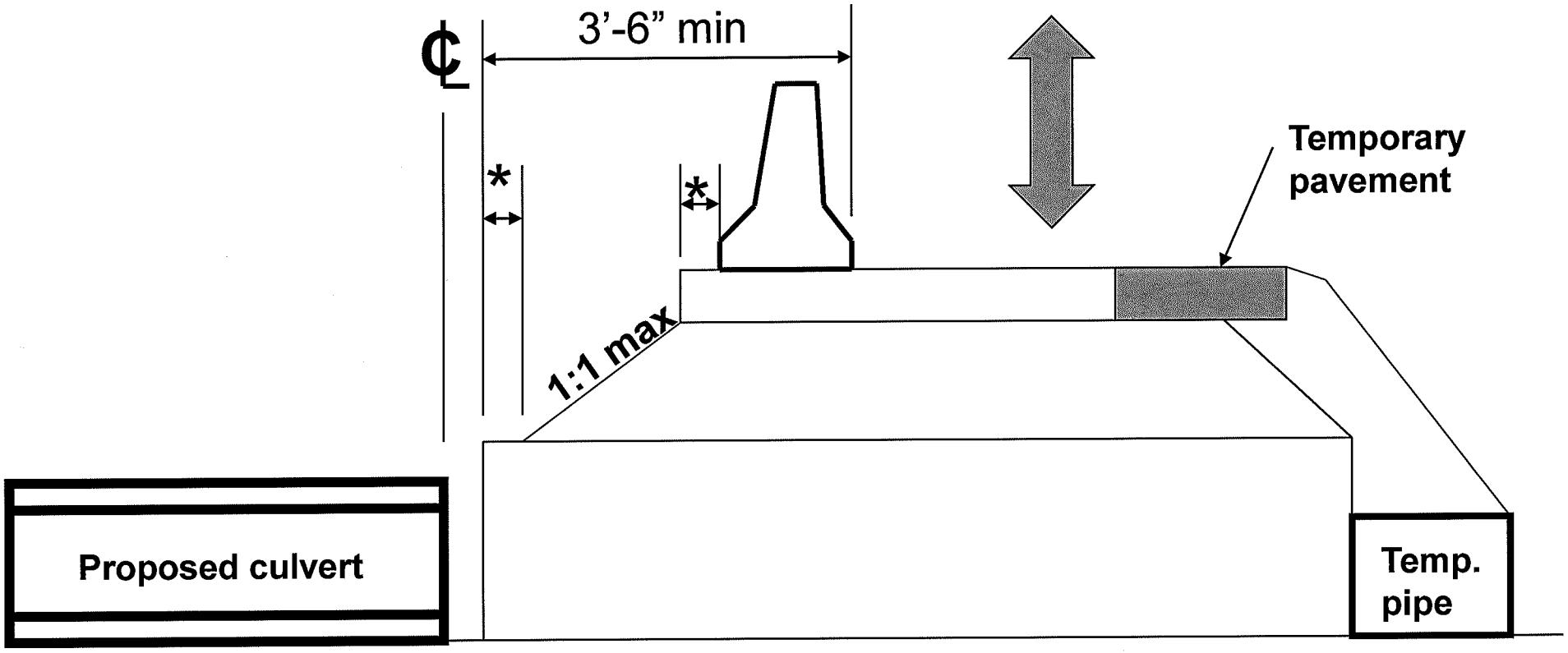
As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 ft (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted in cohesive soil only.

FIGURE V:2-15. EXCAVATIONS MADE IN TYPE B SOIL.



Culvert Stage Construction

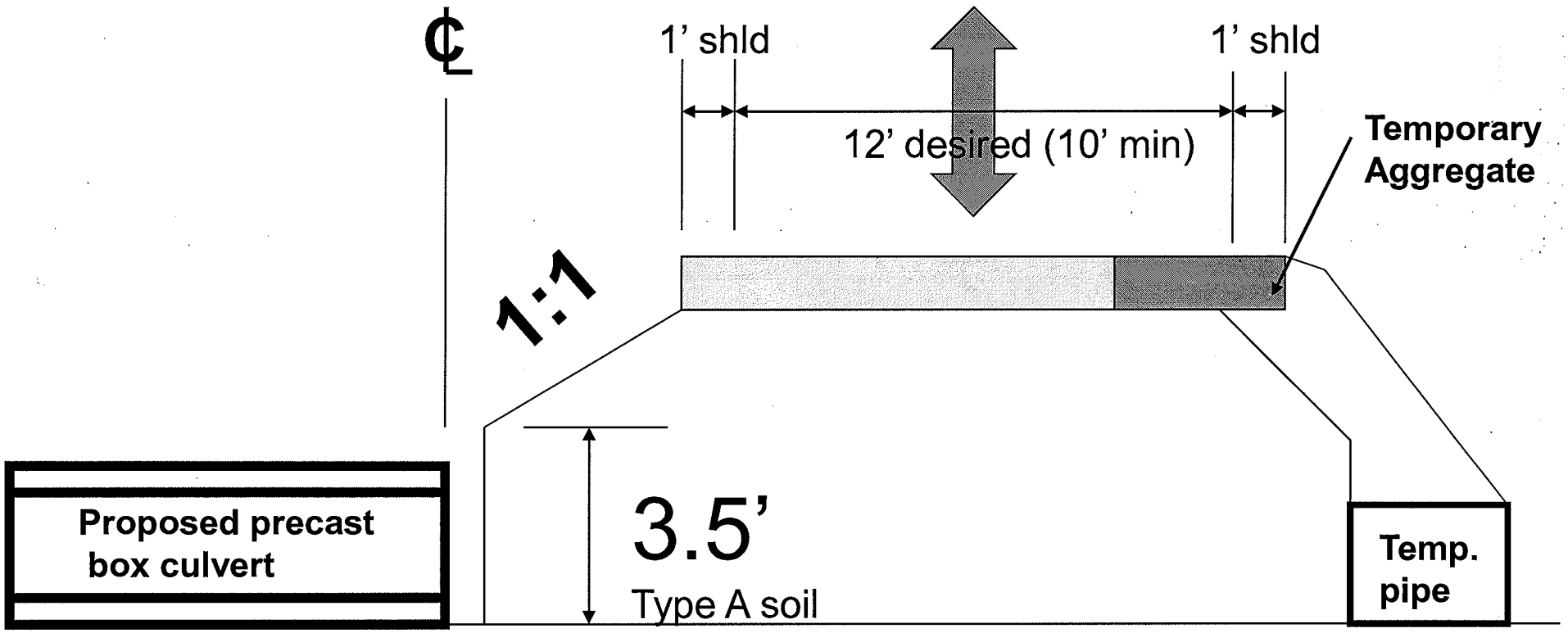
[redacted]



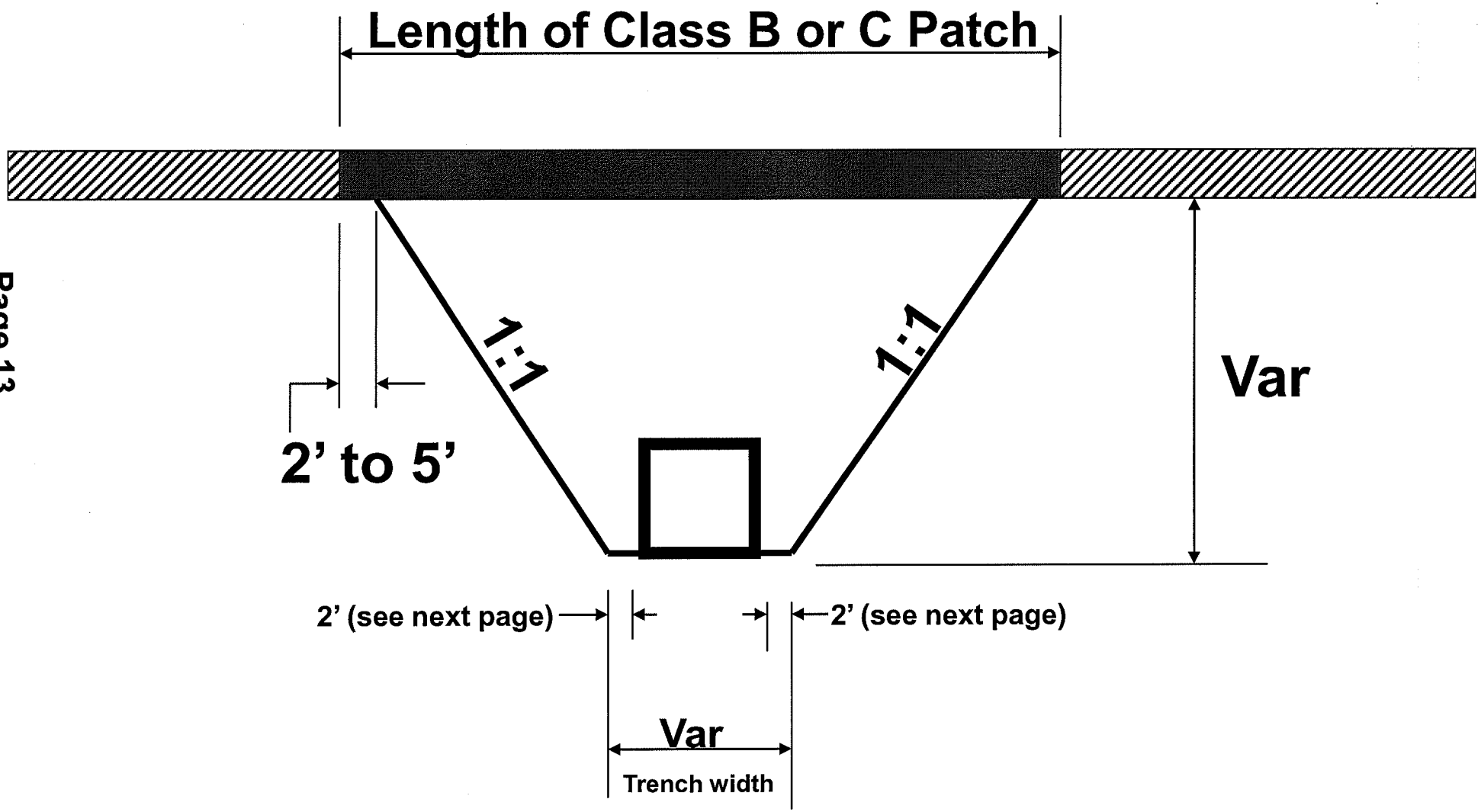
* 6" min

Culvert Stage Construction

Using Flaggers

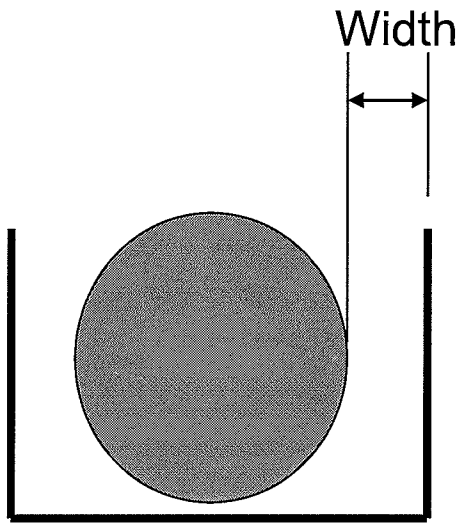


Type A&B Soil Trench



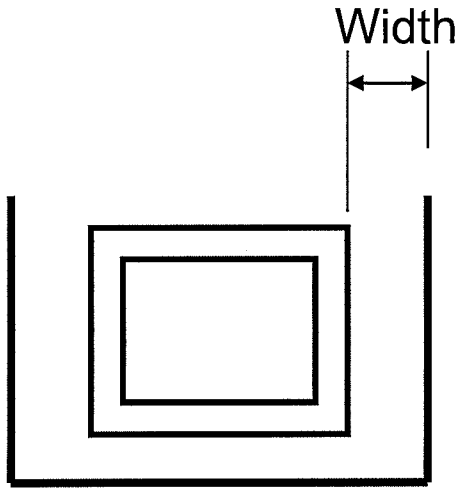
Trench Widths

Pipes size	Trench width on Each side of pipe
24" or less	9"
>24" to 48"	12"
> 48"	18"

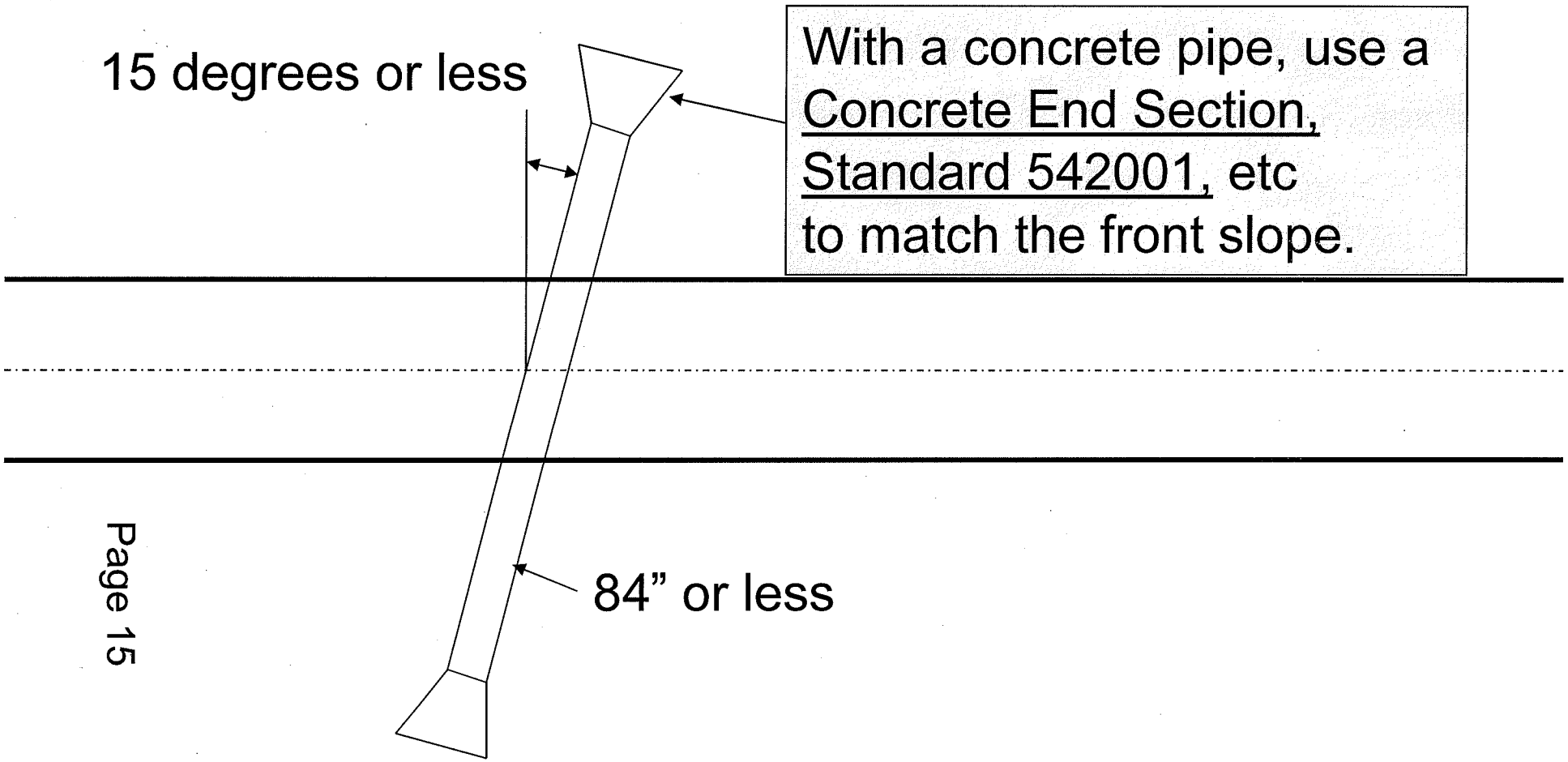


Precast box culvert 2' minimum

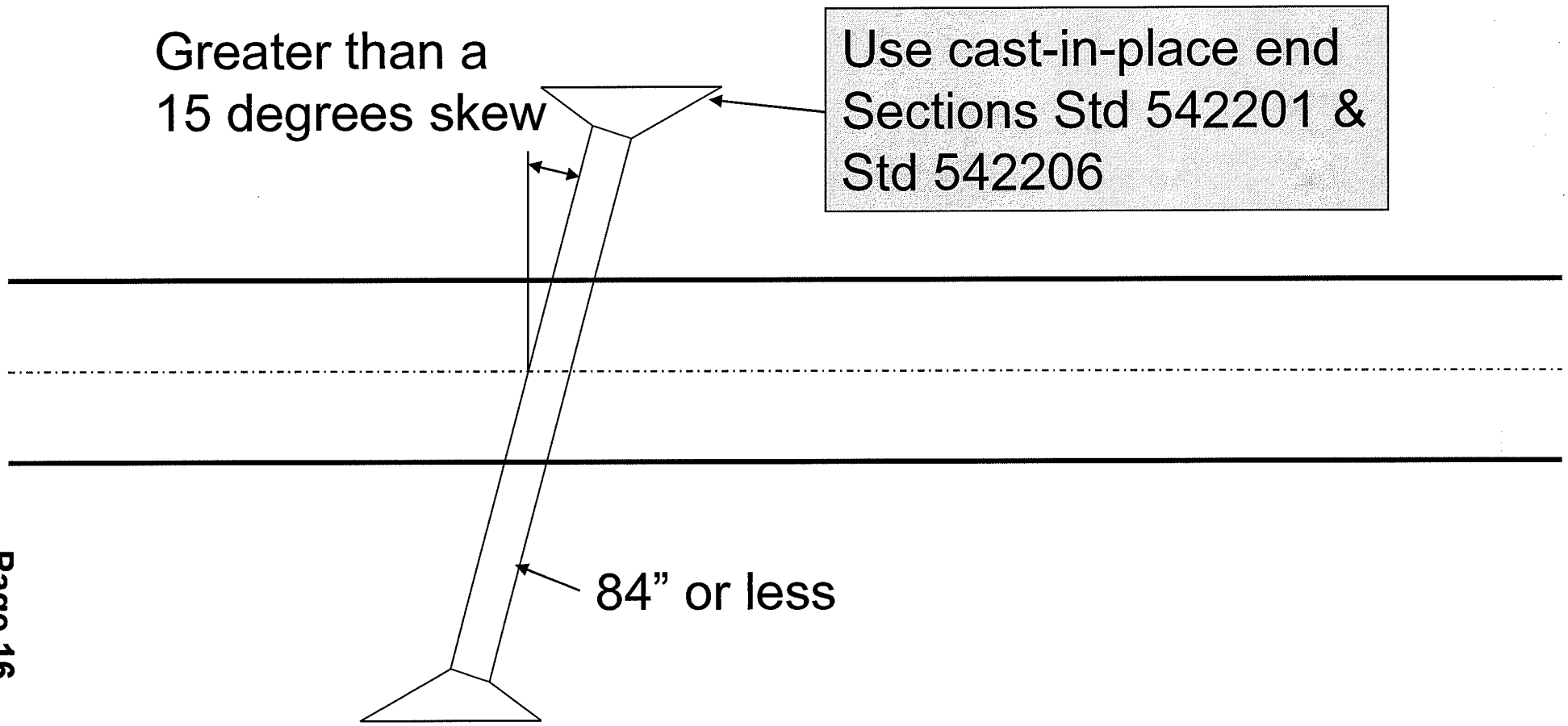
Cast-in-place box culvert 5'±



Article 542.07 End Treatment
For pipe culverts

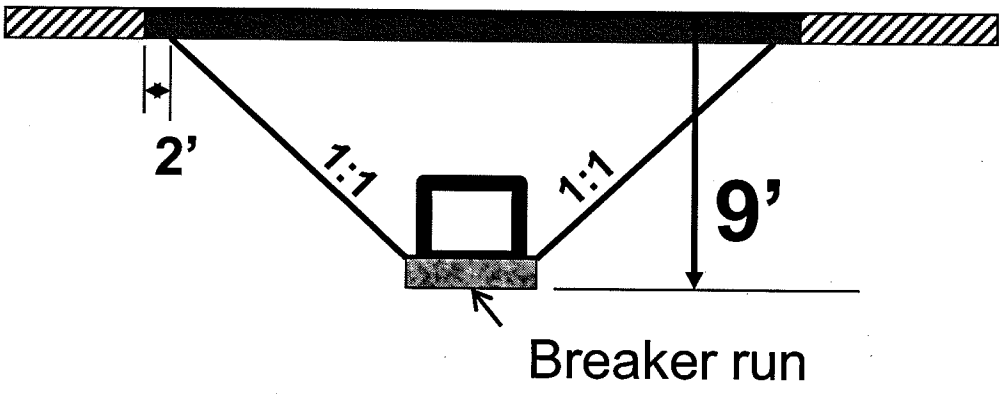


Article 542.07 End Treatment For pipe culverts

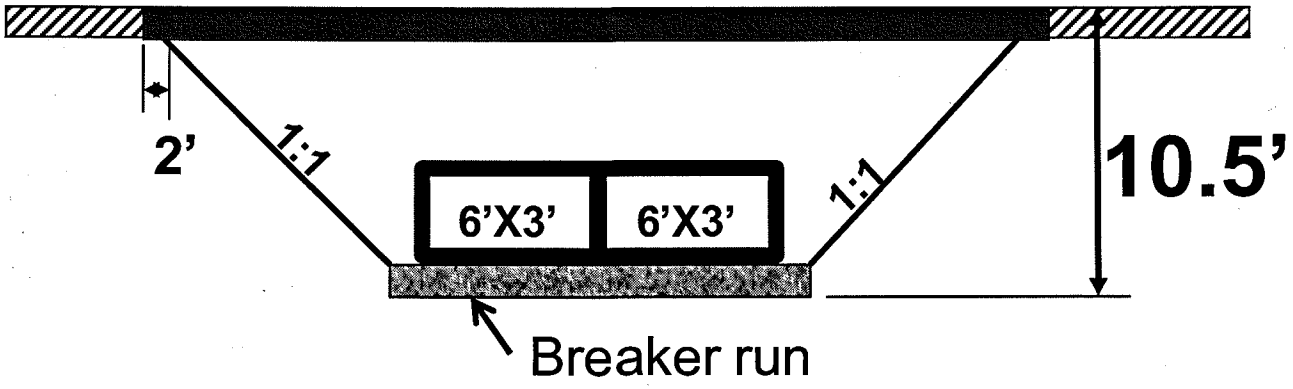


Criteria for Installing Culverts Half at a Time
(Using Flaggers)

- Culvert perpendicular to the roadway
- Culvert in the same location as the existing
- Maximum 9' depth from the top of pavement to the bottom of excavation including breaker run, if required
- Single or double pipe or box culvert



The District 2 record culvert installed half at a time using flaggers is a double 6' x 3' box culvert 10.5' deep. It was on IL 26 near Amboy Road, installed August of 2008.



Manhole Sizing and Hydraulic Losses

Rule of thumb for sizing manholes:

1. When the sewer pipe diameter is 18" or less, use a 4' diameter manhole.
2. When the sewer pipe diameter is 21" to 42", use a 5' diameter manhole.
3. When the sewer pipe diameter is greater than 42", use a 6', 7', 8' or 9' diameter manhole.
4. See page 3 for additional information on manhole sizing.

The following criteria should be used to estimate hydraulic losses in storm sewer manholes:

1. Allow a drop of 0.1 foot (30 mm) in a through manhole when there is no change in the diameter of the sewer pipe.
2. Allow a drop of 0.2 foot (60 mm) in the presence of one lateral or bend.
3. Allow a drop of 0.3 foot (90 mm) when two laterals are present.
4. In a through manhole where there is a change in the diameter of the sewer pipe, no loss should be allowed if 0.8 foot (240 mm) depth in each sewer pipe is attained by lowering the larger pipe.

MISCELLANEOUS

Index of Sheets

Pavement Preservation Policy 3P &
Surface Maintenance at the Right Time (SMART)

_ **DRIVE TROUGH NOTES**

- Obtain any scoping notes and pavement cores.

_ **LOCATION MAP**

- Create a Location Map using the information from the programming unit:
  - Route, Section, County, Job. No., Contract No. and Scope.

_ **PROGRAMMING**

- **Project Card**; get it in Rick Gualandi's office (Rolodex).
- **Current Project Detail Sheet**; request by email to Kim Tressel or you can fill out Memo D2 PD1050 (Transmittal Slip) and take it to her.
- **High Accident Locations**; ask Dan Long if there are any in your project.
- **ADT**; use Average Daily Traffic in IDOT's web page for general information; for more details send Memo Traffic Projections to Lewis Renkes.

_ **MICROFILMS**

- Look up old plans in the Roadindex. If you cannot find them go to Matt Brady (Basement) or email him with your Location Map and ask him to help you finding old plans. Tell him what you are looking for such as typicals, schedules or anything else.

_ **GEOMETRICS**

- Verify if the project is on a *yellow* or *red* route on the map found on page 3 here if it is the project needs to be submitted for queue and delay analysis as part of the TMP. The request form can be found here. If it's on a green route no further action is required.

_ **PROJECT SUPPORT**

- **Utilities:** Go into the Utility database (utility.mdb) fill in the blanks, when you finish filling out the information click SAVE RECORD. Then EXIT UTILITY. DO NOT USE ALL CAPITAL LETTERS. E-mail Brian Mayer telling him it has been added to the data base with a description of the job; he will give you back a list of utilities in the area for the General Notes.
- **Railroad:** If there is a RR within 50' of your job, or inside the limits of your project go to Shawn Connolly for info. The sooner he's involved the better.
- **History & City Agreements:** Obtain any old parking agreements and other agreements needed from Lynn Miller.

_ **OPERATIONS**

- Accident Analysis:

- Email Memo PL-0110 (Accident Request) to Kristine Hill also send location map in the request.
- With accident data and high accident location info, ask supervisor if it's necessary to perform the analysis.

_ **PROJECT IMPLEMENTATION**

- Email Memo PL-0111 (Pavement Cores) and Location Map to Jan Twardowski.

_ **SURVEY'S**

- Try to find old CADD data, Jim Hogenson can help you.
- Send Memo D2 PD1001 (Survey Request) to Tom Burkardt.

_ **MIX**

- Determine the HMA mix using ADT info and ESAL CALCULATIONS FOR SUPERPAVE 2011.xls. Ask Steve Hefel if that will be the mix that we want to put back.

_ **CONSTRUCTION NUMBER**

- Fill out form BFM 337 and take it to Pam Miller (Construction) to obtain your C#.

_ **FILL OUT**

- Pavement Preservation Project 3P Report (BDE 2564) or Smart Project Report (BDE 2565).
- BI-MONTHLY AGENDA
- Design Exception (BDE 2600) (If needed)

_ **PROJECT PARTS**

- Certification Acceptance Form (CA Form)
- Cover Sheet: For the townships look at: O:\Land Ownership Maps
- Index of Sheets & State Standards
- Summary of Quantities
- General Notes
- Typical Sections
- Bituminous Schedule
- Sideroads Schedule
- Schedule of Quantities
- District Standards
- BDE Special Provisions
- Supple. Specs. & Recurring Spl. Provisions
- State Special Provisions
- Agreements (If any)

Note: Prepare an Estimate of Cost and an Estimate of Time.

_ **Additional Information (If needed, depends on project)**

- MTD: MATERIAL TRANSFER DEVICE
  - Email Mahmoud Etemadi (Bridge Unit) for the structures numbers.
  - Email: DOT.Bridge.Ratings.DistrictRequests
    - Project location and limits
    - Structure numbers
    - Explain that a MTD will be used within the project limits.
  - They will tell you if you need any restrictions for the use of a MTD.

- Environmental Unit:
  - Send memo (PL-0433) requesting noise and air analysis traffic data. (Include: plans with location map and tree removal)

- Land Acquisition:
  - Send Memo (PL-0068) requesting existing R.O.W. if not clear from the old plans and you think there may be work that is close to the existing R.O.W. you observed from field checks. (Include: Project Location Map and Date Information is needed by.)

- Hydraulics:
  - Hydraulic Survey Request (Abbreviated) by Rich G.
  - Hydraulic Work Request (Include: Target Design Approval Date, Copies of Old Plans and BCR or Culvert Condition reports by Bridge Office)

NOTE: These are just guidelines for SMART and 3P projects. Some projects may require more information and others will require less. Adjust to meet your project needs.

Agreement Check Sheet

3-4 months from letting submittal, need to check with Agreements Technician

- **Letter of Intent (LI)** (Need to Let Local Agency know about work near them, no money is exchanged)
  - Need a location map with project limits and info.
  - Brief job description

- **Letter of Understanding (LU)** (Plan Approval for GNP (Good Neighbor Policy), Maintenance responsibilities, Detours, Road closures, etc., no money is exchanged)
  - Need a location map with project limits
  - Brief job description
  - Project info., i.e. Route, Section, C#, Contract #, etc.
  - May need a set of plans to send with the agreement. (Agreement Writer will let you know)

- **Joint Agreement** (Cost sharing, maintenance responsibilities, detours, road closures)
  - Need a location map with project limits
  - Brief job description
  - Project info., i.e. Route, Section, C#, Contract #, etc.
  - SOQ, Plan Sheets, Typical Section Sheets, Plan Cover Sheet
  - Set of Plans to sent with Agreement when mailed out to LA or web link address

- **Jurisdictional Transfer** (Cost sharing and the transfer of ownership to the Local Agency, i.e. Road(s)/Street(s), item(s) of any kind, plus anything listed from above)
  - Need a location map with project limits
  - Brief job description
  - Project info., i.e. Route, Section, C#, Contract #, etc.
  - SOQ, Plan Sheets, Typical Section Sheets, Plan Cover Sheet
  - Set of Plans to sent with Agreement when mailed out to LA or Weblink address