COMBINED DESIGN STUDY EXHIBITS

CURTIS ROAD

F.A. 807 / 7147 IMPROVEMENTS

DUNCAN ROAD to FIRST STREET

SECTION NO. 00–00374–00–ES
PROJECT NO. M–5181 (036)
JOB NO. P–95–073–00
CHAMPAIGN COUNTY

PREPARED FOR:

CUUATS

Champaign-Urbana Urbanized Area Transportation Study

A Program of the Champaign County Regional Planning Commission

PREPARED BY:

Clark Dietz

APRIL 2004

DESIGN EXHIBITS

1–12	CURTIS ROAD
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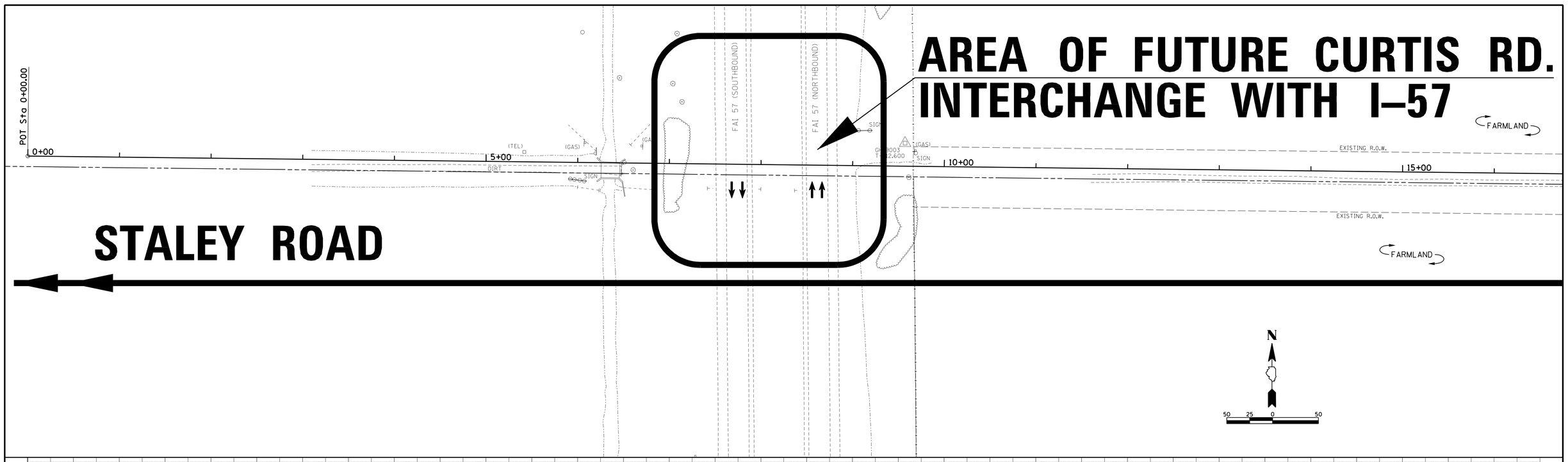
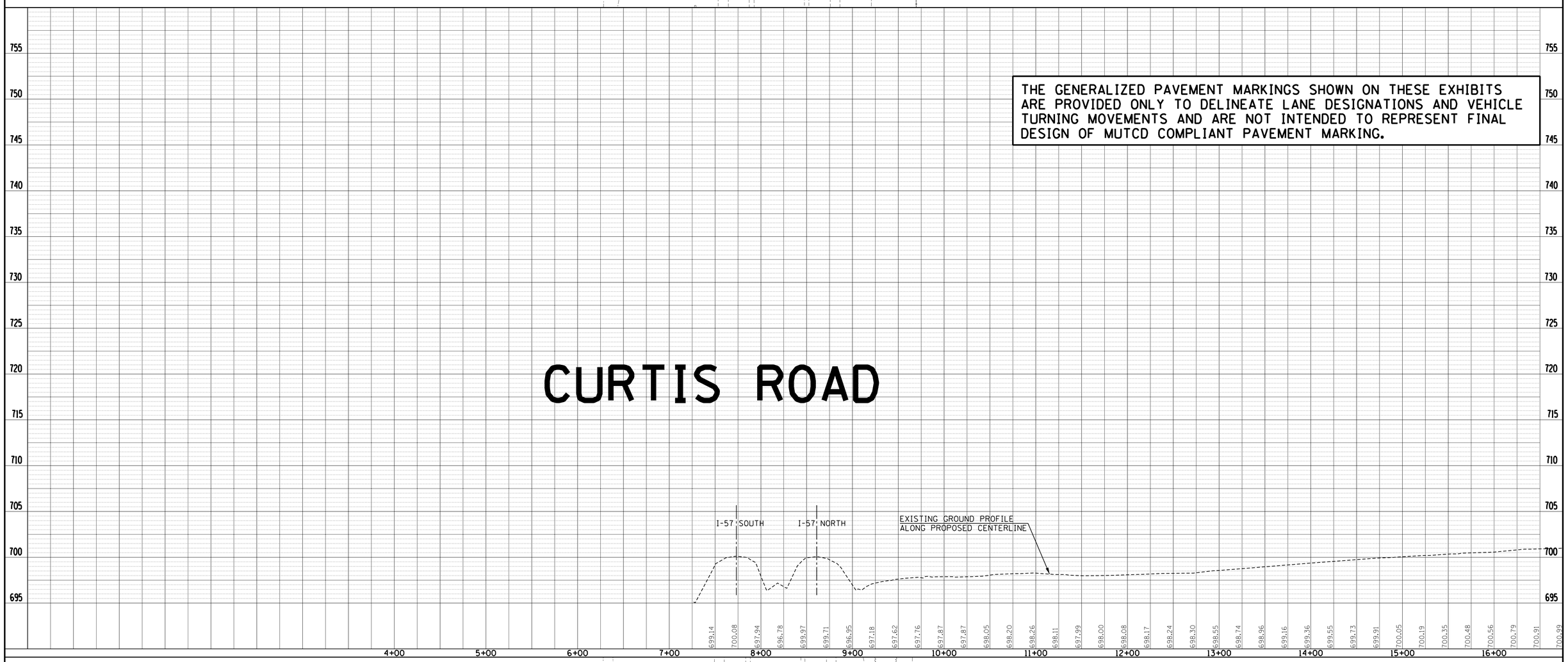
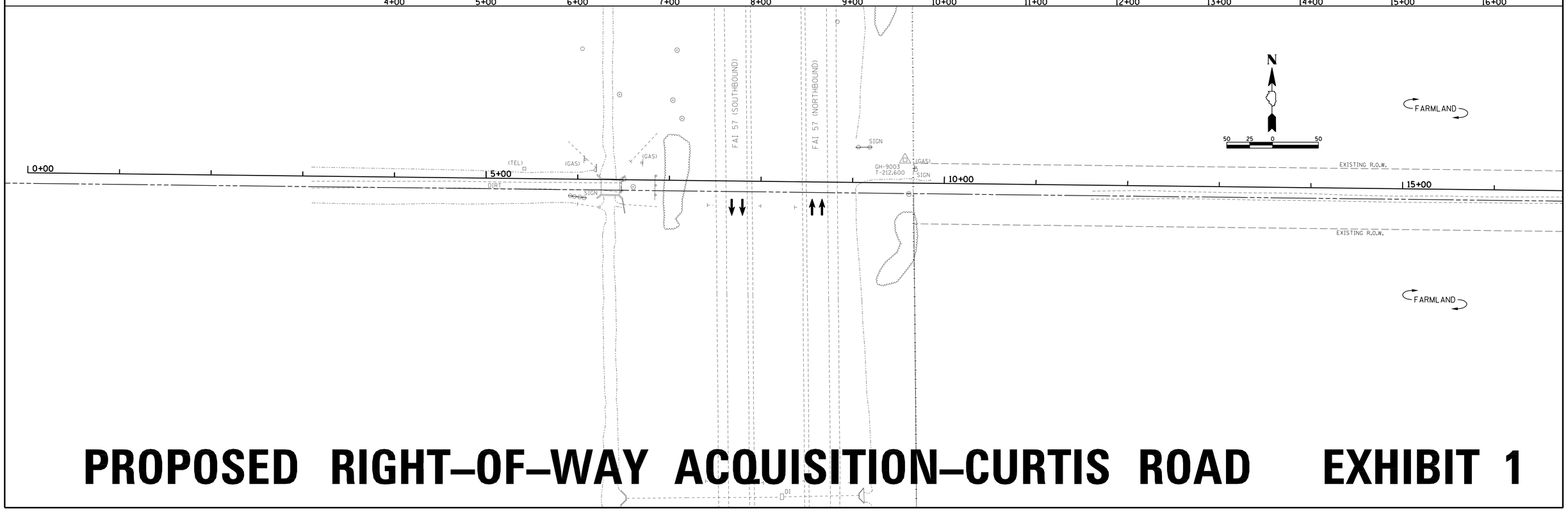
37–42	INTERSECTION DESIGN STUDIES (INTERIM BUILD)

AREA OF FUTURE CURTIS RD. INTERCHANGE WITH I–57

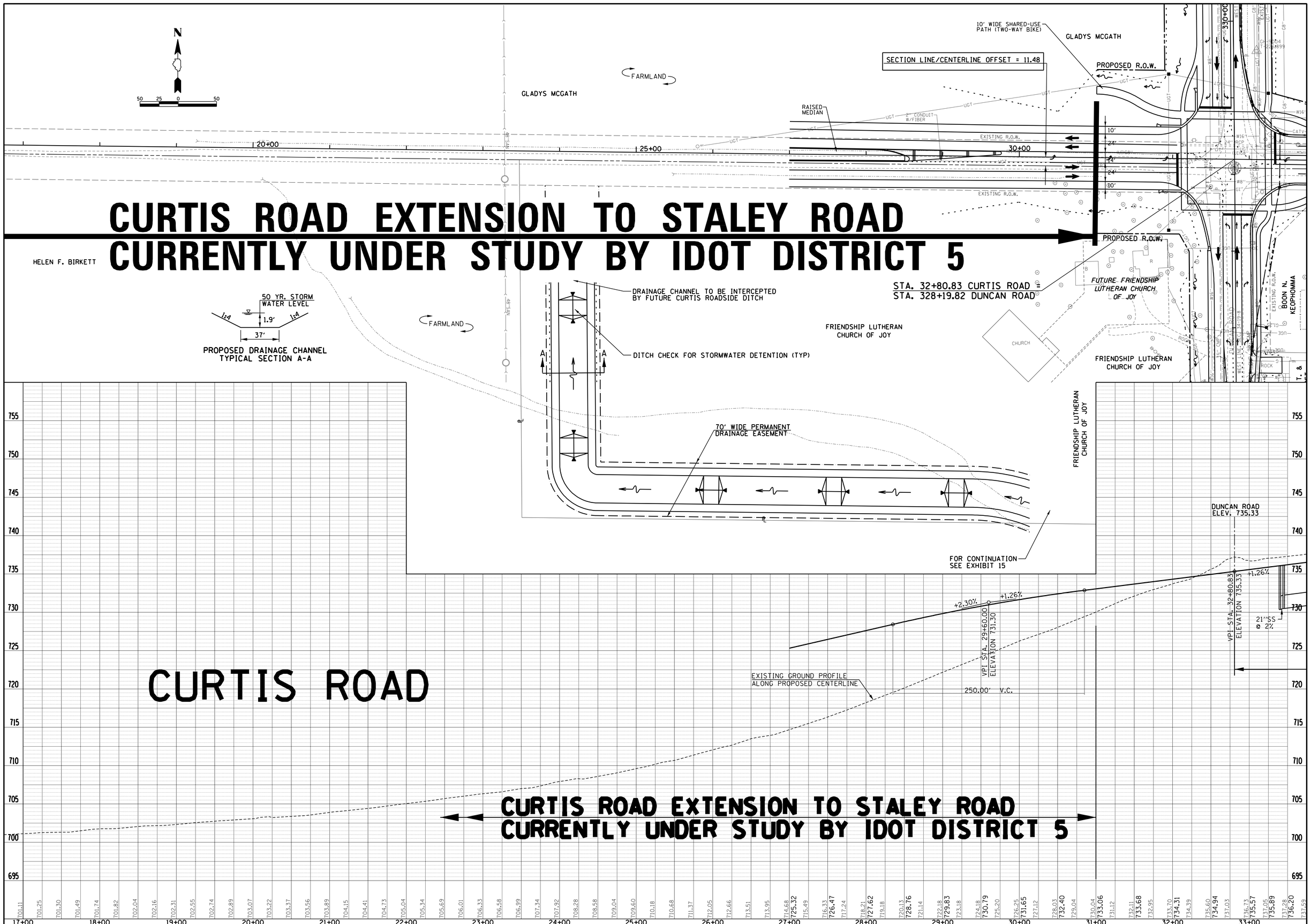


THE GENERALIZED PAVEMENT MARKINGS SHOWN ON THESE EXHIBITS ARE PROVIDED ONLY TO DELINEATE LANE DESIGNATIONS AND VEHICLE TURNING MOVEMENTS AND ARE NOT INTENDED TO REPRESENT FINAL DESIGN OF MUTCD COMPLIANT PAVEMENT MARKING.





PROPOSED RIGHT–OF–WAY ACQUISITION–CURTIS ROAD EXHIBIT 1



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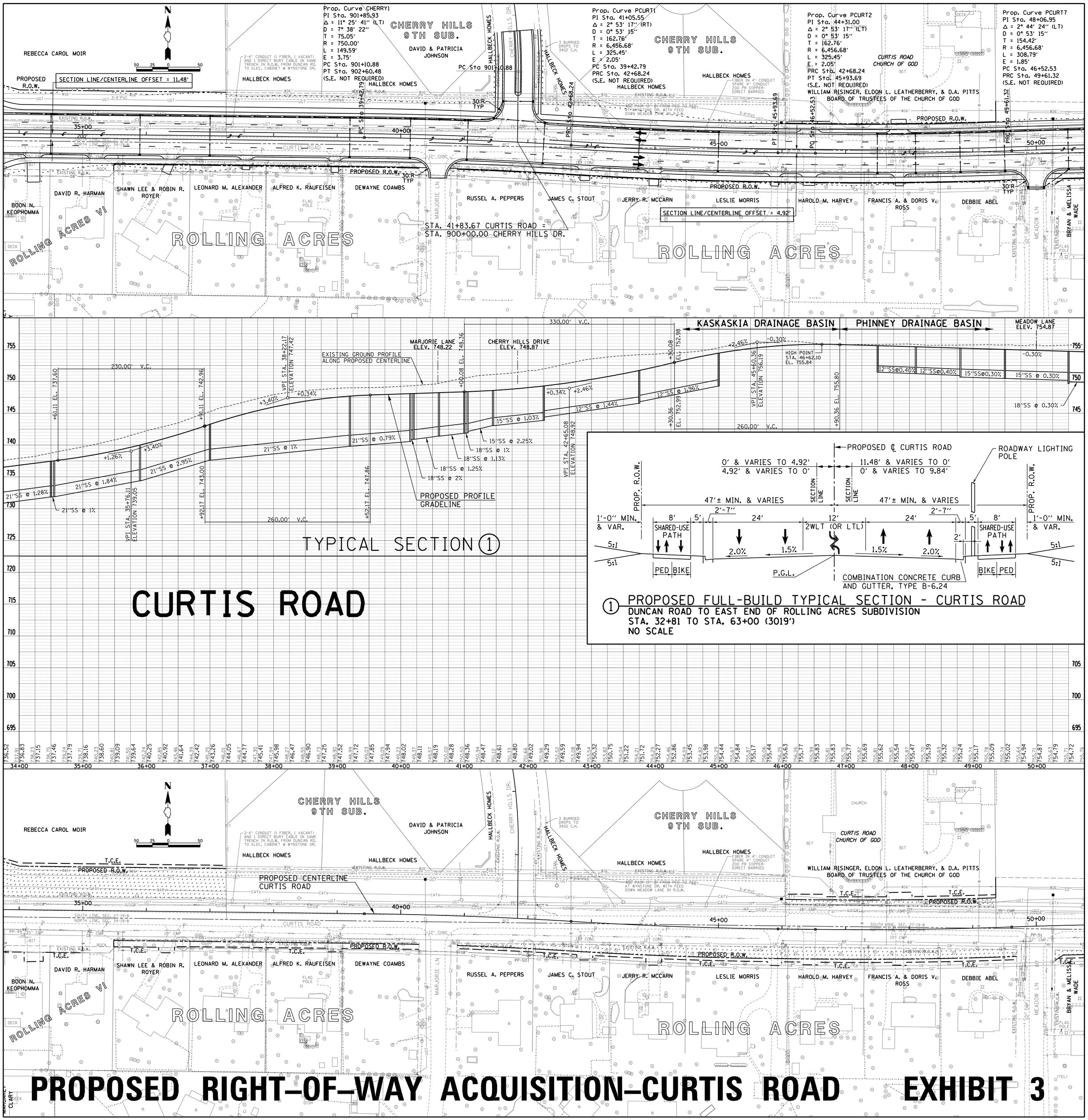

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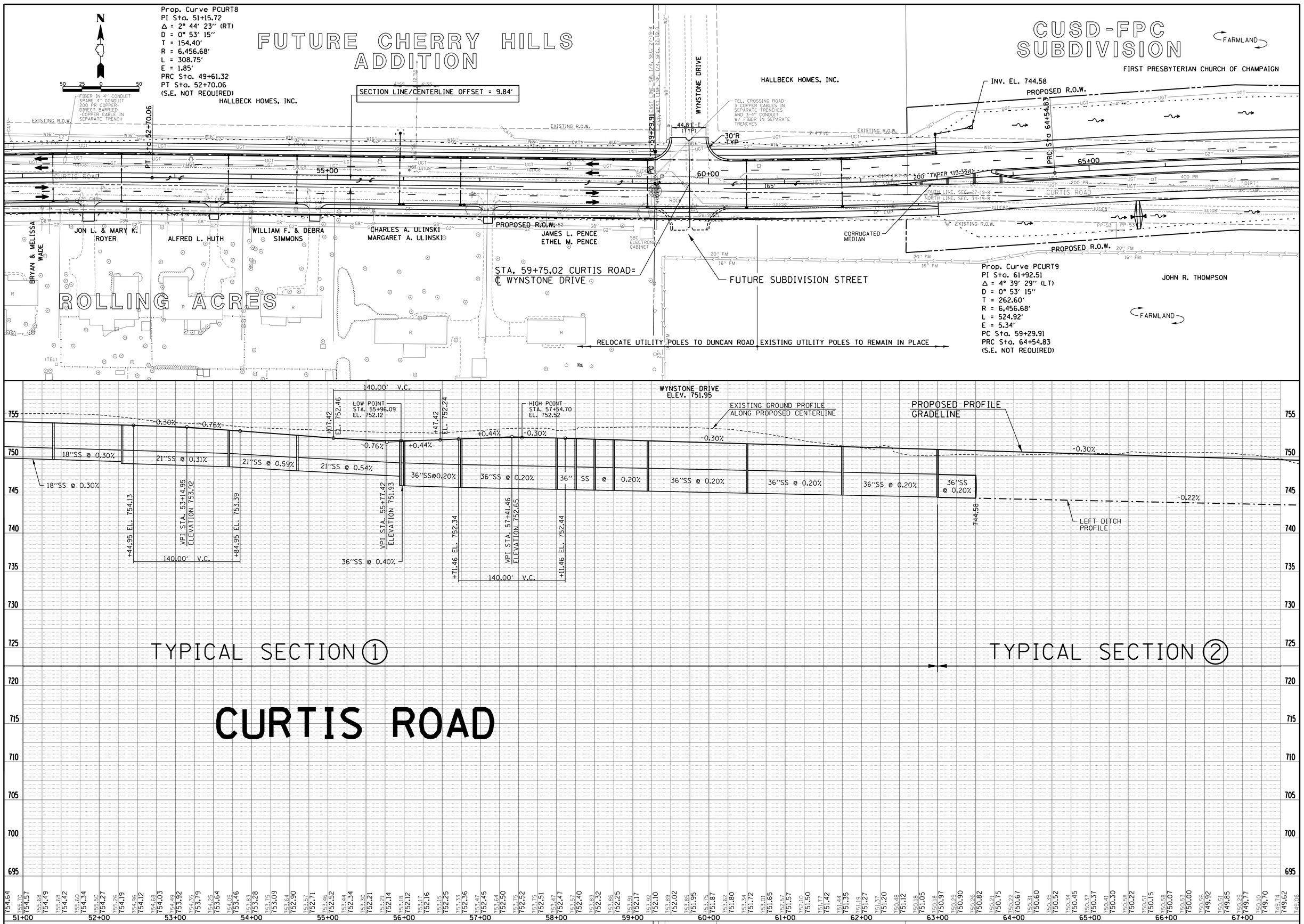

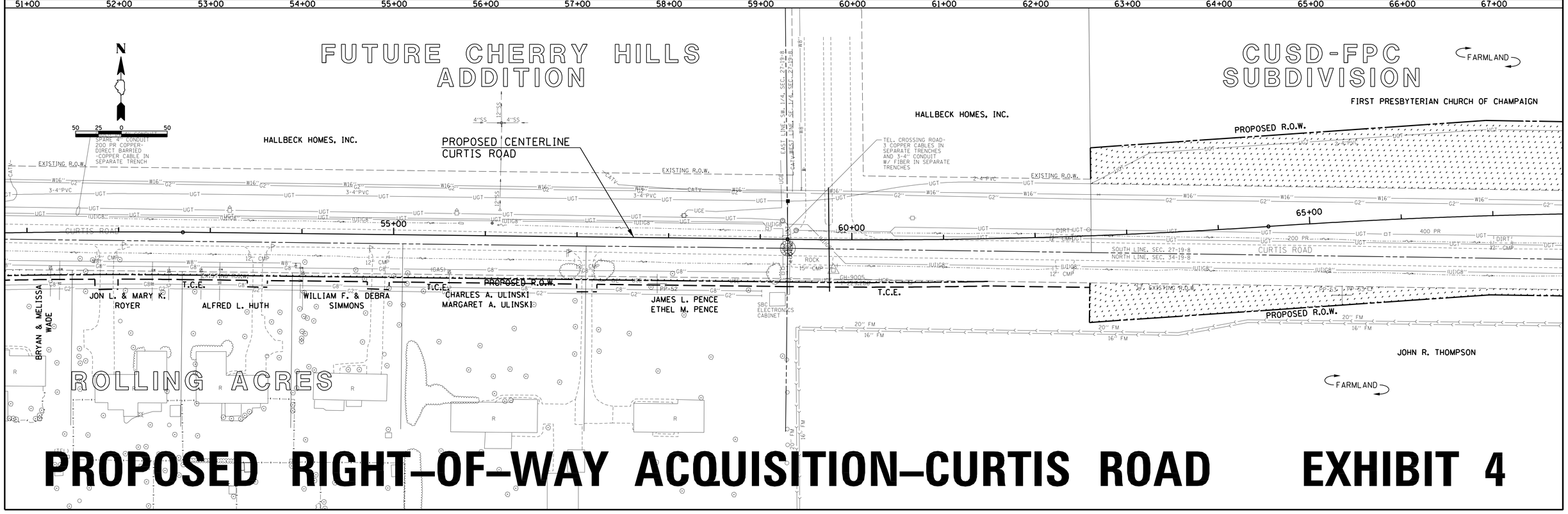

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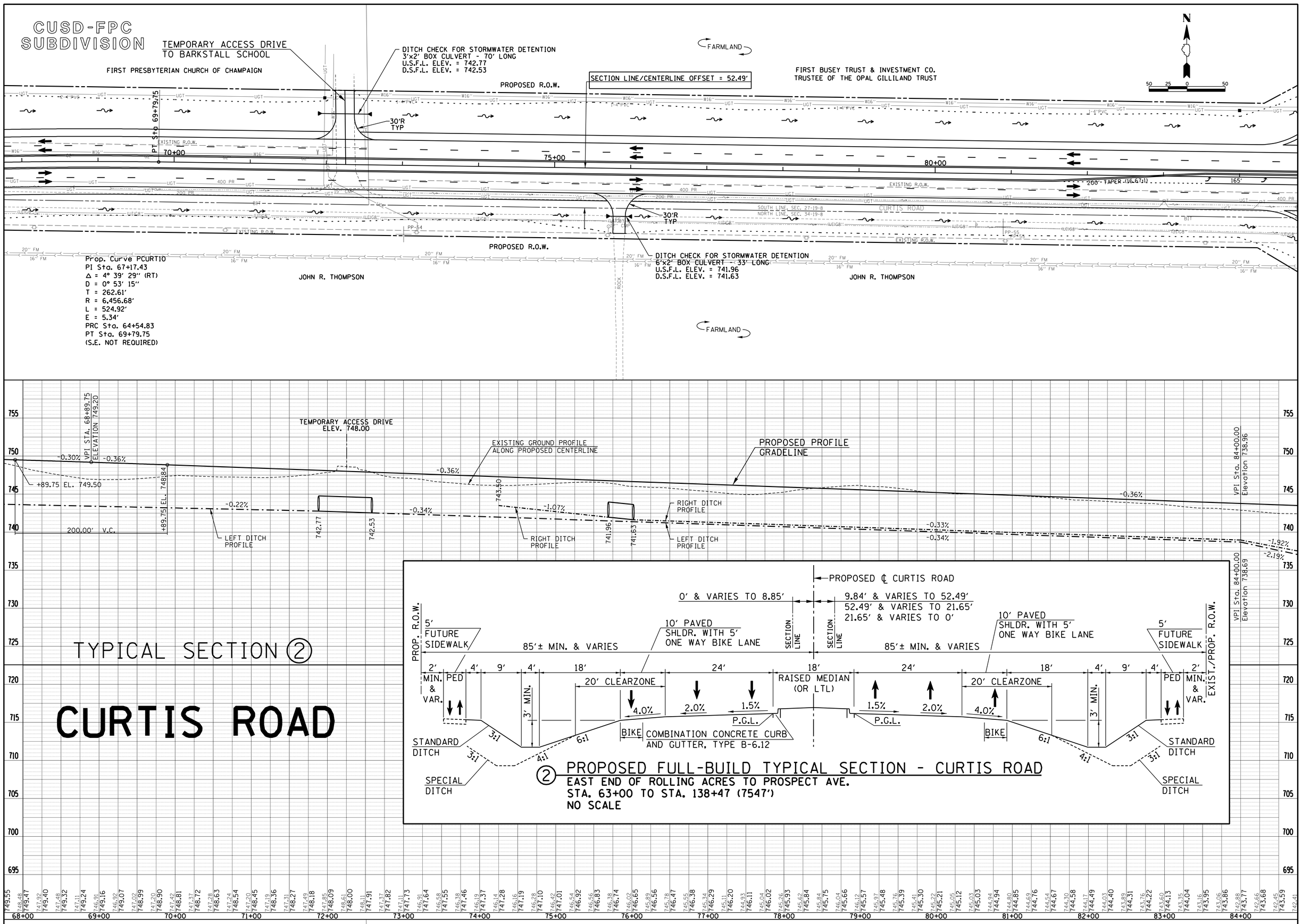

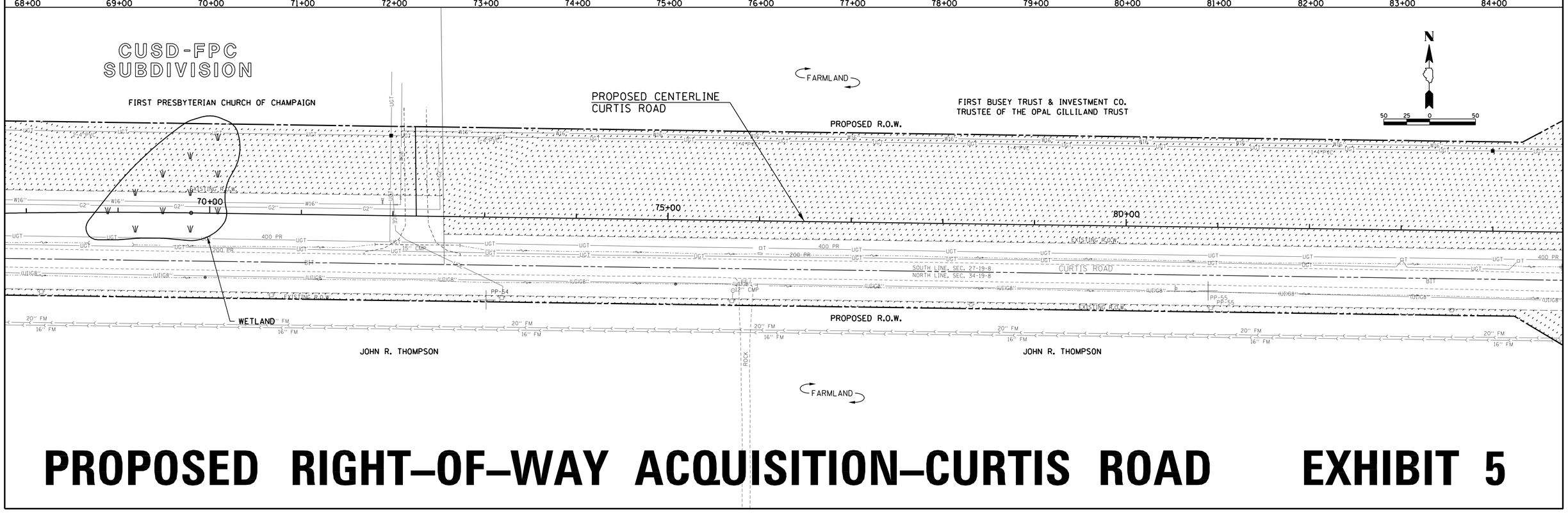

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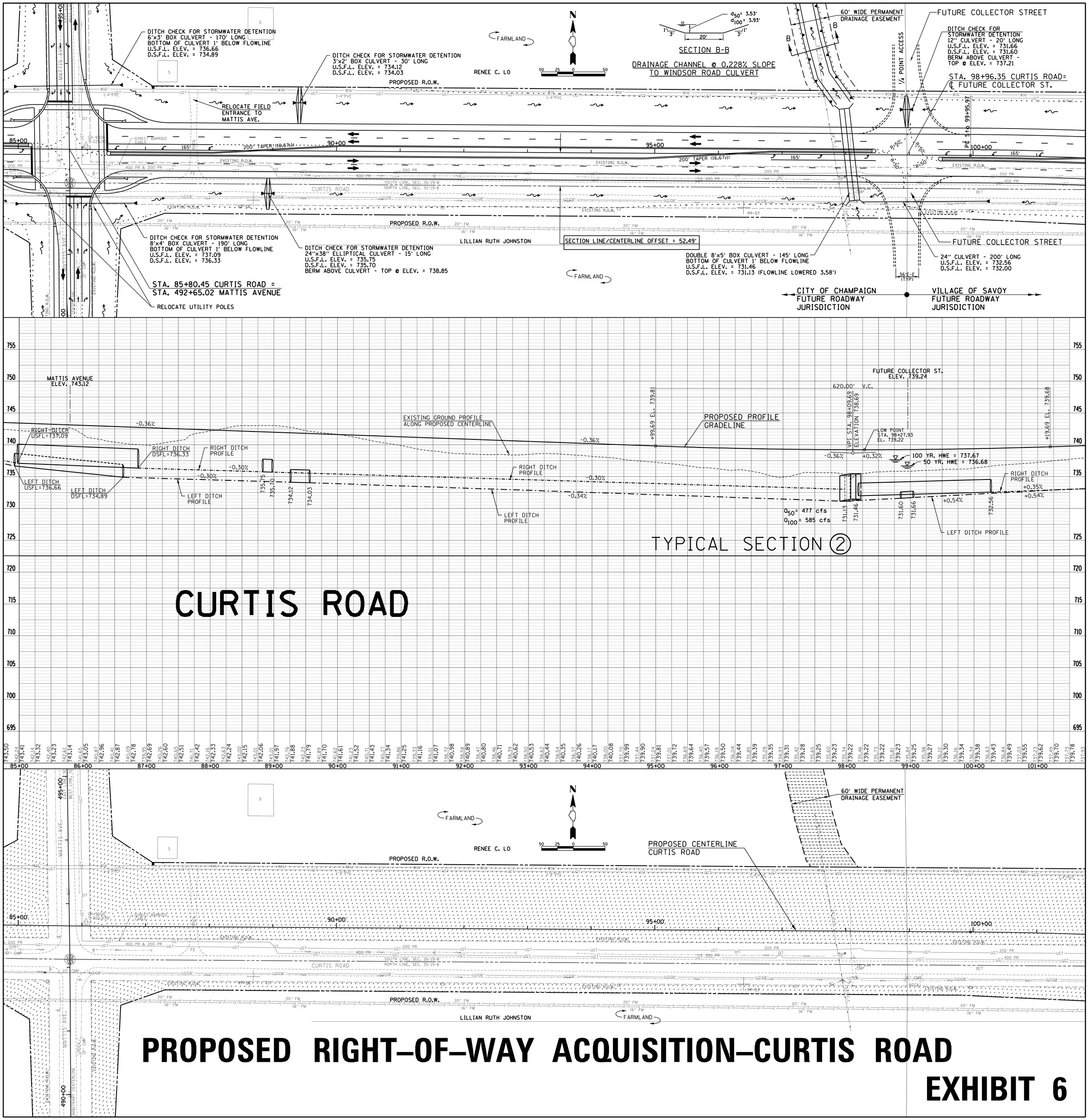
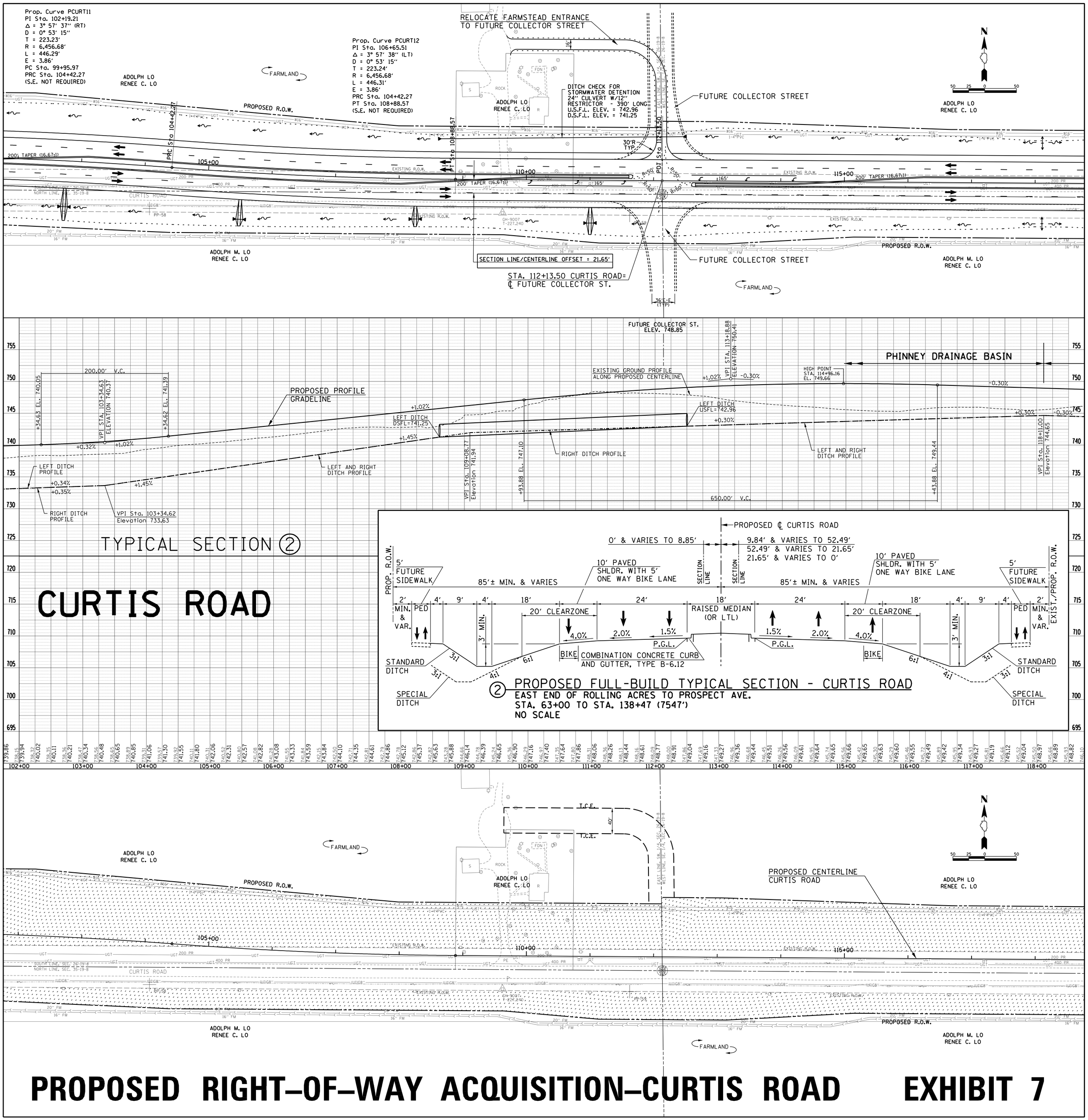
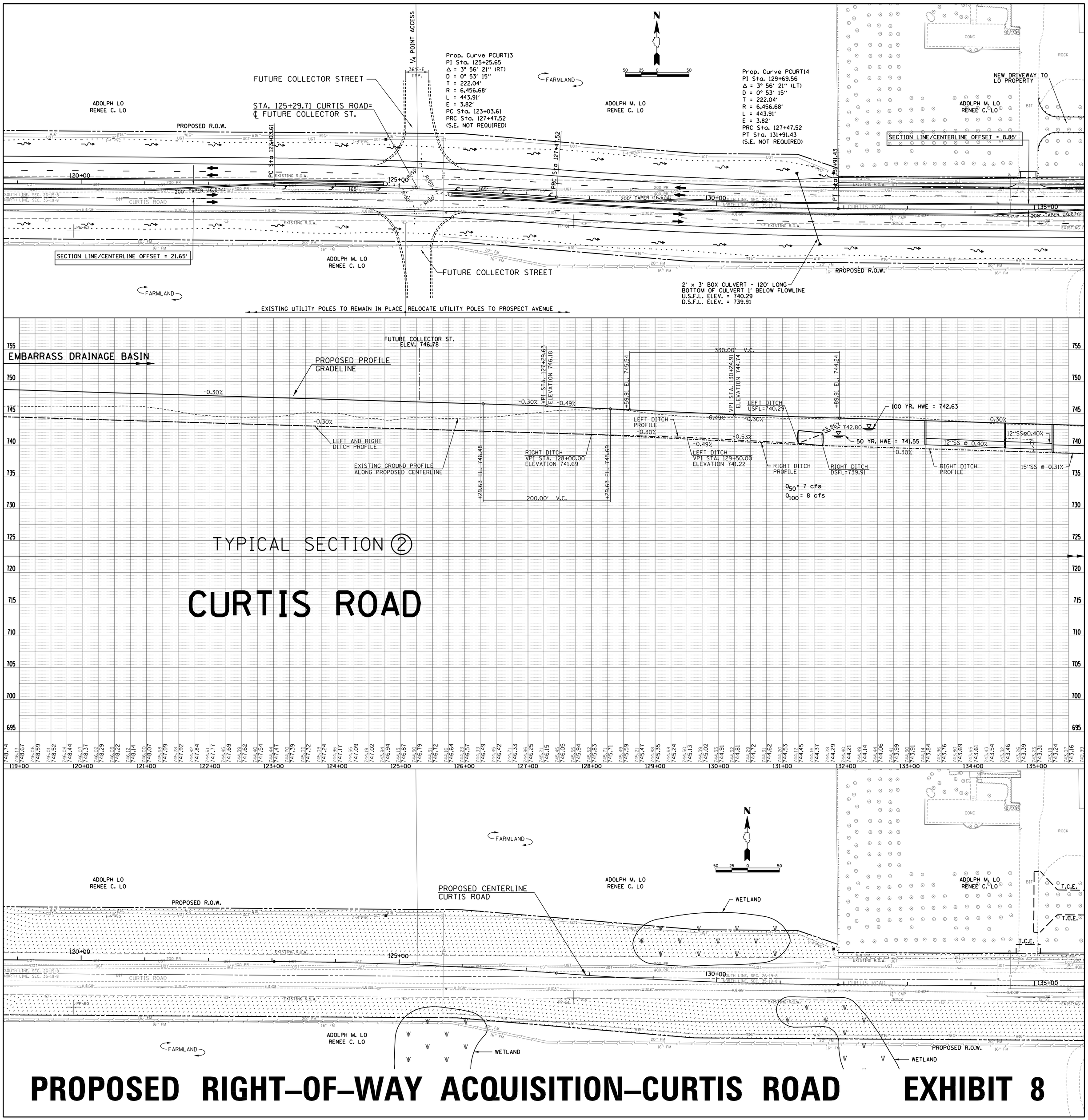
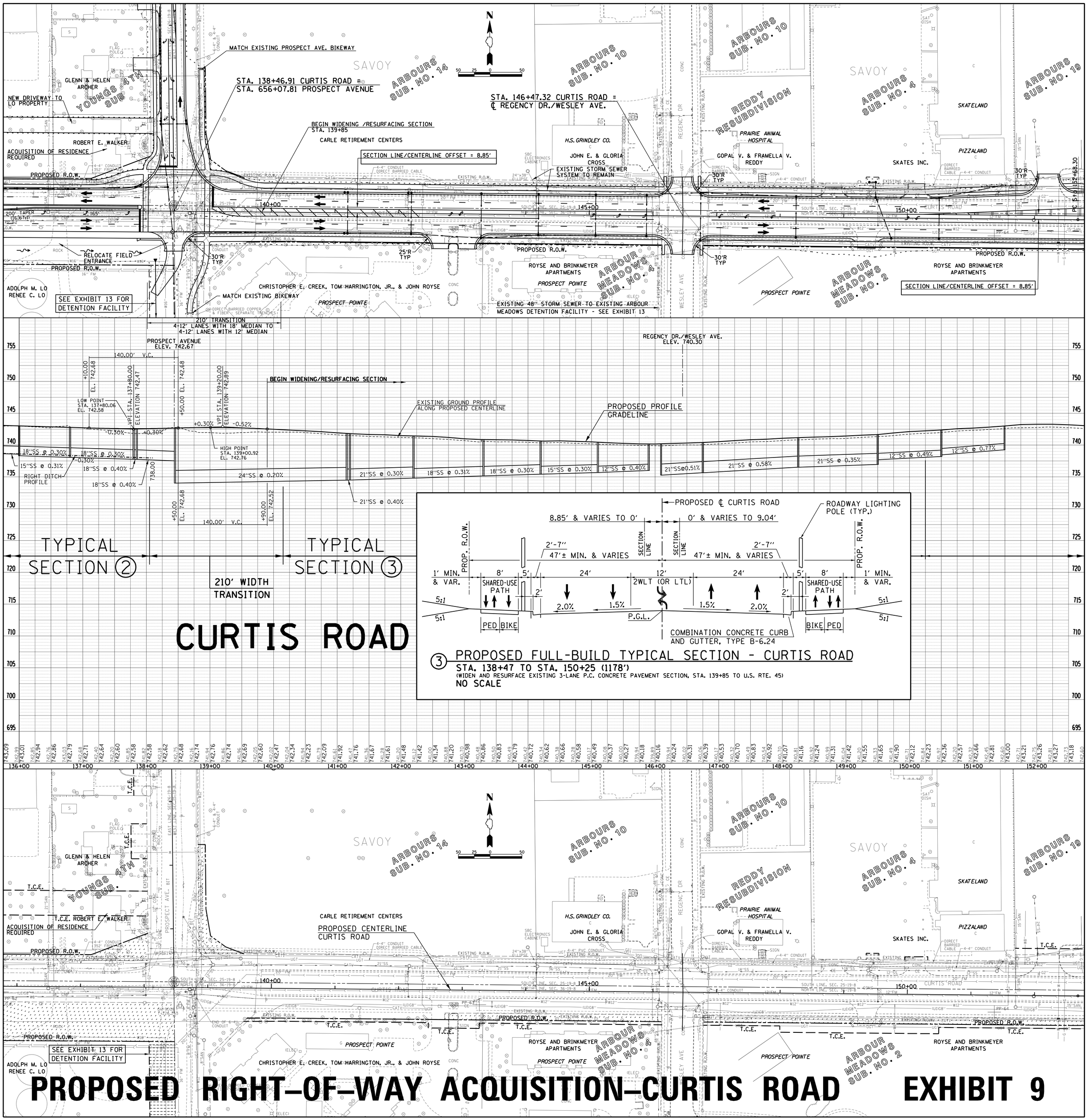

DITCH CHECK FOR STORMWATER DETENTION
6'x3' BOX CULVERT - 170' LONG
BOTTOM OF CULVERT 1' BELOW FLOWLINE
U.S.F.L. ELEV. = 736.66
D.S.F.L. ELEV. = 734.89
DITCH CHECK FOR STORMWATER DETENTION
3'x2' BOX CULVERT - 30' LONG
U.S.F.L. ELEV. = 734.12
D.S.F.L. ELEV. = 734.03
RENEE C. LO
FARMLAND
PROPOSED R.O.W.
RELOCATE FIELD ENTRANCE TO MATTIS AVE.
SECTION B-B
DRAINAGE CHANNEL @ 0.228% SLOPE TO WINDSOR ROAD CULVERT
60' WIDE PERMANENT DRAINAGE EASEMENT
FUTURE COLLECTOR STREET
DITCH CHECK FOR STORMWATER DETENTION
12" CULVERT - 20' LONG
U.S.F.L. ELEV. = 731.66
D.S.F.L. ELEV. = 731.60
BERM ABOVE CULVERT - TOP @ ELEV. = 737.21
STA. 98+96.35 CURTIS ROAD= ℄ FUTURE COLLECTOR ST.
1/4 POINT ACCESS
200' TAPER (16.67:1)
EXISTING R.O.W.
CURTIS ROAD
SOUTH LINE, SEC. 26-19-8
NORTH LINE, SEC. 35-19-8
DITCH CHECK FOR STORMWATER DETENTION
8'x4' BOX CULVERT - 190' LONG
BOTTOM OF CULVERT 1' BELOW FLOWLINE
U.S.F.L. ELEV. = 737.09
D.S.F.L. ELEV. = 736.33
DITCH CHECK FOR STORMWATER DETENTION
24"x38" ELLIPTICAL CULVERT - 15' LONG
U.S.F.L. ELEV. = 735.75
D.S.F.L. ELEV. = 735.70
BERM ABOVE CULVERT - TOP @ ELEV. = 738.85
LILLIAN RUTH JOHNSTON
SECTION LINE/CENTERLINE OFFSET = 52.49'
DOUBLE 8'x5' BOX CULVERT - 145' LONG
BOTTOM OF CULVERT 1' BELOW FLOWLINE
U.S.F.L. ELEV. = 731.46
D.S.F.L. ELEV. = 731.13 (FLOWLINE LOWERED 3.58')
24" CULVERT - 200' LONG
U.S.F.L. ELEV. = 732.56
D.S.F.L. ELEV. = 732.00
STA. 85+80.45 CURTIS ROAD = STA. 492+65.02 MATTIS AVENUE
RELOCATE UTILITY POLES
CITY OF CHAMPAIGN FUTURE ROADWAY JURISDICTION
VILLAGE OF SAVOY FUTURE ROADWAY JURISDICTION
MATTIS AVENUE ELEV. 743.12
FUTURE COLLECTOR ST. ELEV. 739.24
EXISTING GROUND PROFILE ALONG PROPOSED CENTERLINE
PROPOSED PROFILE GRADELINE
RIGHT DITCH USFL=737.09
RIGHT DITCH DSFL=736.33
RIGHT DITCH PROFILE
LEFT DITCH USFL=736.66
LEFT DITCH DSFL=734.89
LEFT DITCH PROFILE
LOW POINT STA. 98+27.93 EL. 739.22
100 YR. HWE = 737.67
50 YR. HWE = 736.68
Q_{50} = 477 cfs
Q_{100} = 585 cfs
TYPICAL SECTION 2
CURTIS ROAD
PROPOSED CENTERLINE CURTIS ROAD
PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD
EXHIBIT 6



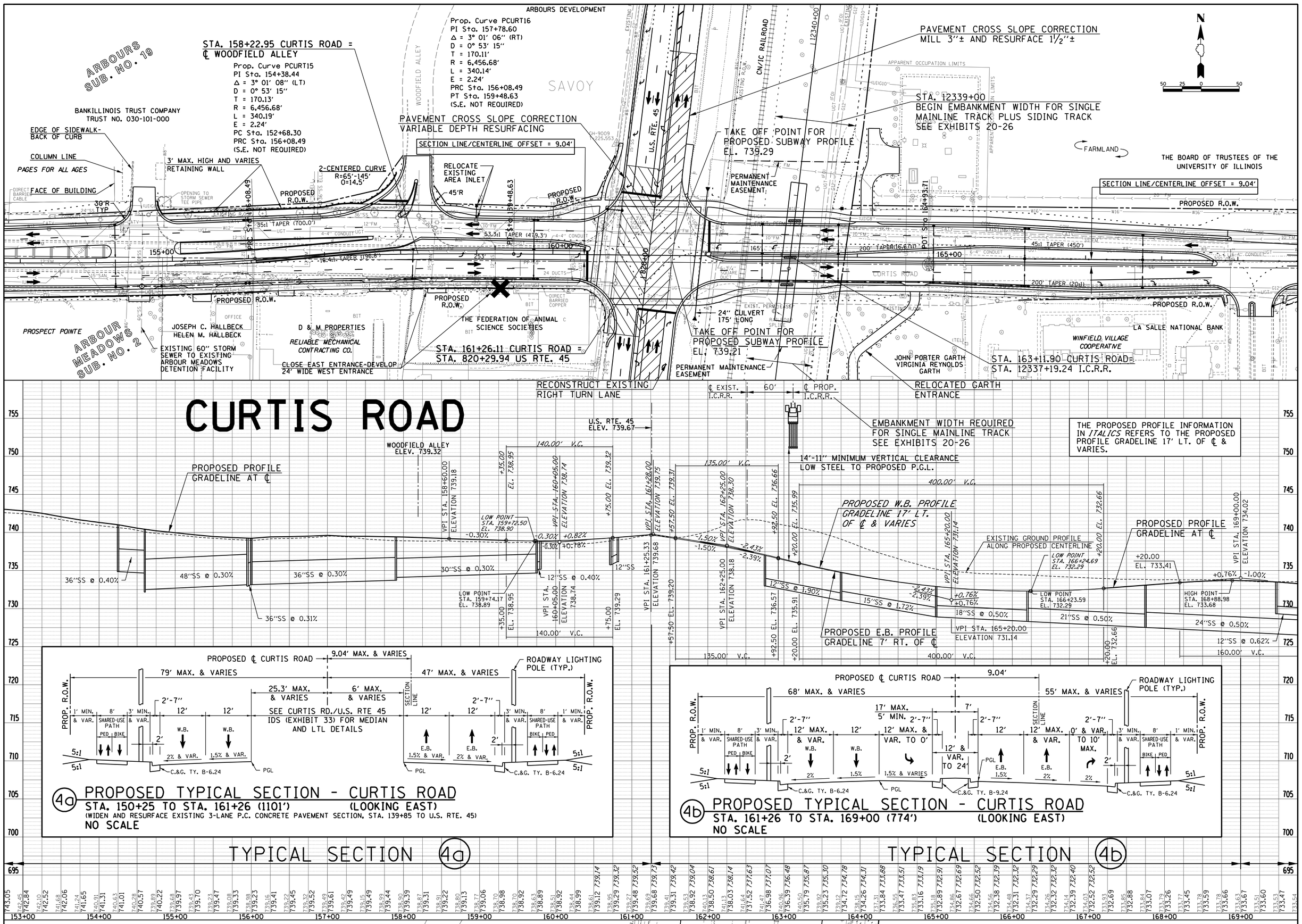
PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD EXHIBIT 7



PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD EXHIBIT 8



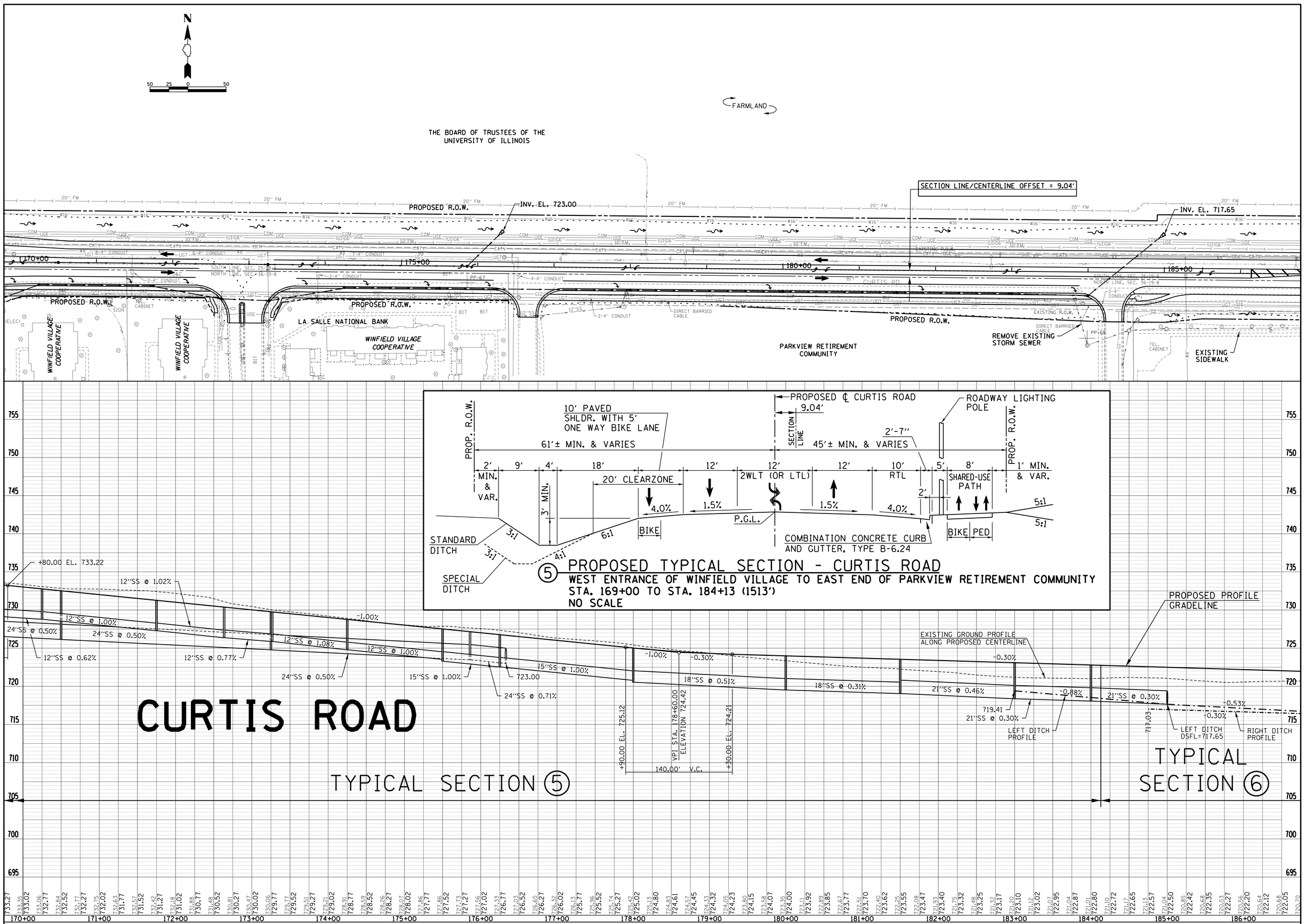
PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD EXHIBIT 9

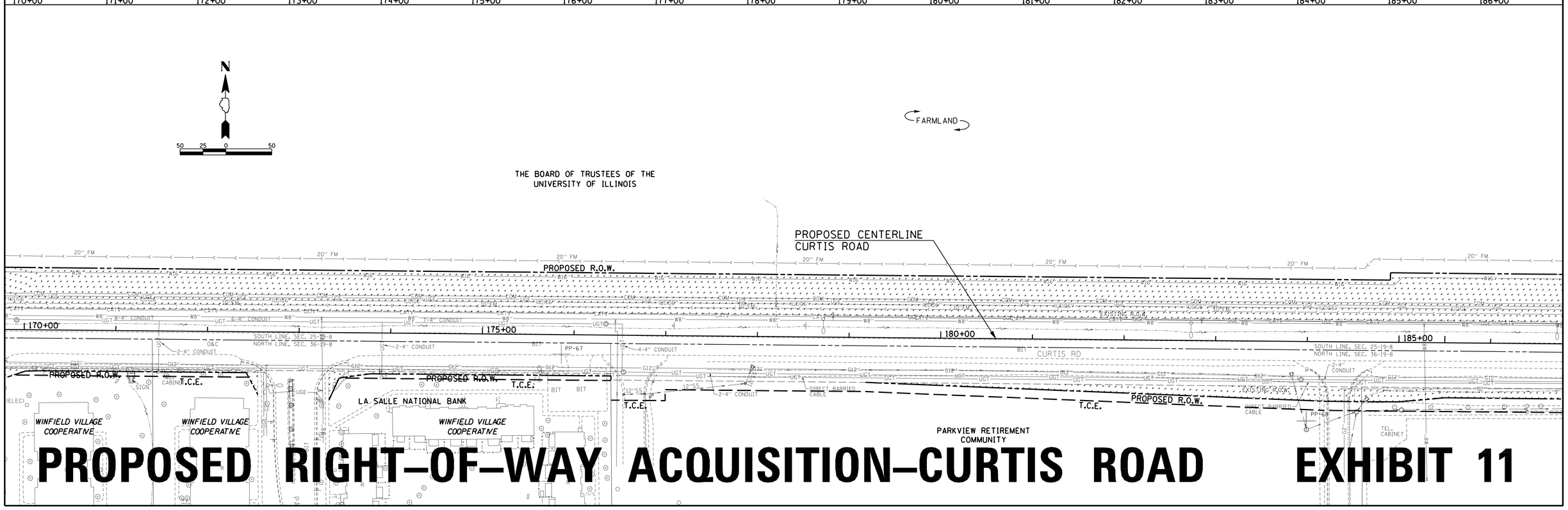


4a PROPOSED TYPICAL SECTION - CURTIS ROAD
STA. 150+25 TO STA. 161+26 (1101') (LOOKING EAST)
(WIDEN AND RESURFACE EXISTING 3-LANE P.C. CONCRETE PAVEMENT SECTION, STA. 139+85 TO U.S. RTE. 45)
NO SCALE

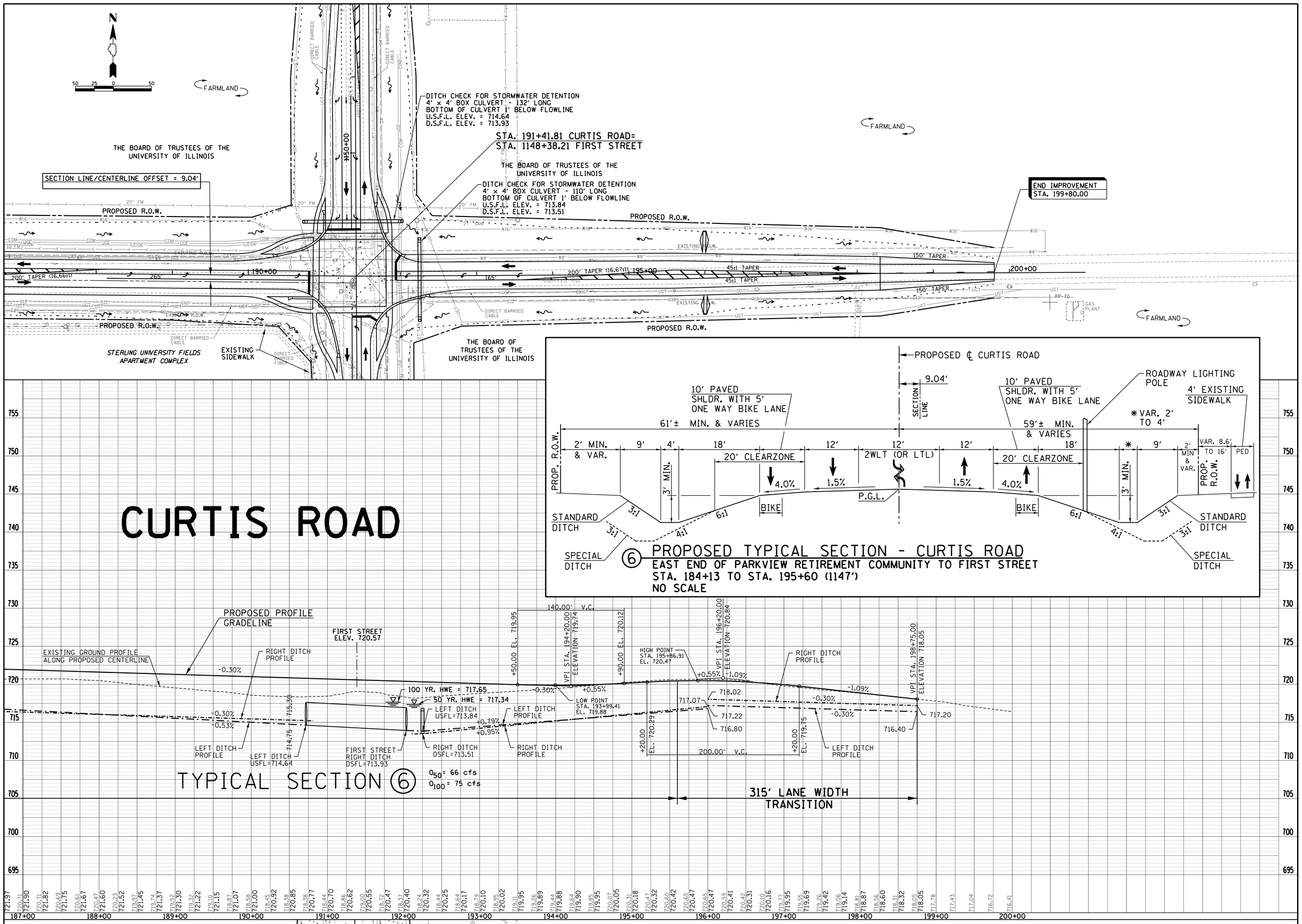
4b PROPOSED TYPICAL SECTION - CURTIS ROAD
STA. 161+26 TO STA. 169+00 (774') (LOOKING EAST)
NO SCALE

PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD EXHIBIT 10





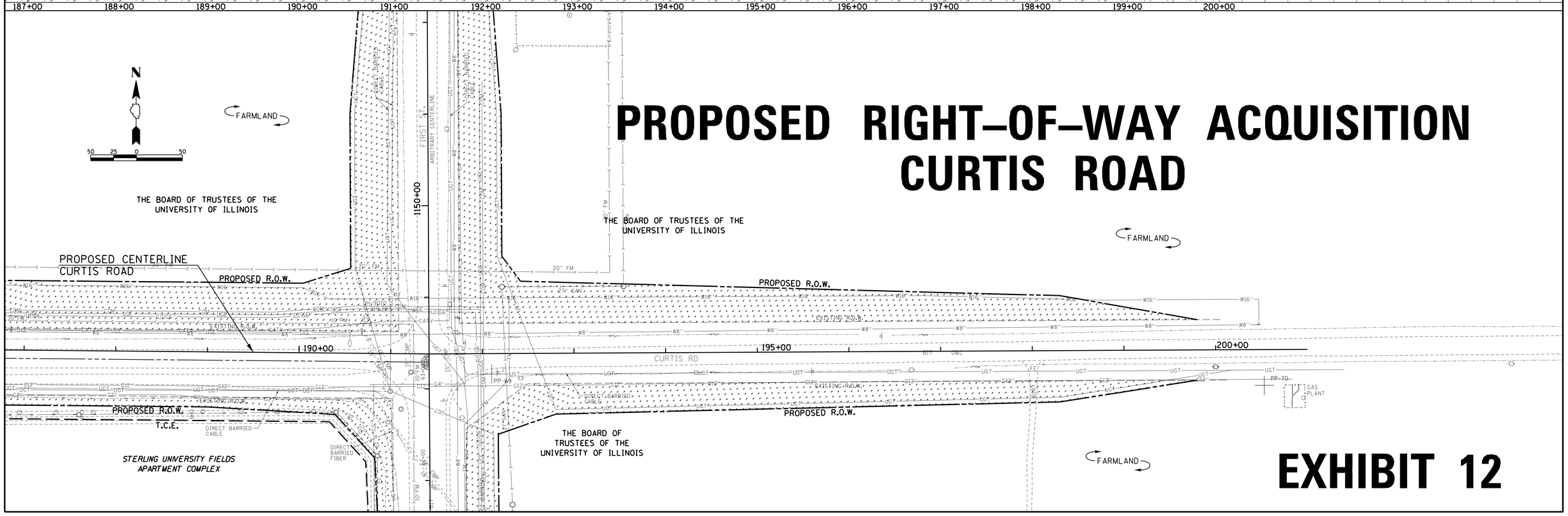
PROPOSED RIGHT-OF-WAY ACQUISITION-CURTIS ROAD EXHIBIT 11



6 PROPOSED TYPICAL SECTION - CURTIS ROAD
EAST END OF PARKVIEW RETIREMENT COMMUNITY TO FIRST STREET
STA. 184+13 TO STA. 195+60 (1147')
NO SCALE

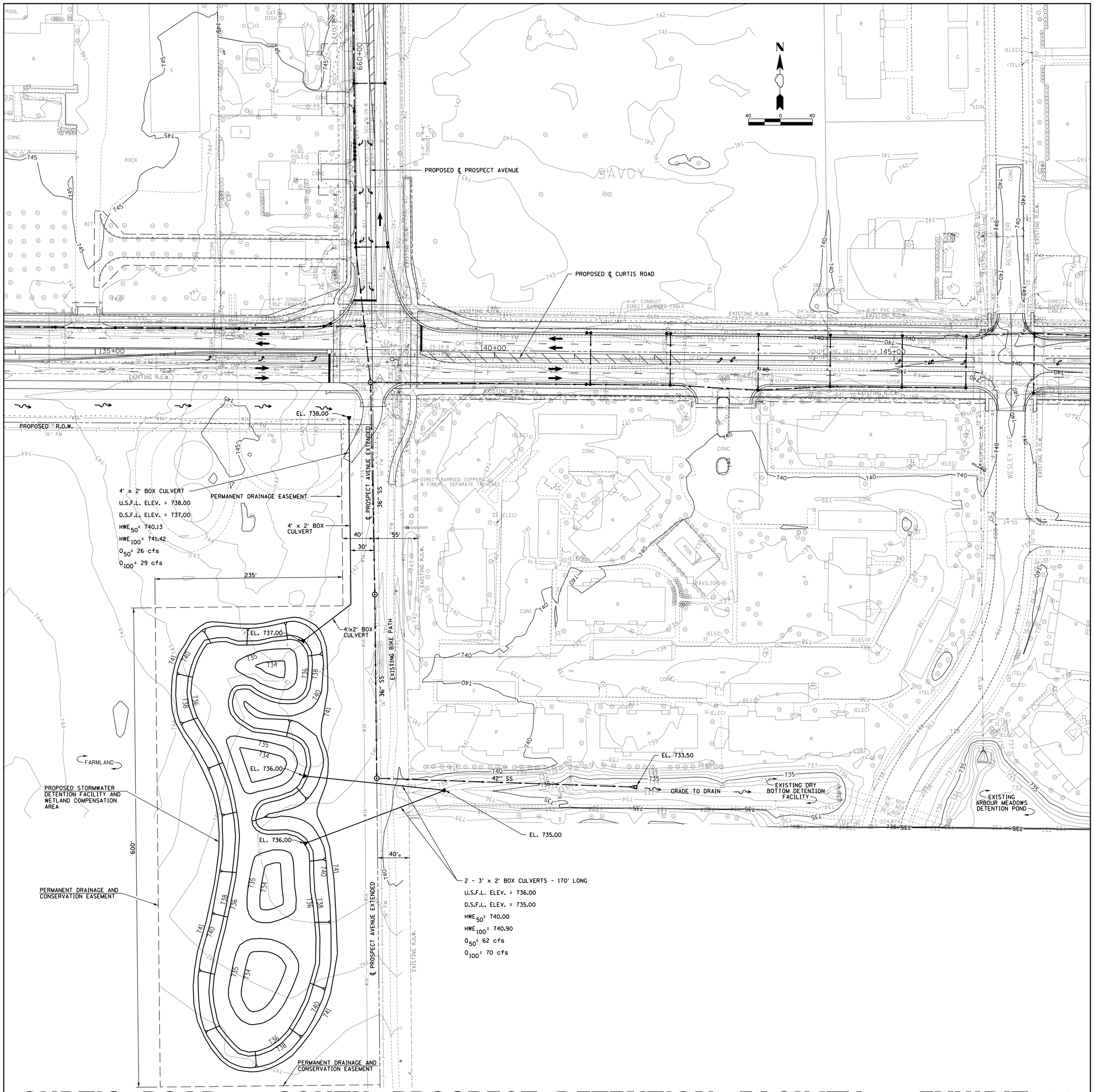
CURTIS ROAD

TYPICAL SECTION 6
Q_{50} = 66 cfs
Q_{100} = 75 cfs

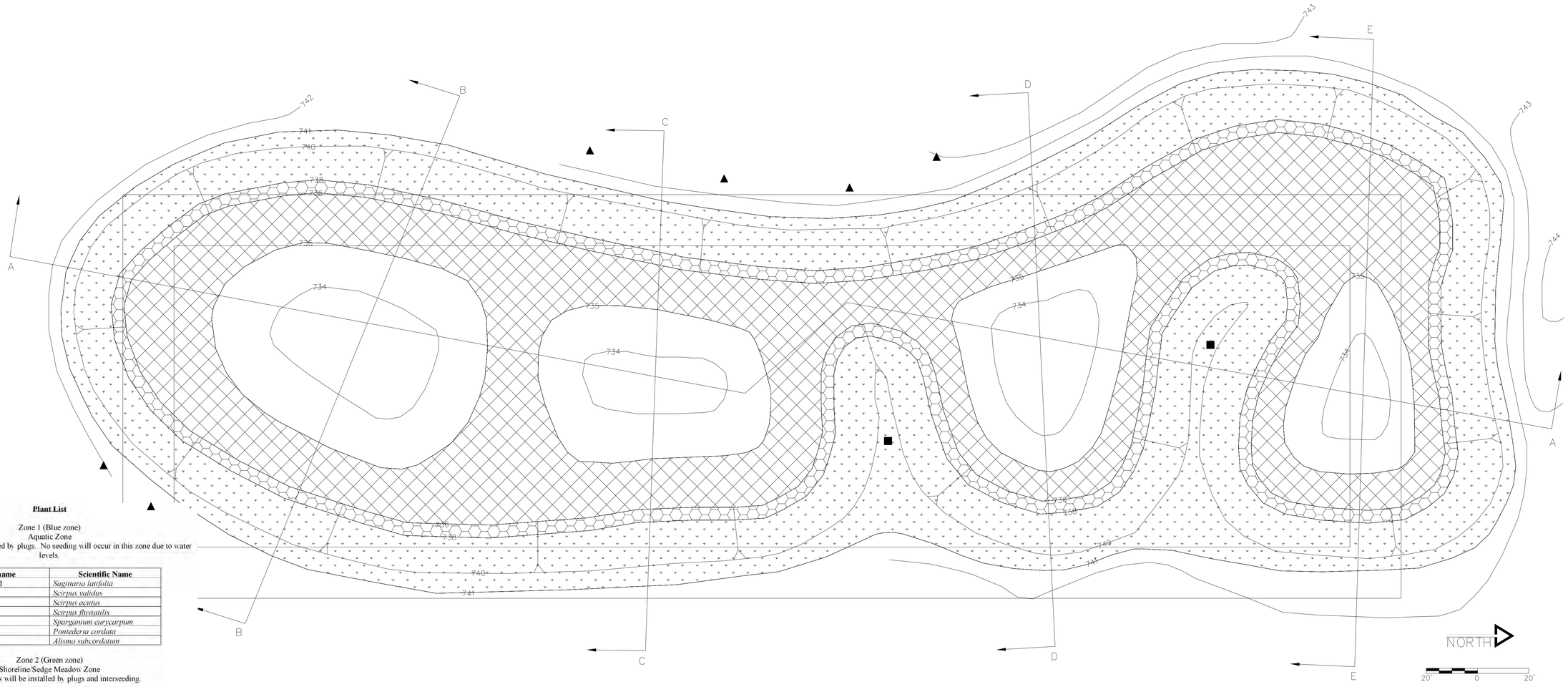


PROPOSED RIGHT-OF-WAY ACQUISITION CURTIS ROAD

EXHIBIT 12



CURTIS ROAD – SOUTH PROSPECT DETENTION FACILITY EXHIBIT 13



Plant List

Zone 1 (Blue zone)
Aquatic Zone
These species will be installed by plugs. No seeding will occur in this zone due to water levels.

Common name	Scientific Name
Broad leaf arrowhead	*Sagittaria latifolia*
Softstem bulrush	*Scirpus validus*
Hardstem bulrush	*Scirpus acutus*
River bulrush	*Scirpus fluviatilis*
Common burreed	*Sparganium euryxarpum*
Pickerelweed	*Pontederia cordata*
Water plantain	*Alisma subcordatum*

Zone 2 (Green zone)
Shoreline/Sedge Meadow Zone
These species will be installed by plugs and interseeding.

Common name	Scientific Name
Swamp milkweed	*Asclepias incarnata*
Sweet flag	*Acorus calamus*
Chairmakers rush	*Scirpus americanus*
Torrey's rush	*Juncus torreyi*
Switch grass	*Panicum virgatum*
Lake sedge	*Carex lacustris*
Spotted Joe Pye weed	*Eupatorium maculatum*
Cardinal flower	*Lobelia cardinalis*
Riddell's goldenrod	*Solidago riddelli*
Wool grass	*Scirpus cyperinus*
Fox sedge	*Carex vulpinoidea*
Rice cutgrass	*Leersia oryzoides*
Bebb's sedge	*Carex bebbii*
False dragonhead	*Physostegia virginiana*
Cut-leaf water horehound	***Lycopus americanus***
Turtlehead	***Chelone glabra***
Swamp buttercup	***Ranunculus septentrionalis***
Boneset	*Eupatorium perfoliatum*
Great blue lobelia	*Lobelia siphilitica*
Willow herb	*Epilobium coloratum*

Boldface indicates questionable availability

Plant List

Zone 3 (Orange zone)
Mesic Prairie
These species will be installed by plugs and interseeding.

Common name	Scientific Name
Culver's root	*Veronicastrum virginicum*
Cup-plant	*Silphium perfoliatum*
Prairie cordgrass	*Spartina pectinata*
Big bluestem	*Andropogon gerardii*
Indian grass	*Sorghastrum nutans*
Purple coneflower	*Echinacea purpurea*
Blazing star	*Liatris spicata*
Rattlesnake master	*Eryngium yuccifolium*
New England Aster	*Aster novae-angliae*
Prairie dock	*Silphium terebinthinacea*
Canada milkvetch	***Astragalus canadensis***
Virginia wild rye	*Elymus virginicus*
Golden alexander	*Zizea aurea*
Mountain blue-eyed grass	*Sisyrinchium campestre*
Sky blue aster	*Aster azureus*
Little bluestem	*Andropogon scoparius*
Purple prairie clover	*Dalea purpurea*
Prairie smoke	***Geum triflorum***
Prairie dropseed	*Sporobolus heterolepis*

Boldface indicates questionable availability

Plant List

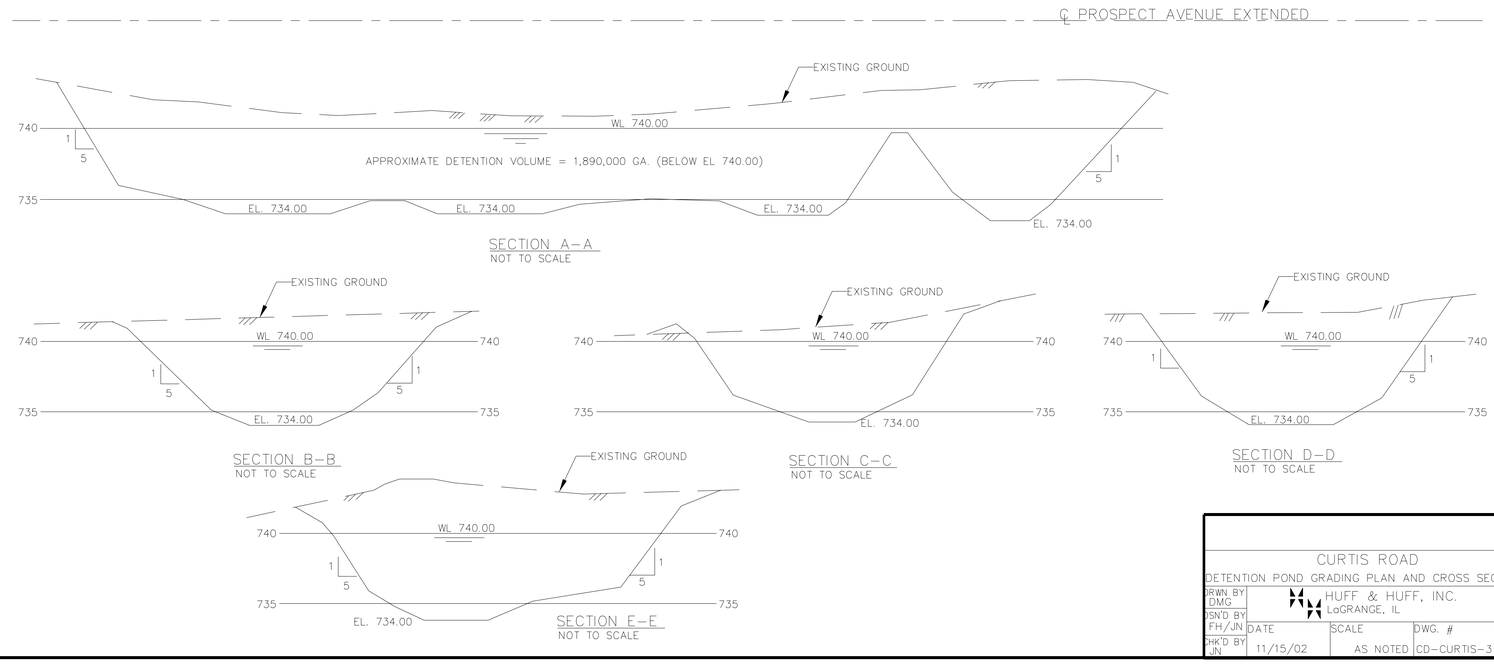
Zone 4 (Red Zone)
Prairie mix
These species will be installed by plugs and interseeding.

Common name	Scientific Name
Wild bergamot	*Monarda fistulosa*
Side oats grama	*Bouteloua curtipendula*
Big bluestem	*Andropogon gerardii*
Indian grass	*Sorghastrum nutans*
Purple coneflower	*Echinacea purpurea*
Yellow coneflower	*Ratibida pinnata*
Butterfly weed	*Asclepias tuberosa*
Partridge pea	*Cassia fasciculata*
Prairie dock	*Silphium terebinthinacea*
Compass plant	*Silphium laciniatum*
Prairie smoke	***Geum triflorum***
Indian paintbrush	***Castilleja coccinea***
Wild hyacinth	***Camassia scilloides***
White wild indigo	***Baptisia leucantha***
Shooting star	*Dodecatheon meadia*
Canada milkvetch	*Astragalus canadensis*
Prairie redroot	*Ceanothus ovatus*
Canada hawkweed	*Hieracium canadense*
Virginia wild rye	*Elymus virginicus*
Golden alexander	*Zizea aurea*
Wild quinine	*Parthenium integrifolium*
Prairie goldenrod	*Solidago patula*
Jacob's ladder	*Polemonium reptans*
Prairie phlox	*Phlox pilosa*
Compass plant	*Silphium laciniatum*
White wild indigo	*Baptisia leucantha*
Shooting star	*Dodecatheon meadia*
Lance-leaf coreopsis	*Coreopsis lanceolata*
New Jersey tea	*Ceanothus americana*

Boldface indicates questionable availability

Tree Species

Common name	Scientific Name
▲ Swamp white oak	*Quercus bicolor*
■ Bur oak	*Quercus macrocarpa*



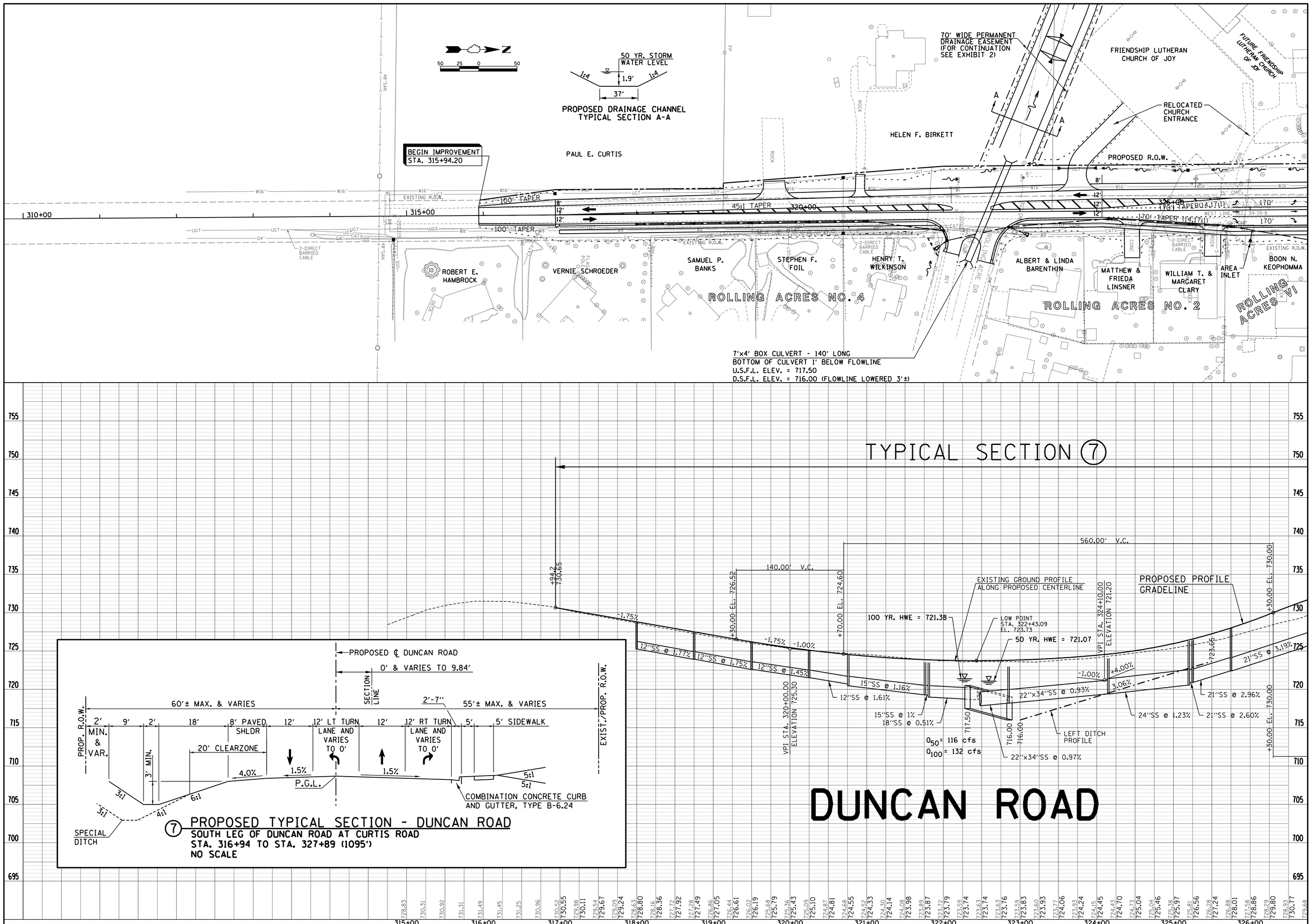
CURTIS ROAD
DETENTION POND GRADING PLAN AND CROSS SECTIONS

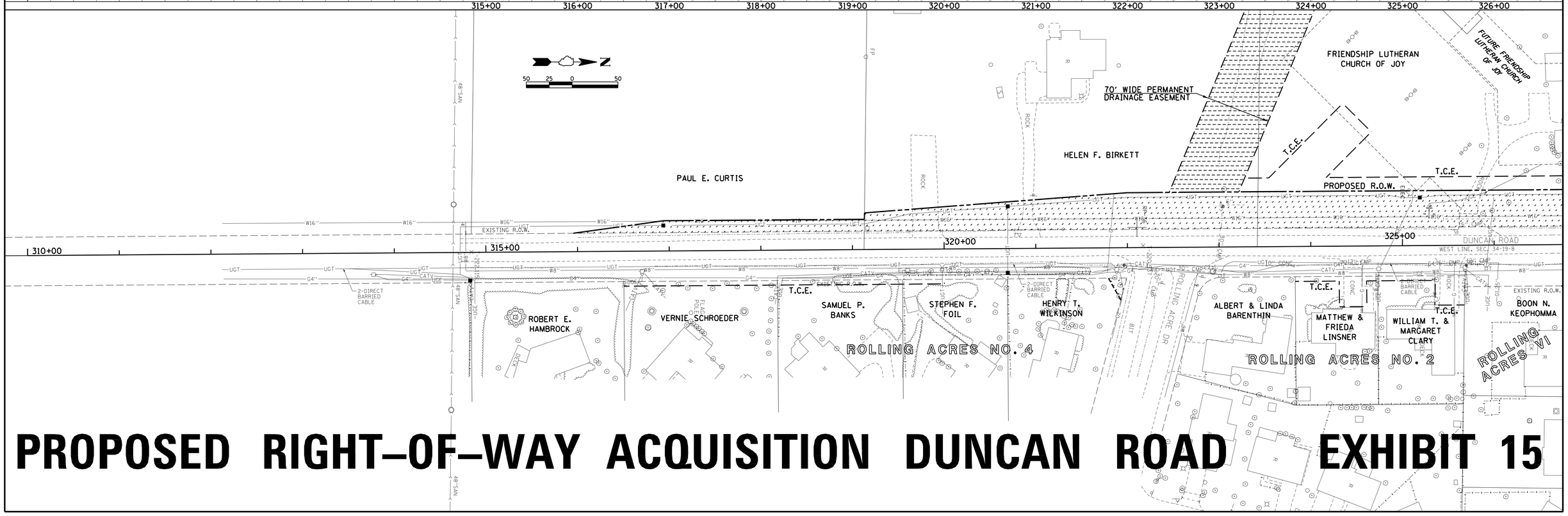
DRWN BY DMG	HUFF & HUFF, INC. LaGRANGE, IL		
DSN'D BY FH/JN	DATE	SCALE	DWG. #
CHK'D BY JN	11/15/02	AS NOTED	CD–CURTIS–3

SHEET # 1 OF 2

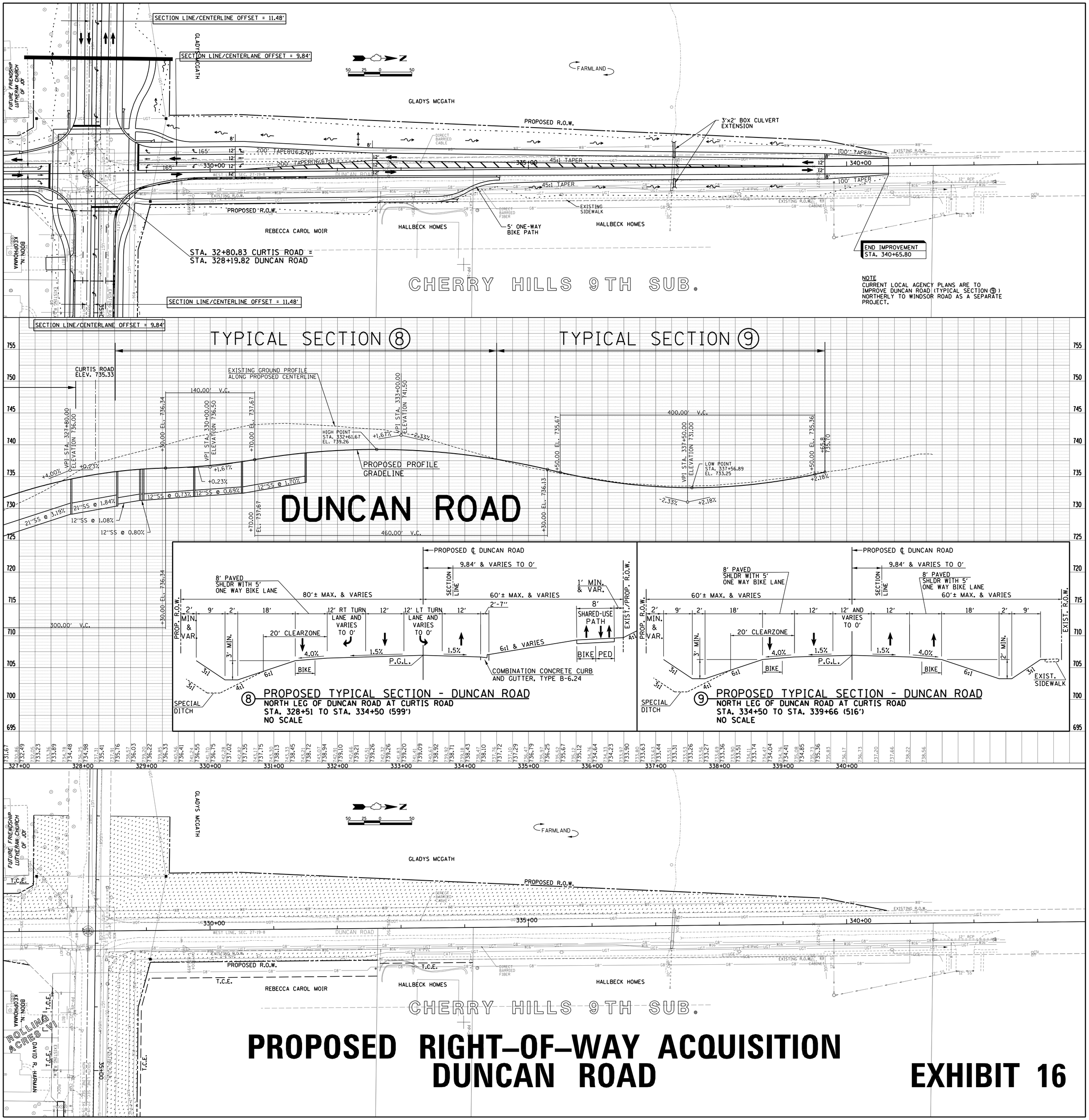
CURTIS ROAD - WETLAND COMPENSATION PLAN

EXHIBIT 14



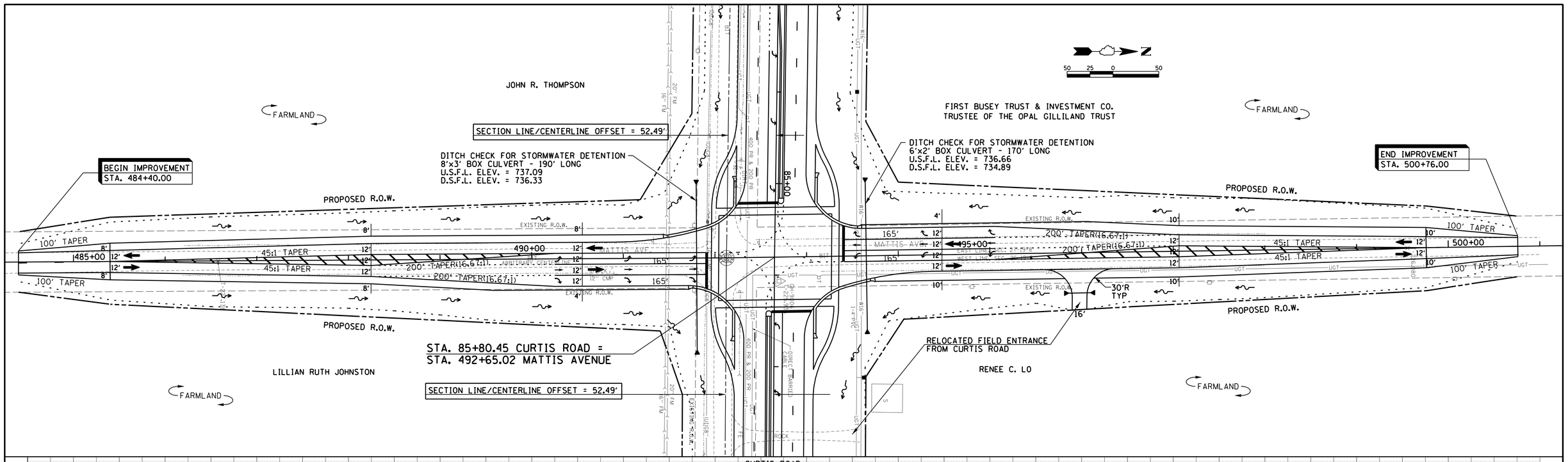


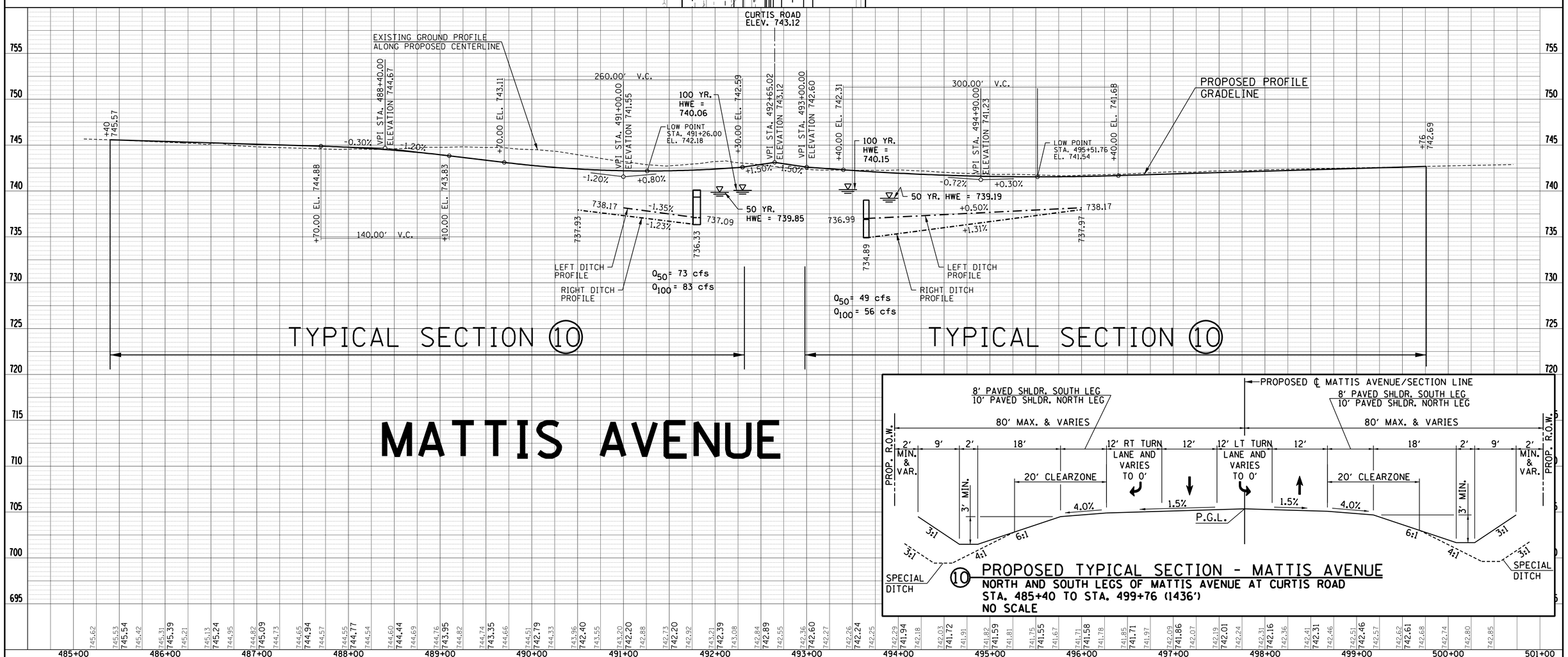
PROPOSED RIGHT-OF-WAY ACQUISITION DUNCAN ROAD EXHIBIT 15

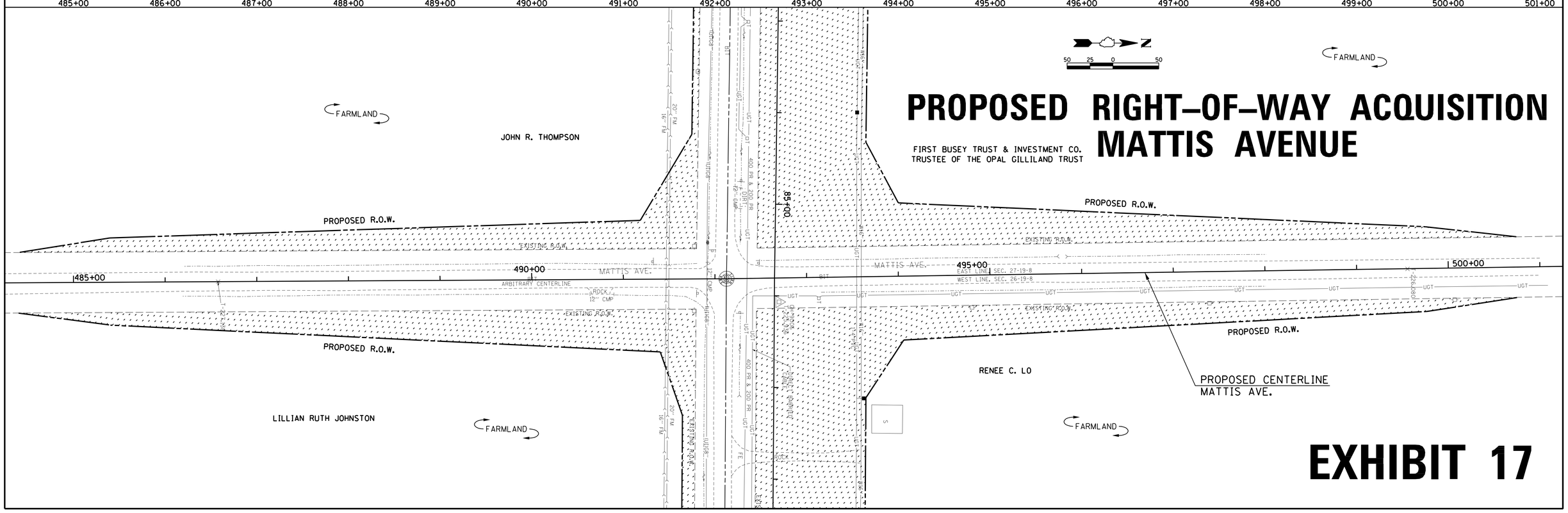


PROPOSED RIGHT-OF-WAY ACQUISITION
DUNCAN ROAD

EXHIBIT 16



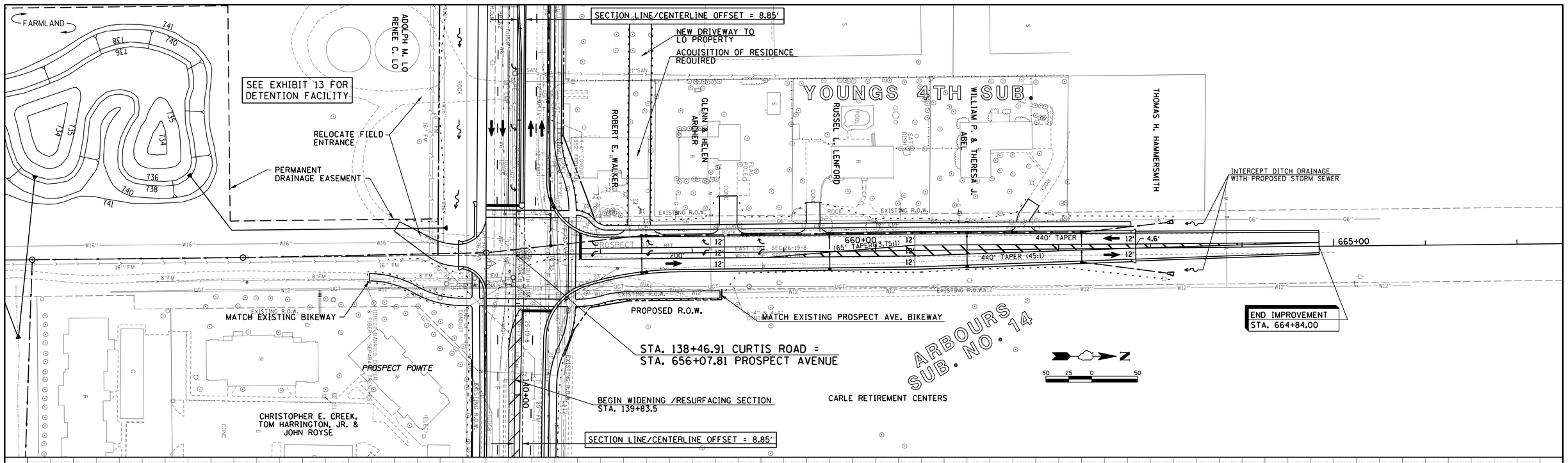


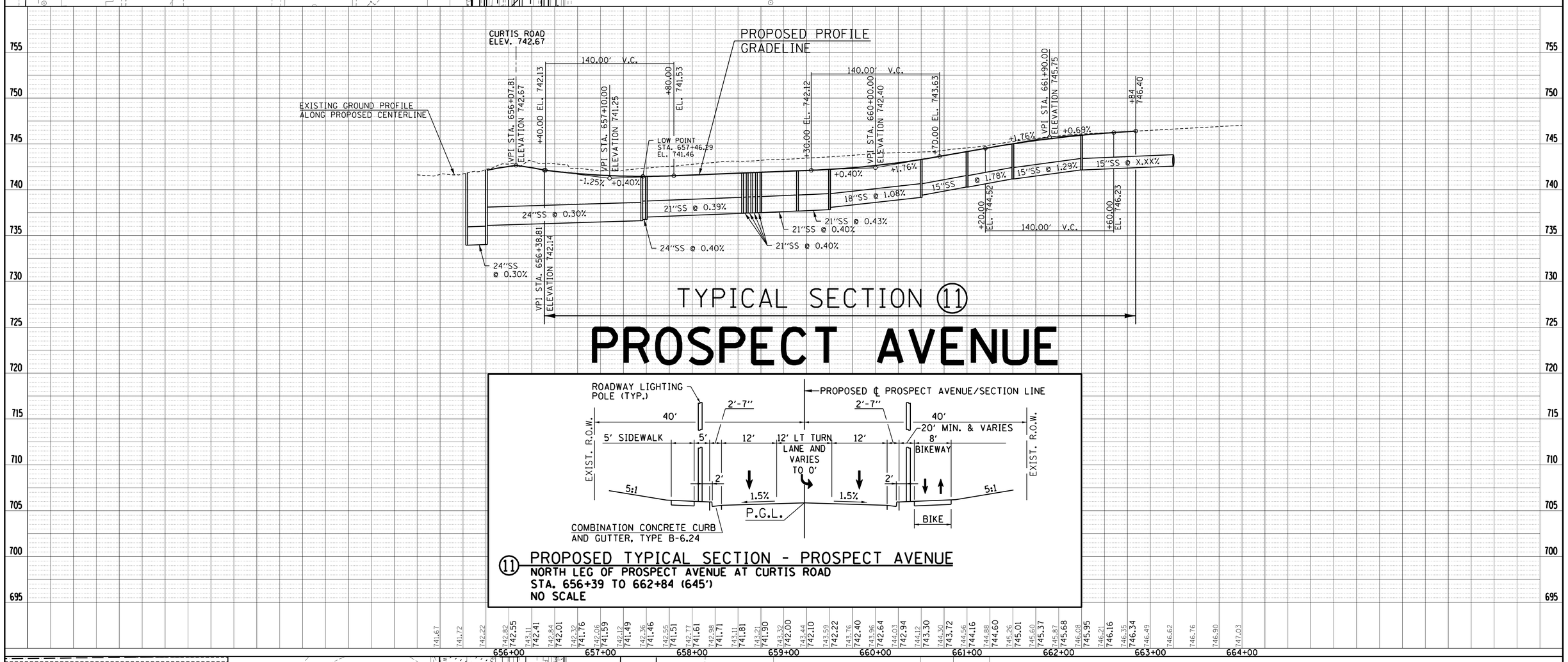


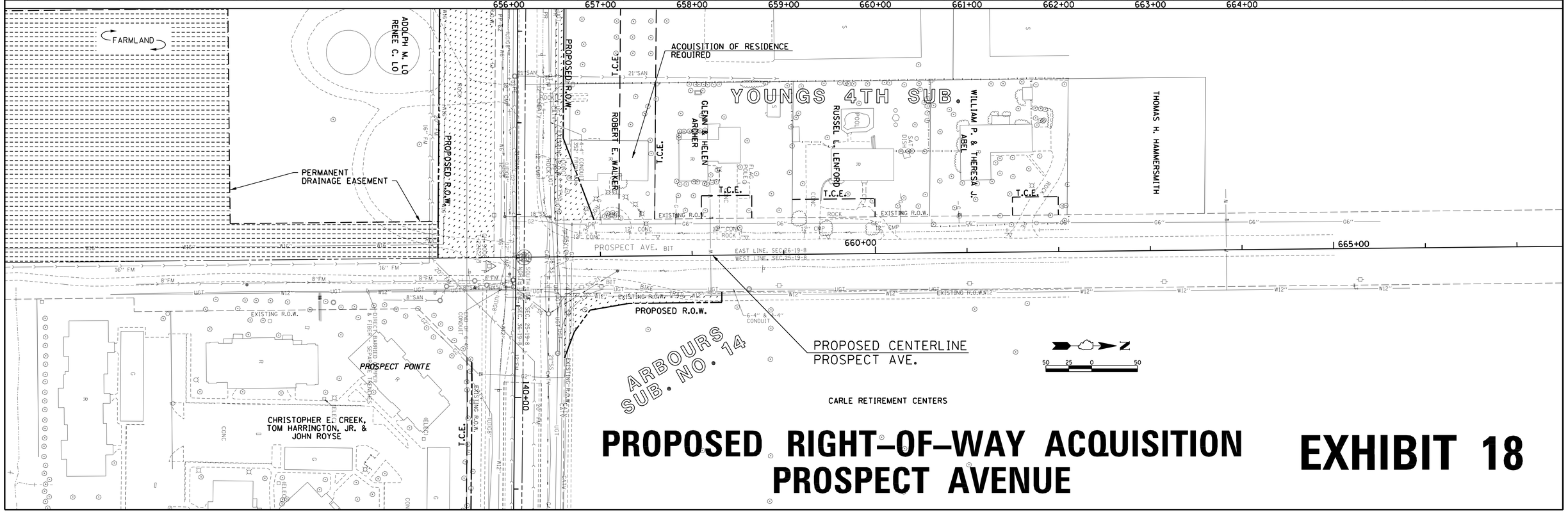
PROPOSED RIGHT-OF-WAY ACQUISITION
MATTIS AVENUE

FIRST BUSEY TRUST & INVESTMENT CO.
TRUSTEE OF THE OPAL GILLILAND TRUST

EXHIBIT 17

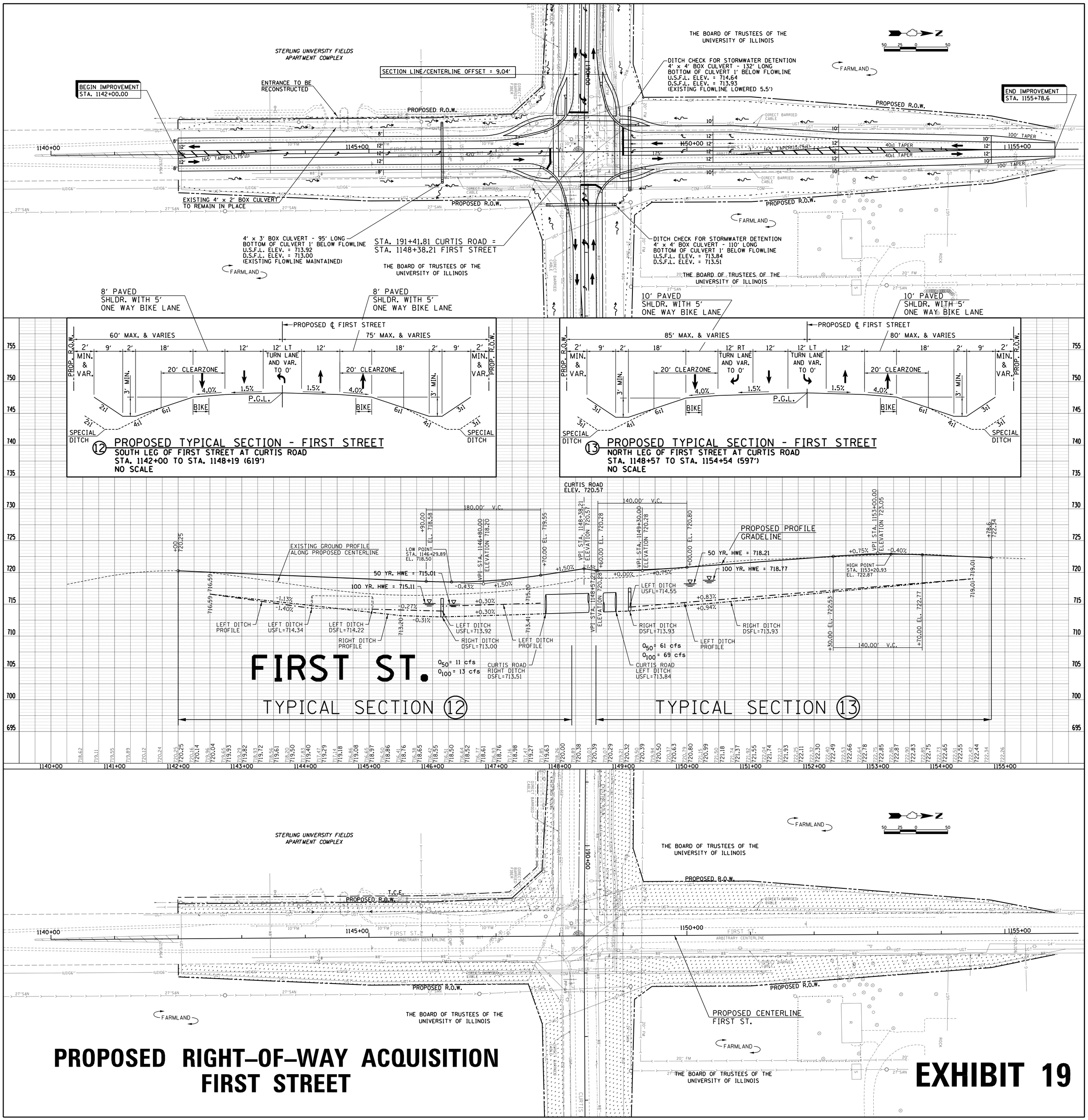






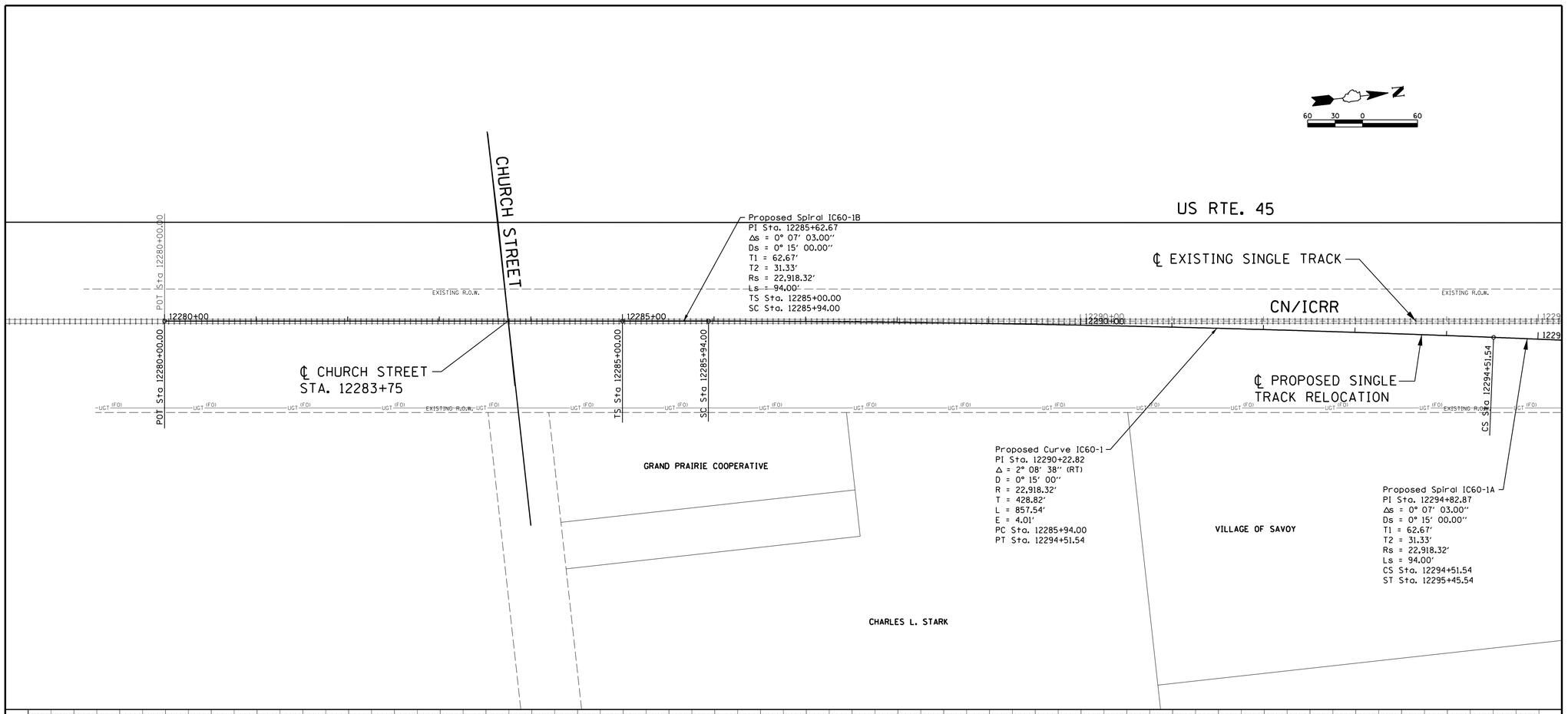
PROPOSED RIGHT-OF-WAY ACQUISITION PROSPECT AVENUE

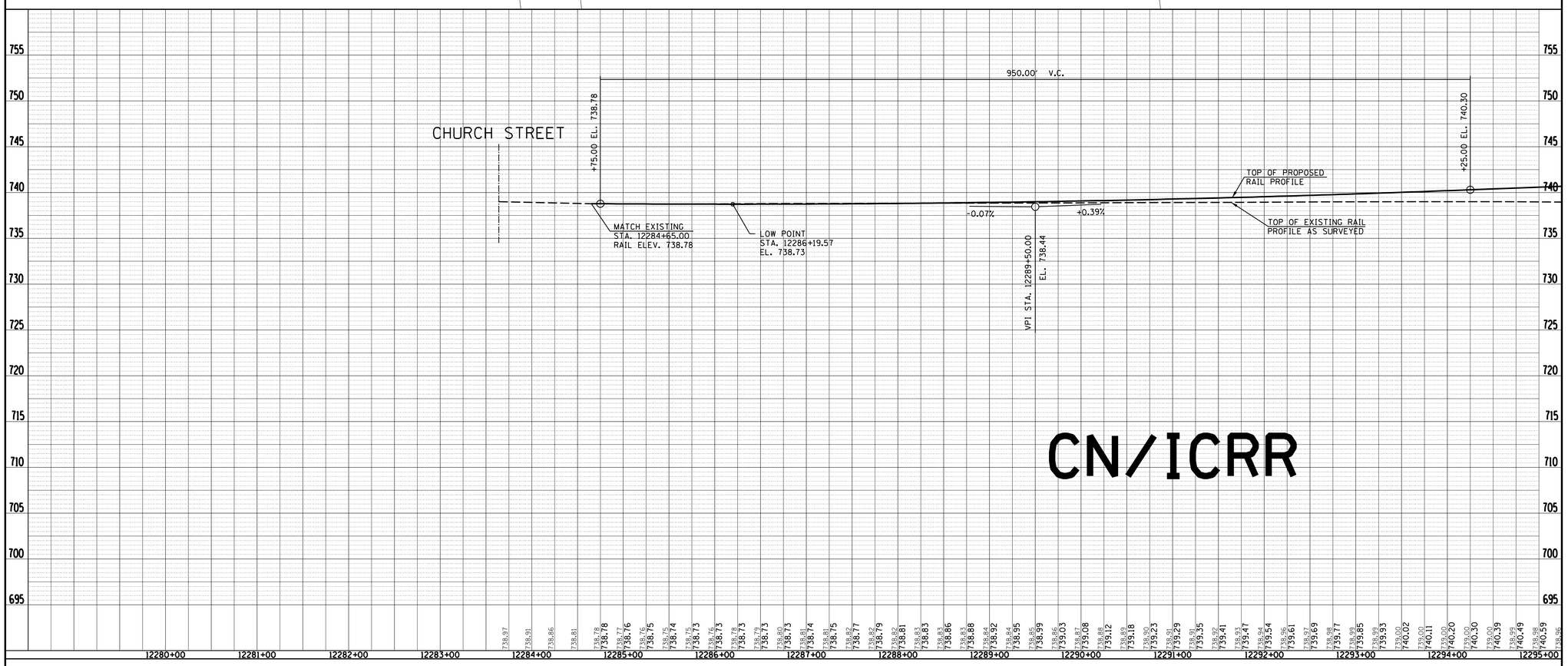
EXHIBIT 18

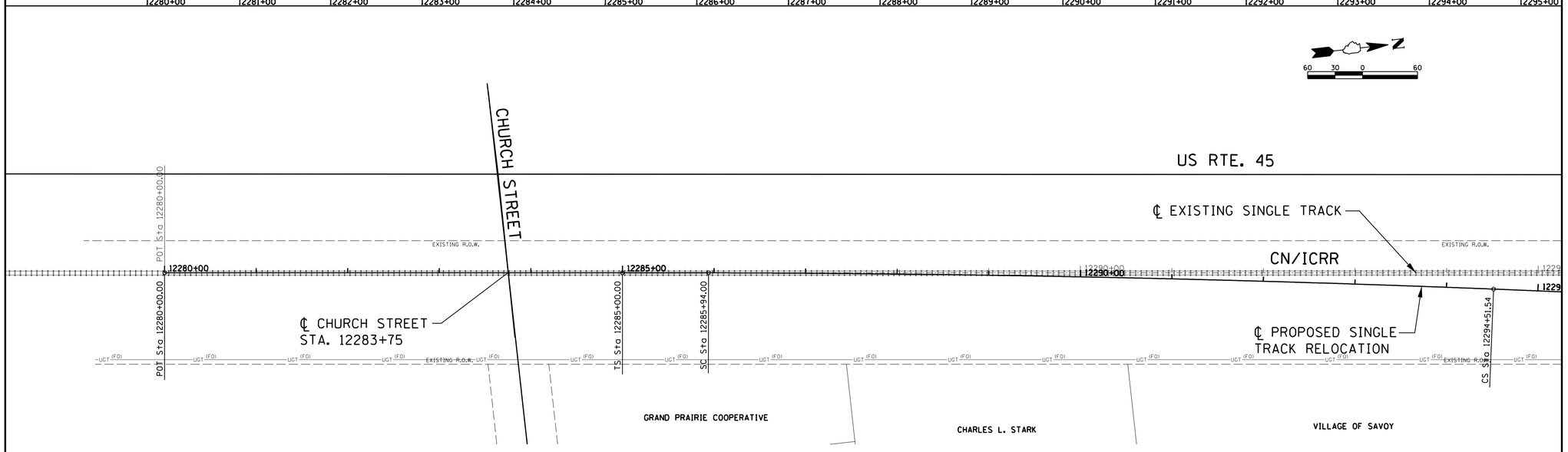


PROPOSED RIGHT-OF-WAY ACQUISITION FIRST STREET

EXHIBIT 19

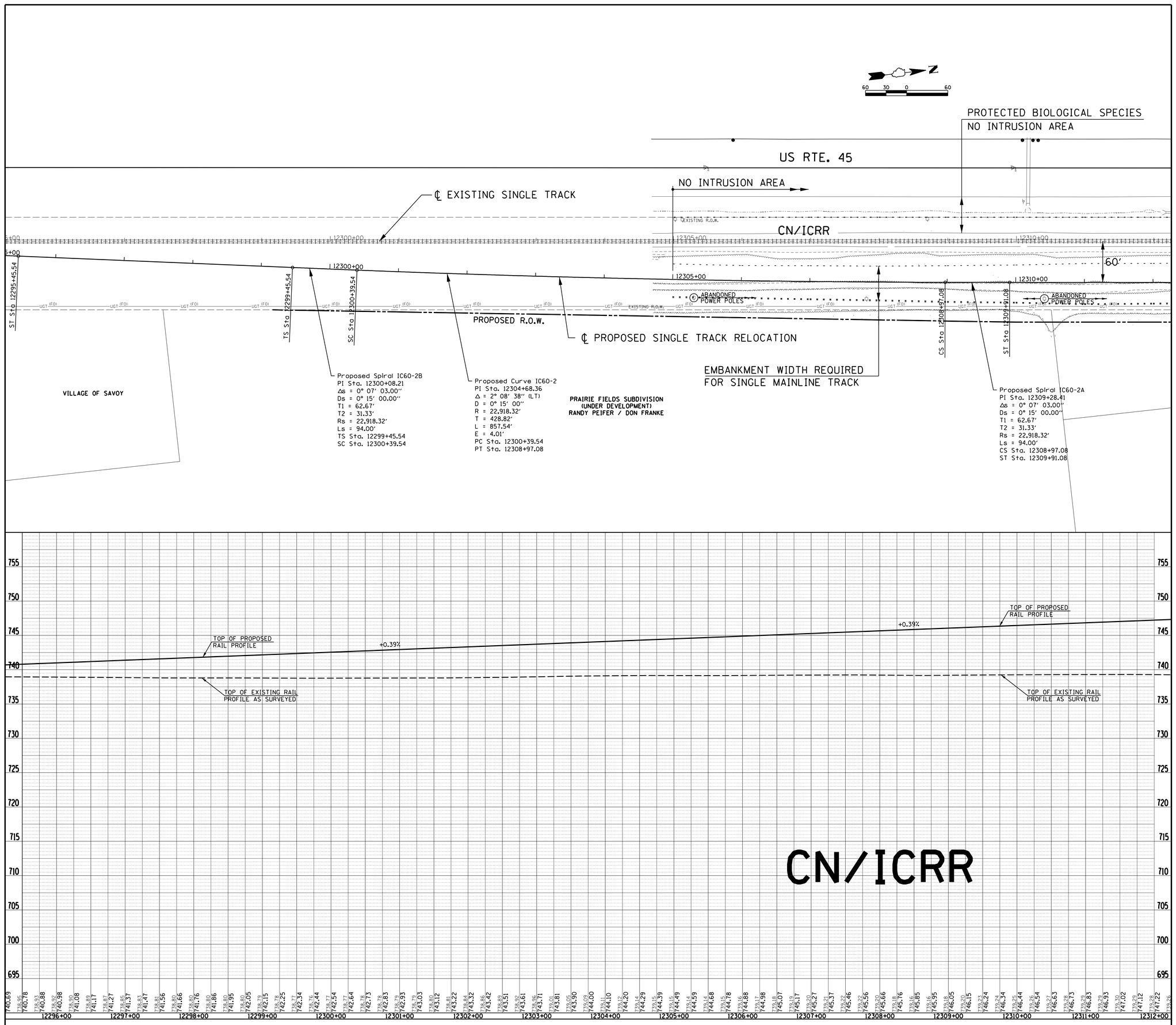


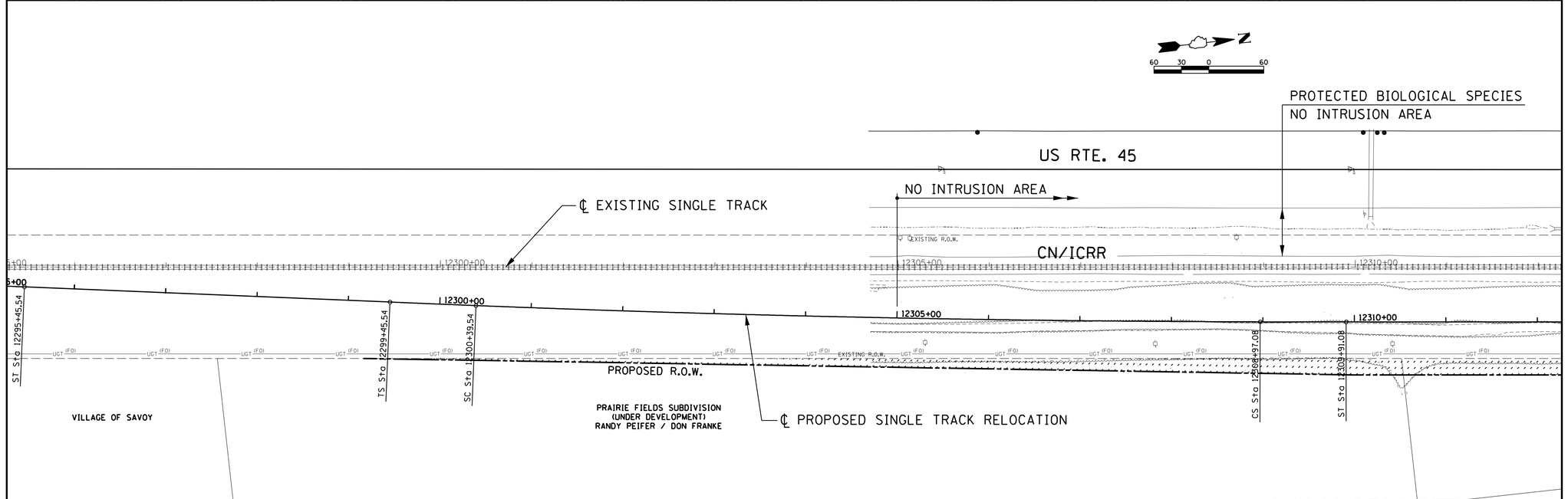




PROPOSED RIGHT–OF–WAY ACQUISITION – CN / ICRR

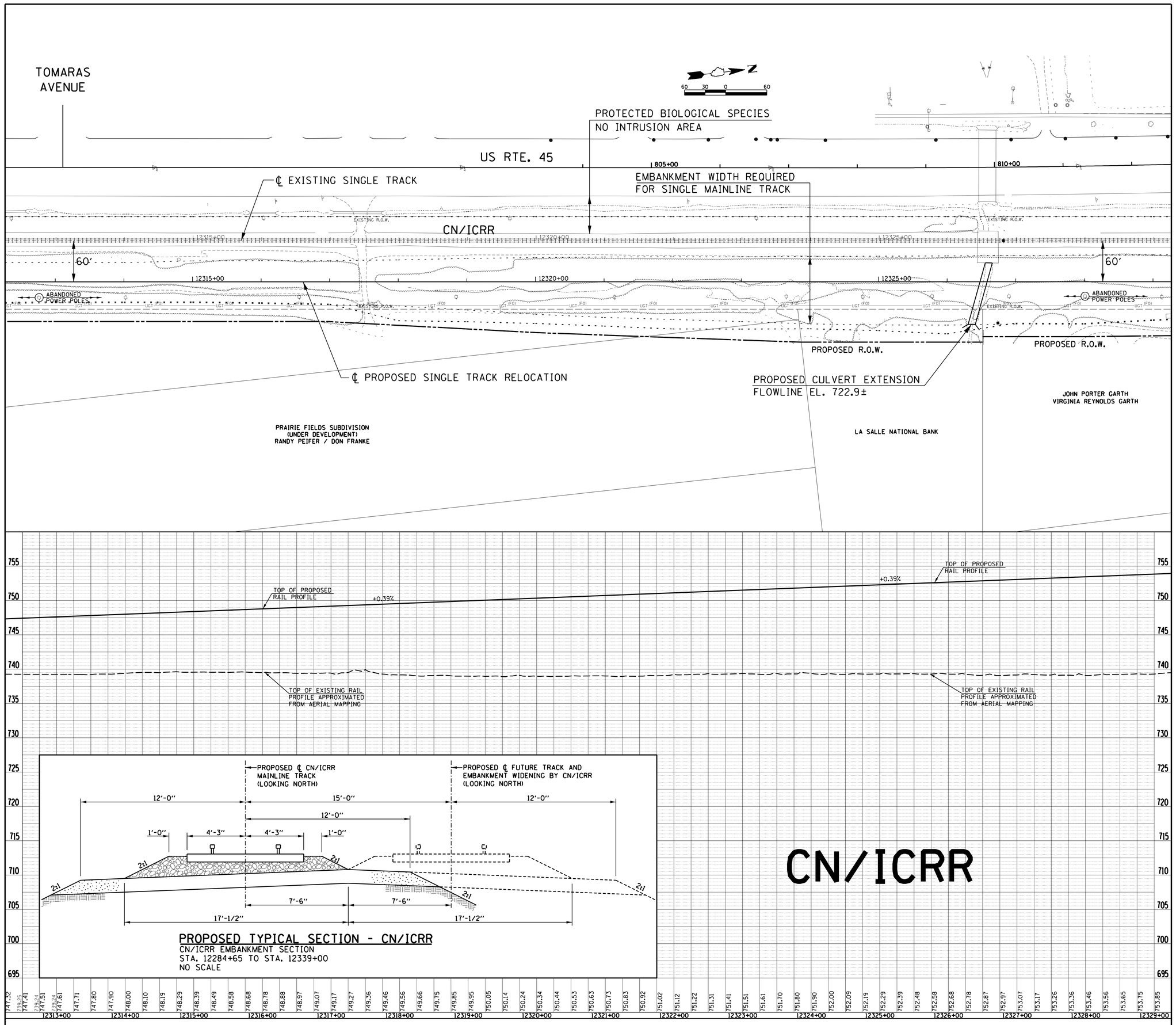
EXHIBIT 20





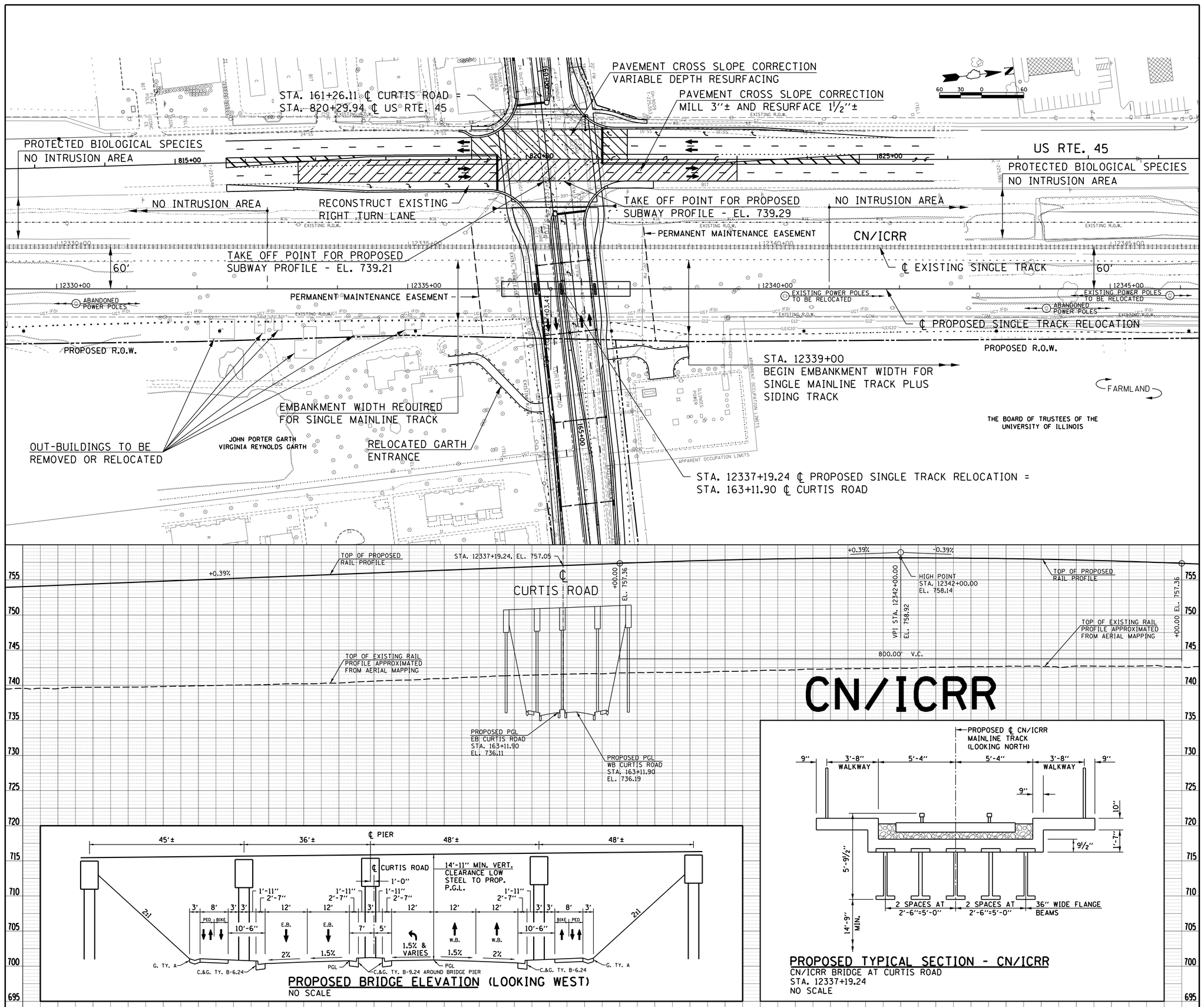
PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

EXHIBIT 21



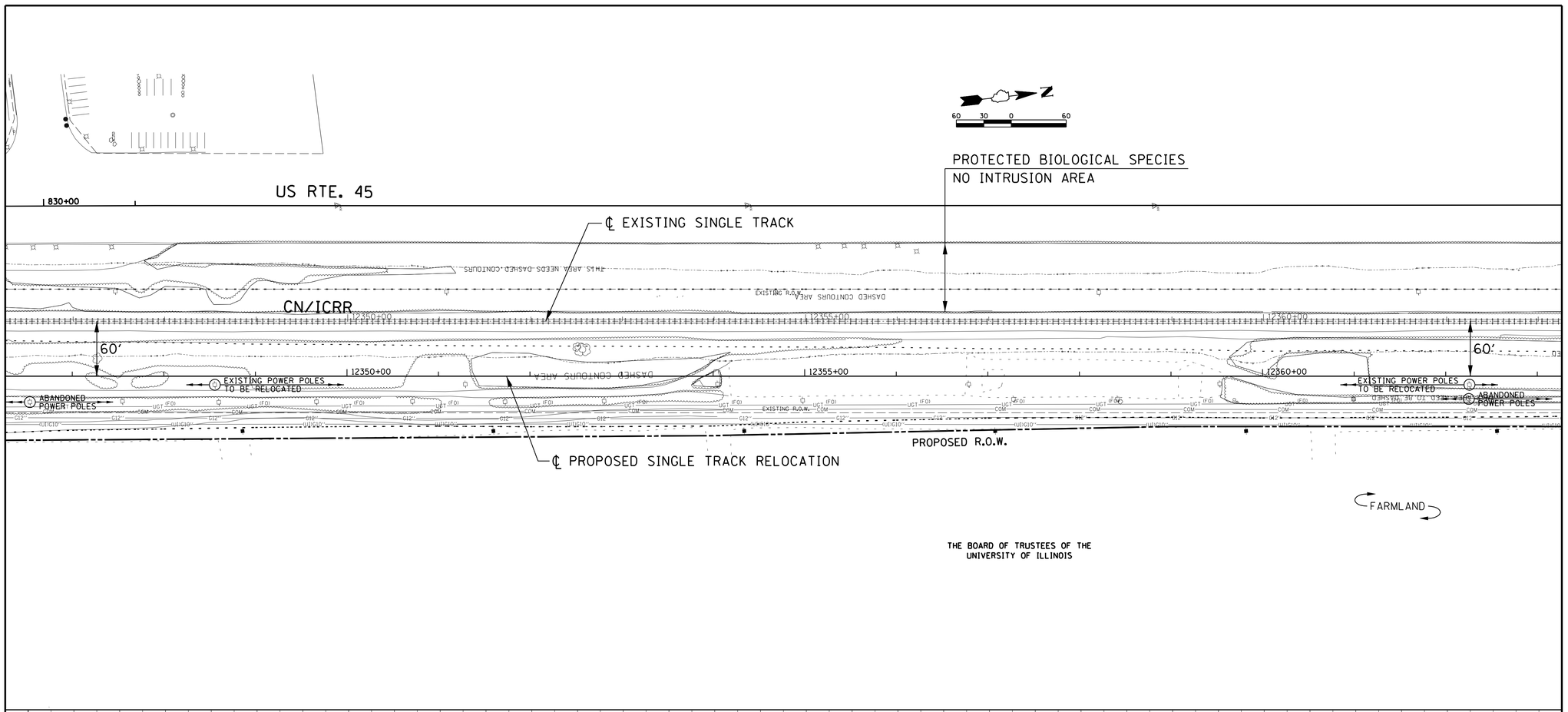
PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

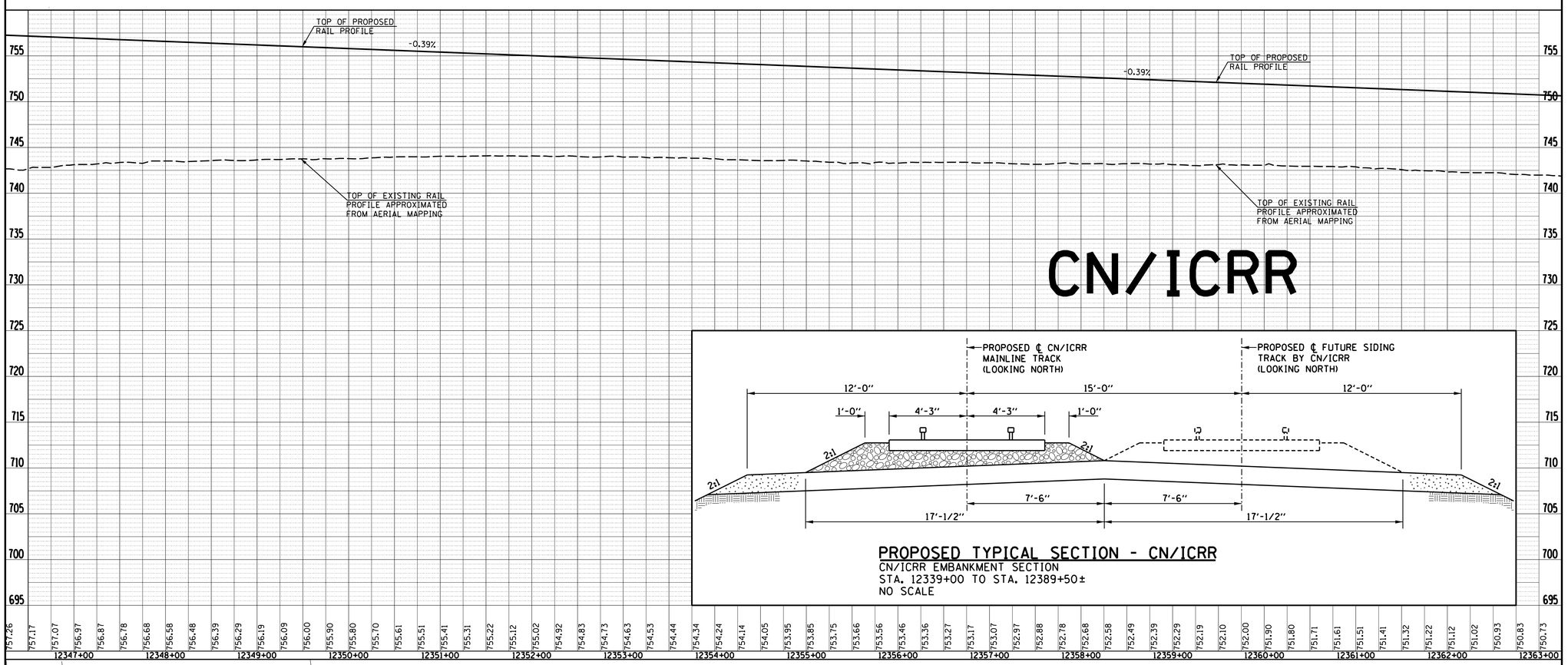
EXHIBIT 22

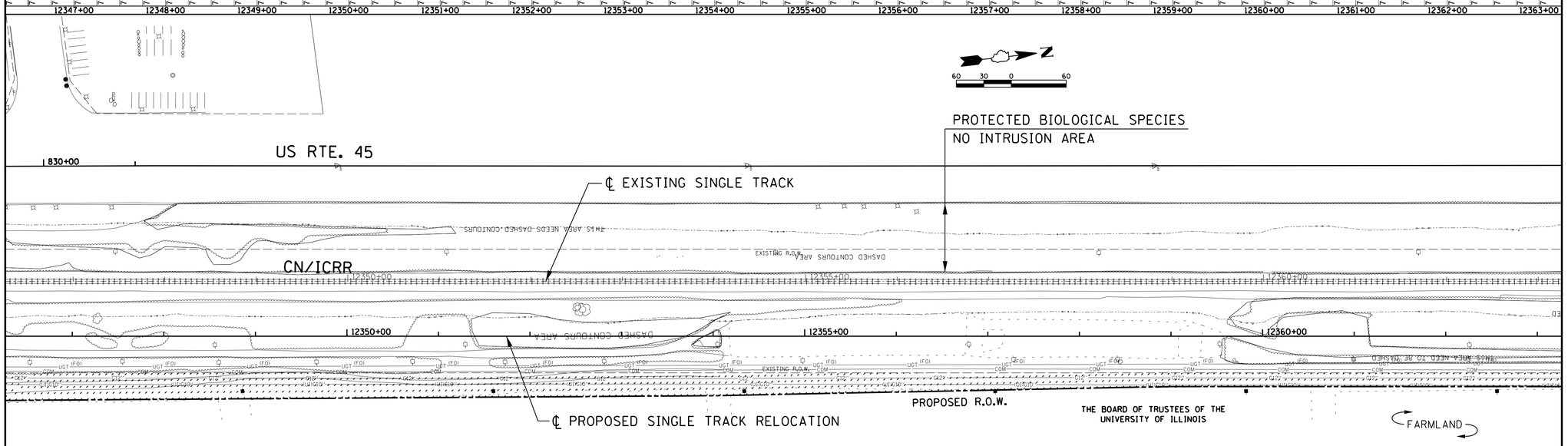


PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

EXHIBIT 23







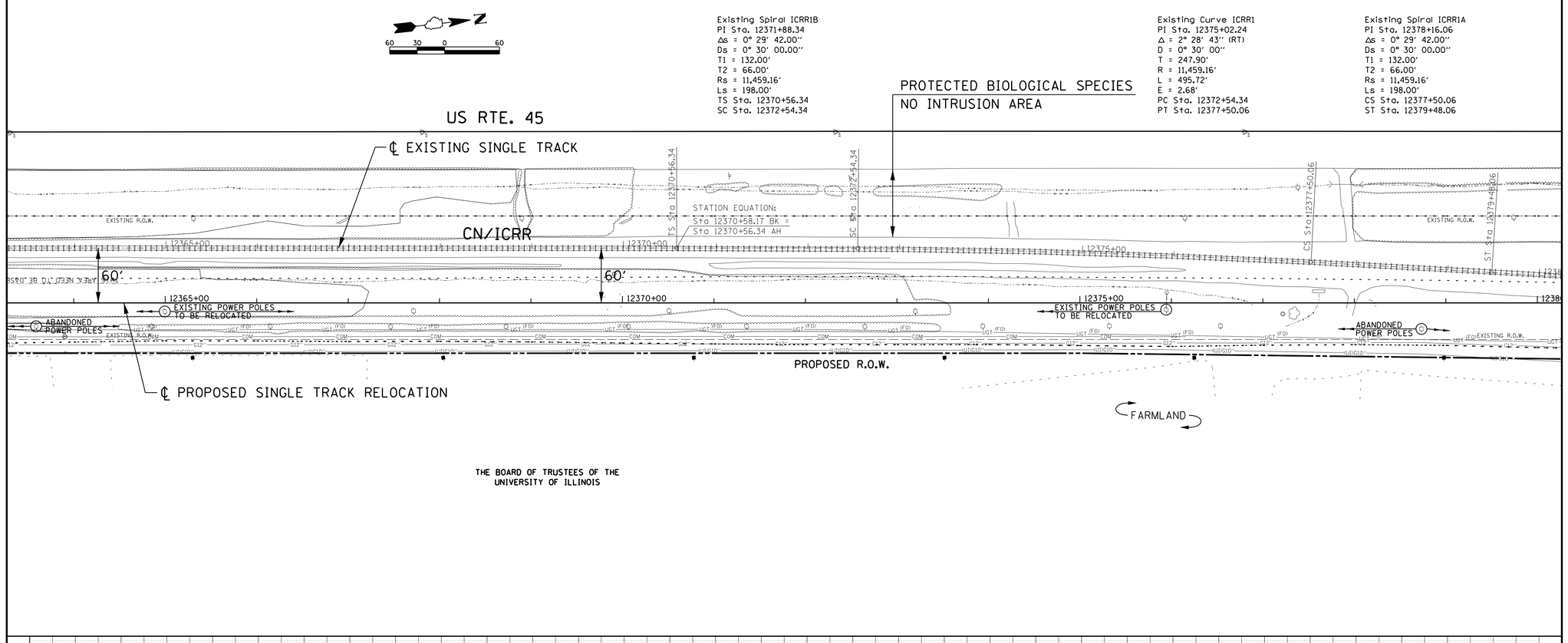
PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

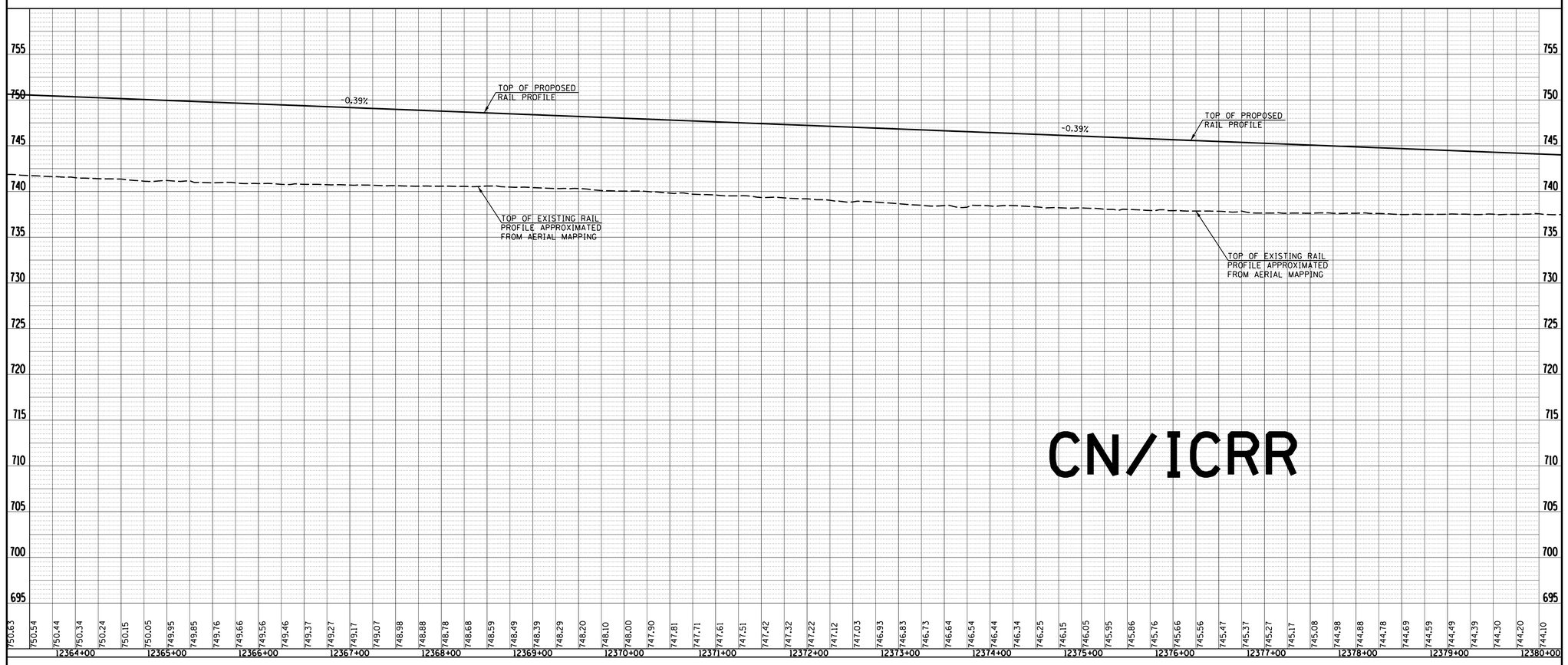
EXHIBIT 24

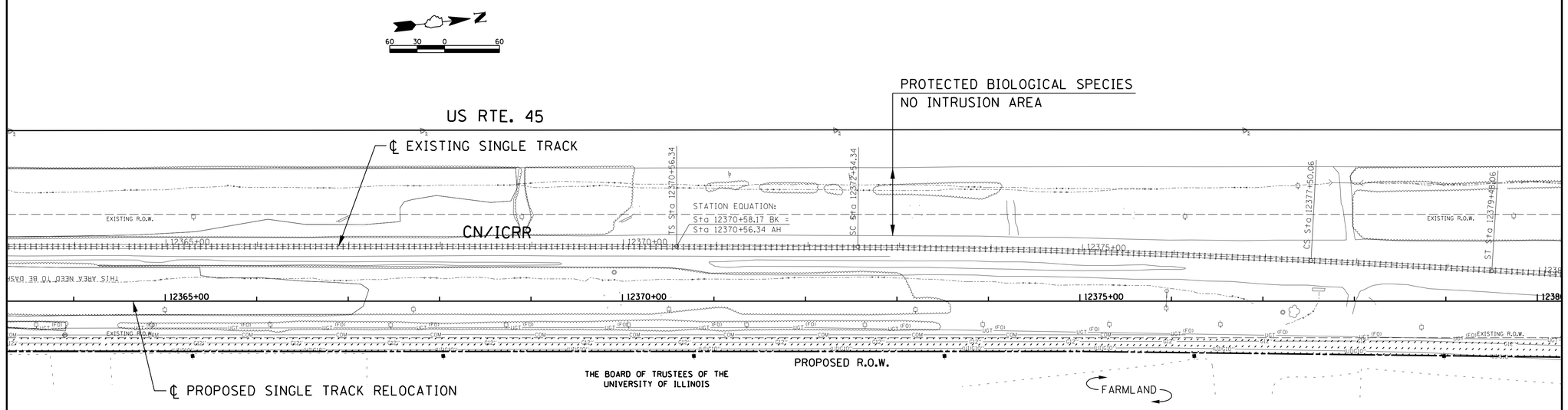
Existing Spiral ICRR1B
PI Sta. 12371+88.34
Δs = 0° 29' 42.00"
Ds = 0° 30' 00.00"
T1 = 132.00'
T2 = 66.00'
Rs = 11,459.16'
Ls = 198.00'
TS Sta. 12370+56.34
SC Sta. 12372+54.34

Existing Curve ICRR1
PI Sta. 12375+02.24
Δ = 2° 28' 43" (RT)
D = 0° 30' 00"
T = 247.90'
R = 11,459.16'
L = 495.72'
E = 2.68'
PC Sta. 12372+54.34
PT Sta. 12377+50.06

Existing Spiral ICRR1A
PI Sta. 12378+16.06
Δs = 0° 29' 42.00"
Ds = 0° 30' 00.00"
T1 = 132.00'
T2 = 66.00'
Rs = 11,459.16'
Ls = 198.00'
CS Sta. 12377+50.06
ST Sta. 12379+48.06

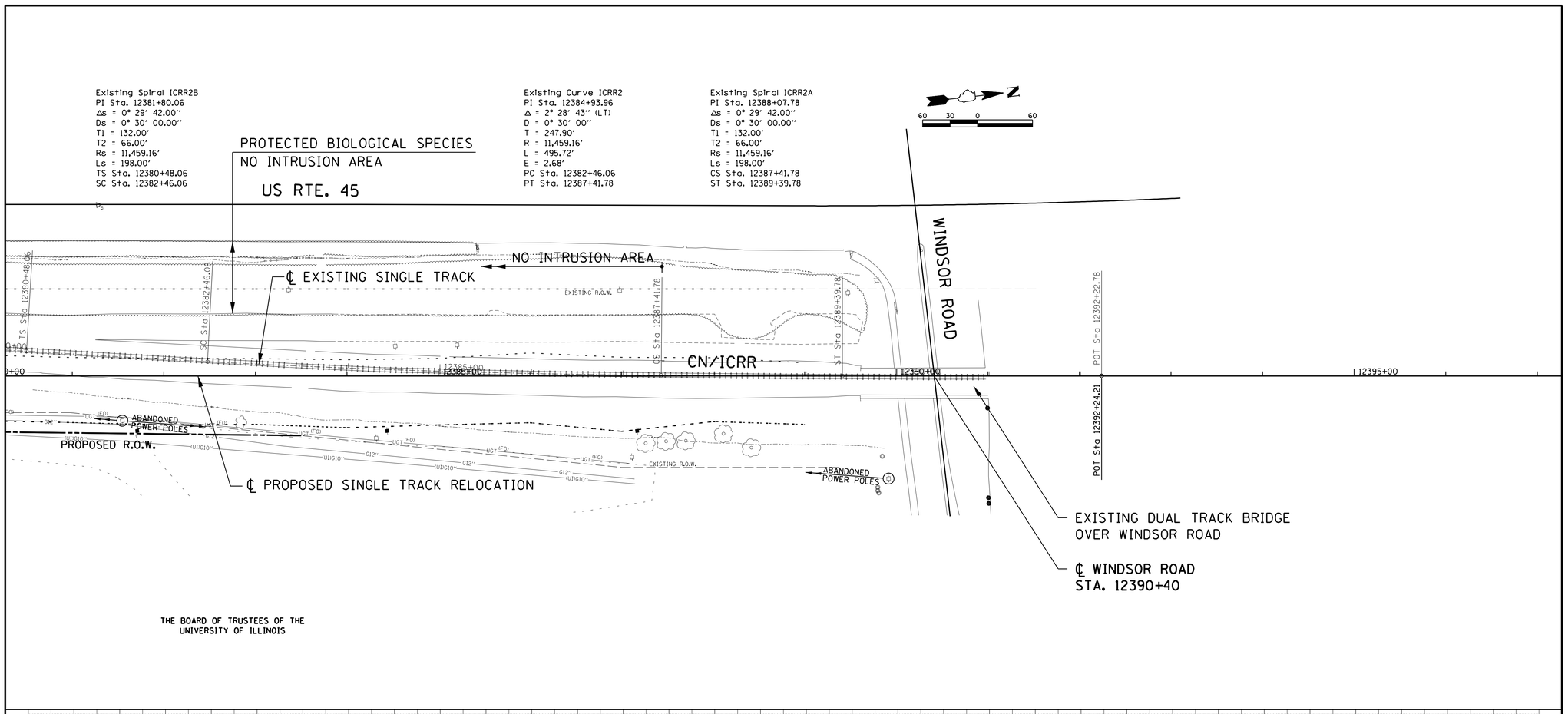


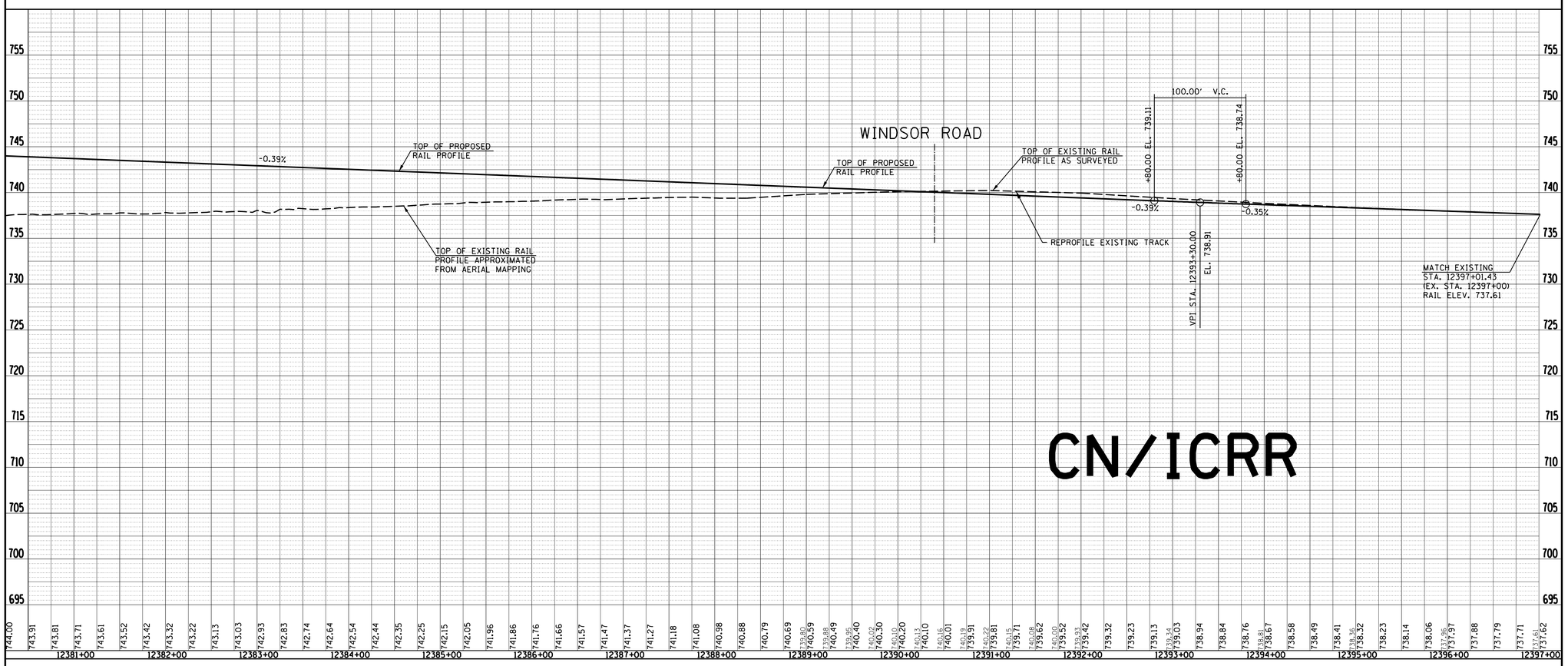


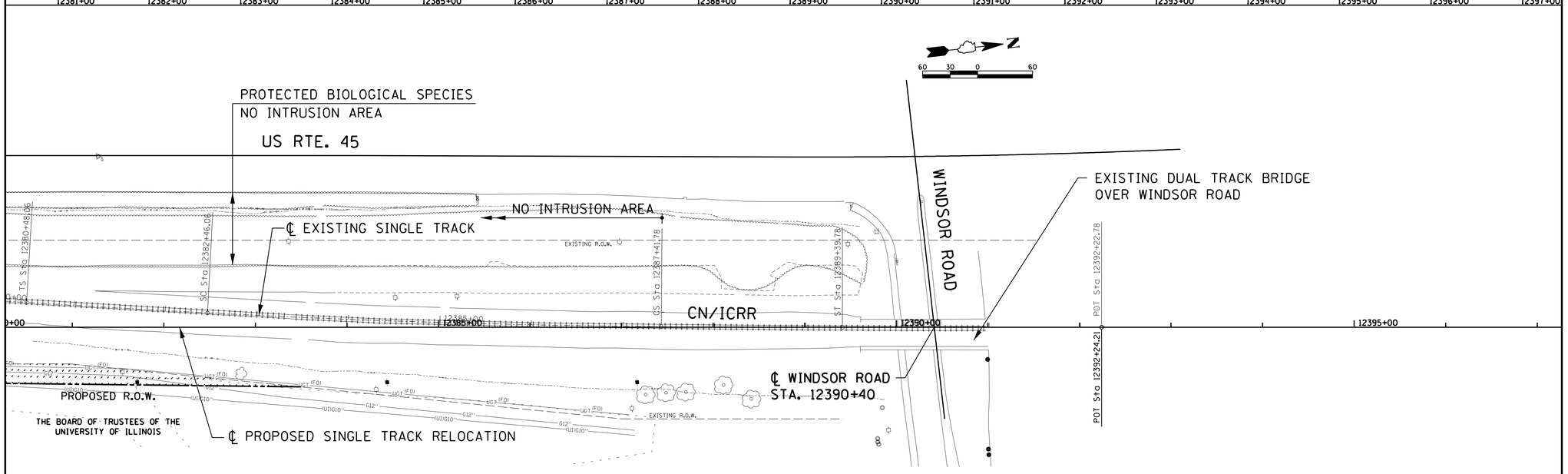


PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

EXHIBIT 25







PROPOSED RIGHT-OF-WAY ACQUISITION – CN / ICRR

EXHIBIT 26

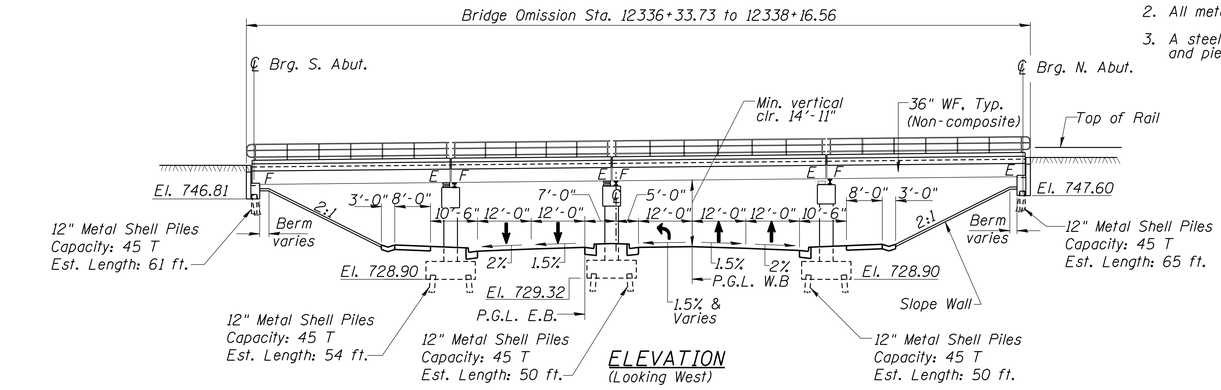
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 807	*	CHAMPAIGN	1	1
		ILLINOIS	FED. AID PROJECT-M-5181(036)	

*00-00374-00-ES

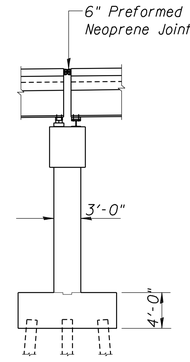
Bench Mark: BM D185 from State Circuit: Elev. 739.61, USGS disk at the southwest quadrant of U.S. Rt. 45 and Curtis Road. The disk is on a concrete foundation on the east side of the F.A.S.S. Building, north of concrete steps to F.A.S.S.'s front entrance.

NOTES:

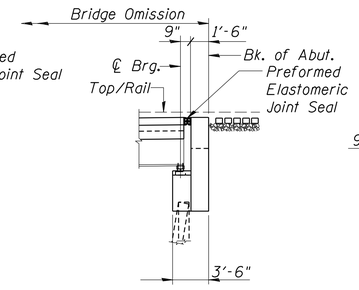
1. The number of piles, pile rows, batter of piles and bearing seat widths will be determined during final design.
2. All metal piles shall have 60° conical pile points.
3. A steel plate will be provided over the gaps at the abutments and piers. The plate will be under the waterproofing system.



ELEVATION
(Looking West)

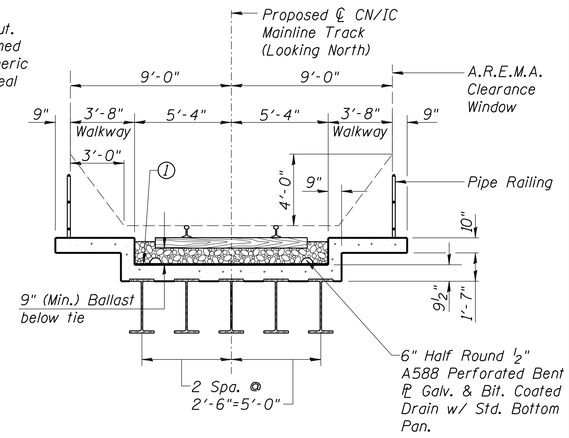


ELEVATION AT PIER
(At right angles)



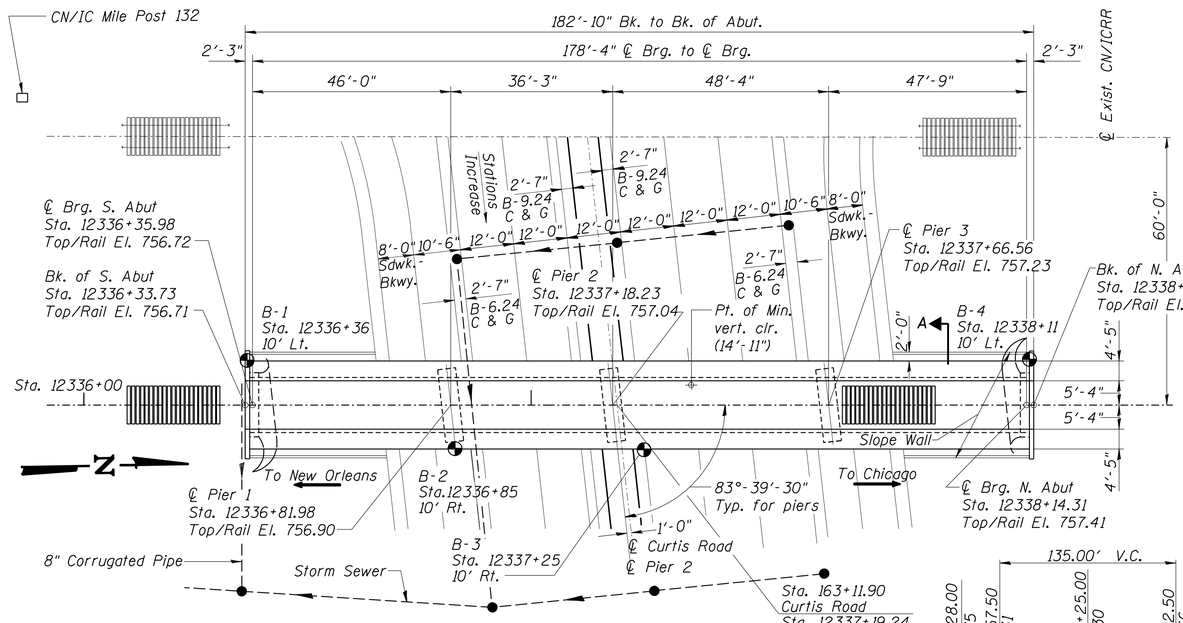
ELEVATION AT ABUTMENT

① Waterproofing system shall be $\frac{3}{32}$" butyl rubber membrane under 1" asphalt planks.

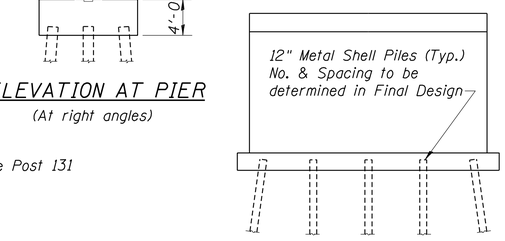


Note: Deck Drains must drain to Storm Sewers.

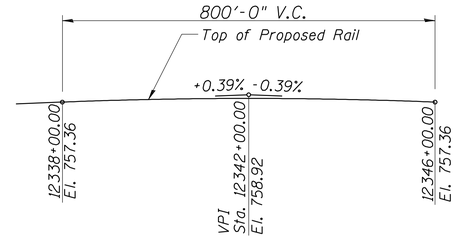
TYPICAL CROSS SECTION



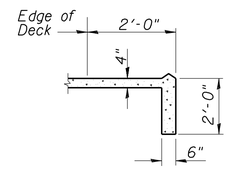
PLAN



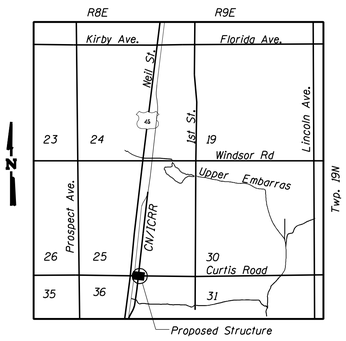
PIER SKETCH



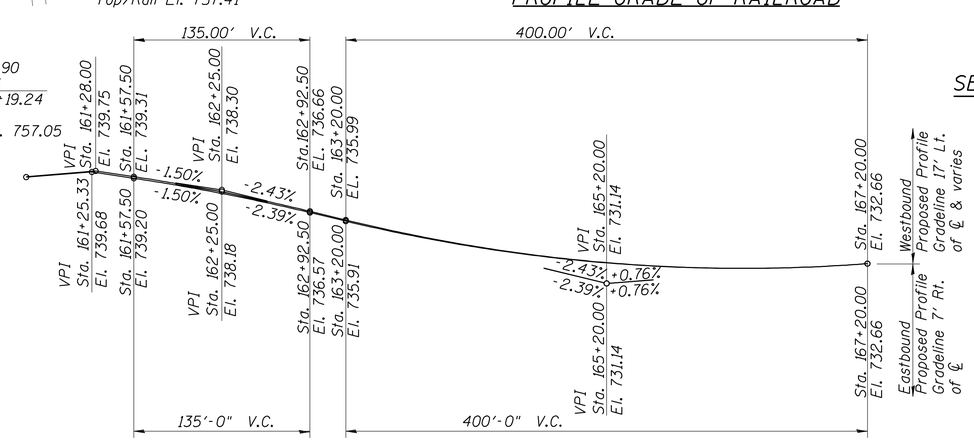
PROFILE GRADE OF RAILROAD



SECTION A



LOCATION SKETCH



PROFILE GRADES OF CURTIS ROAD

DESIGN SPECIFICATIONS

American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, 2002.

LOADING

LIVE LOAD, Cooper E80
Plus Diesel Impact for Equipment with hammer blow, Service Load Design

DEAD LOAD, Includes additional 12" of future ballast

DEFLECTION

Maximum live load + impact: 1/640 of span.

SEISMIC DATA

Seismic Performance Category (S.P.C.) = A
Bedrock Acceleration Coefficient (A)=0.0475g
Site Coefficient (S)= 1.0

DESIGN STRESSES

f'c = 3,500 P.S.I.
fy = 60,000 P.S.I. (Reinforcement)
fy = 50,000 P.S.I. (Struct) (M270 Gr. 50)

HIGHWAY CLASSIFICATION

CURTIS ROAD

Functional Class: Urban Other Principal Arterial
DHV: 995 (2006)
ADT: 8,500 (2026)
Design Speed: 45 mph

CN/IC

Class I Railroad
ADT: 4 Passenger Trains & 26 Freight Trains per day
Design Speed: 80 MPH

GENERAL PLAN
CN/IC OVER CURTIS ROAD

F.A.P. ROUTE 807 SEC. 00-00374-00-ES
CHAMPAIGN COUNTY STA. 12337+25.15
STRUCTURE NUMBER_____

CDI CLARK DIETZ, INC.

CHAMPAIGN, ILLINOIS CHICAGO, ILLINOIS EVANSVILLE, INDIANA INDIANAPOLIS, INDIANA KENOSHA, WISCONSIN

REVISIONS	
NAME	DATE
Per CN/IC	11-20-02

NOTE: DIMENSIONAL DATA IS NOT TO BE OBTAINED BY SCALING ANY PORTION OF THIS DRAWING.

DESIGNED BY: S.L.D. PROJECT NO: C30241
DRAWN BY: M.E.W. DATE: 7-2002
CHECKED BY: M.M.
APPROVED BY:
ACTIVITY INITIALS

DRAWING NUMBER S-1

CN / IC RAILROAD BRIDGE OVER CURTIS ROAD

EXHIBIT 27

CAPACITY DESIGN STUDY

4 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 22.7 SEC. — INTERSECTION LEVEL OF SERVICE A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1b — P.M. 24.0 SEC. — P.M. C

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3	3	3	3	3	3	3		3	3	
LANE UTILIZATION FACTOR		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900	1900	1900		1900	1900	
D-DISTANCE		130'		110'	158'		70'	83'			53'		
LANE GROUP		L	T	R	L	T	R	L	TR		L	TR	
LANE WIDTHS		12'	12'	12'	12'	12'	12'	14'	2@12'		14'	2@12'	
GREEN TIME (SECONDS)	A.M.	10.0/18.0	18.0	28.0	10.0/18.0	18.0	28.0	10.0/34.0	34.0		10.0/34.0	34.0	
	P.M.	10.0/19.0	19.0	29.0	10.0/19.0	19.0	29.0	10.0/33.0	33.0		10.0/33.0	33.0	
LANE GROUP DELAY (SECONDS)	A.M.	21.7	31.8	19.9	22.1	34.8	19.2	11.6	21.2		11.0	21.7	
	P.M.	21.2	34.3	18.7	20.7	32.5	18.1	13.3	24.1		12.7	23.9	
LEVEL OF SERVICE	A.M.	C	C	B	C	C	B	B	C		B	C	
	P.M.	C	C	B	C	C	B	B	C		B	C	
V/C RATIO	A.M.	0.39	0.38	0.23	0.47	0.58	0.14	0.21	0.45		0.10	0.49	
	P.M.	0.42	0.59	0.17	0.34	0.51	0.08	0.34	0.61		0.22	0.60	
2026 30TH MAX. HOUR TRAFFIC	A.M.	130	135	125	180	205	80	90	560		45	600	
	P.M.	150	220	90	115	190	45	125	715		80	705	
2006 8TH MAX. HOUR TRAFFIC	A.M.		121			116			165			201	
	P.M.		149			91			173			250	

$$\text{D-DISTANCE} = \frac{(1-G/C)(DHV)(1+\%\ \text{TRUCKS})(50)}{(\text{NO. CYCLES PER HOUR})(\text{NO. OF LANES})}$$

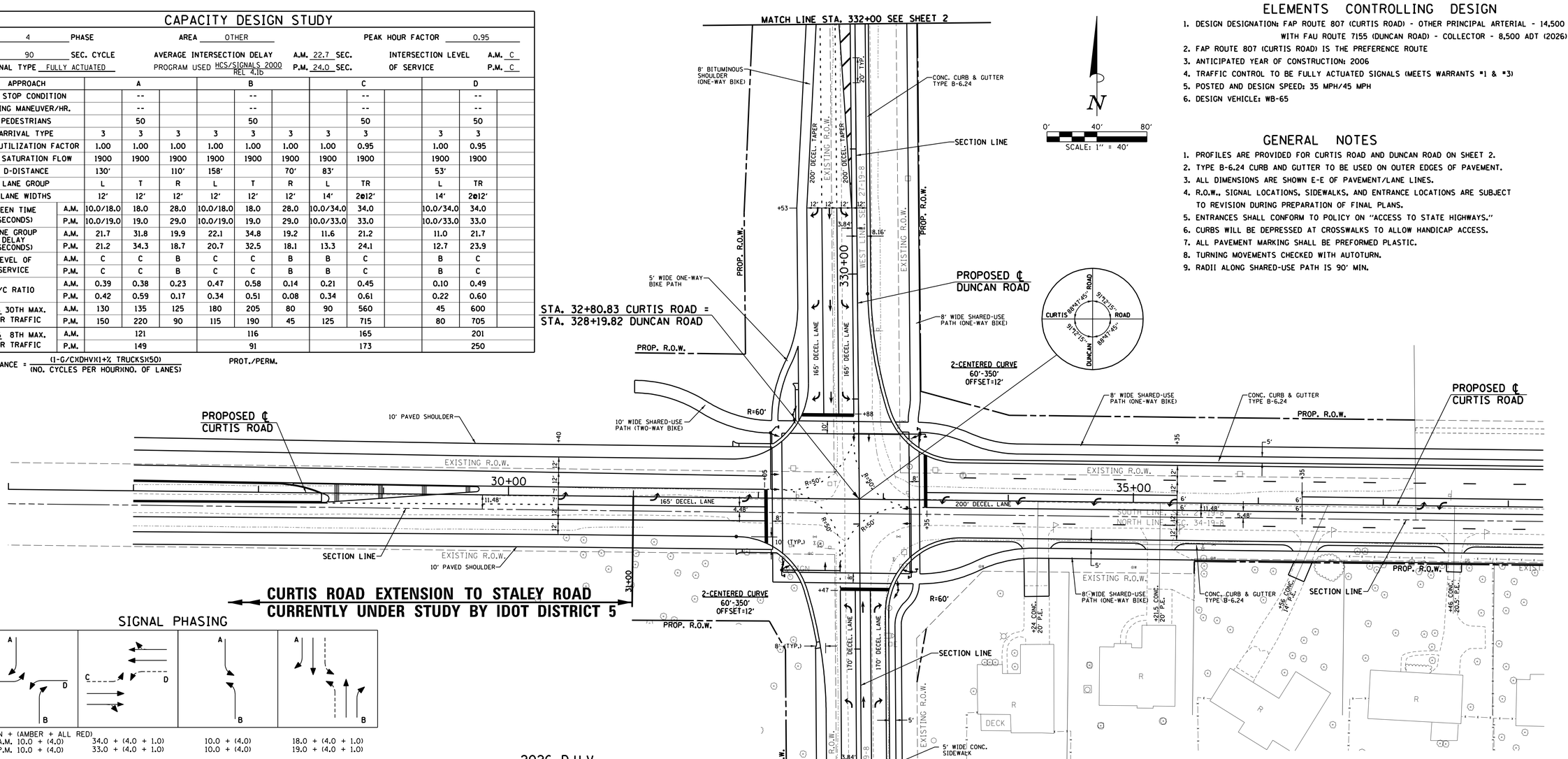
PROT./PERM.

ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 14,500 ADT (2026) WITH FAU ROUTE 7155 (DUNCAN ROAD) - COLLECTOR - 8,500 ADT (2026)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH
6. DESIGN VEHICLE: WB-65

GENERAL NOTES

1. PROFILES ARE PROVIDED FOR CURTIS ROAD AND DUNCAN ROAD ON SHEET 2.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG SHARED-USE PATH IS 90' MIN.



SIGNAL PHASING

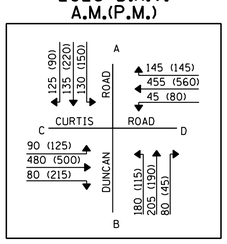
GREEN + (AMBER + ALL RED)

A.M.	10.0 + (4.0)	34.0 + (4.0 + 1.0)	10.0 + (4.0)	18.0 + (4.0 + 1.0)
P.M.	10.0 + (4.0)	33.0 + (4.0 + 1.0)	10.0 + (4.0)	19.0 + (4.0 + 1.0)

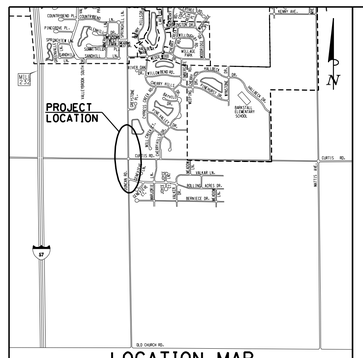
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2026 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	90	135	2							135	220
BA	145	120	2							205	190
AC	30	25	2							125	90
CA	25	30	2							90	125
AD	100	110	2							130	150
DA	120	90	2							145	145
BC	25	20	2							180	115
CB	15	25	2							80	215
BD	40	25	2							80	45
DB	25	40	2							45	80
CD	260	260	2							480	500
DC	220	325	2	2006 ADT				2026 ADT		455	560
TOTAL A	510	510		4500				8500		830	920
TOTAL B	340	365		3250				7500		725	865
TOTAL C	575	685		6000				14500		1410	1605
TOTAL D	765	850		7800				13500		1335	1480

2026 D.H.V.
A.M.(P.M.)



PEAK HOUR VOLUMES
A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7155 (DUNCAN ROAD)

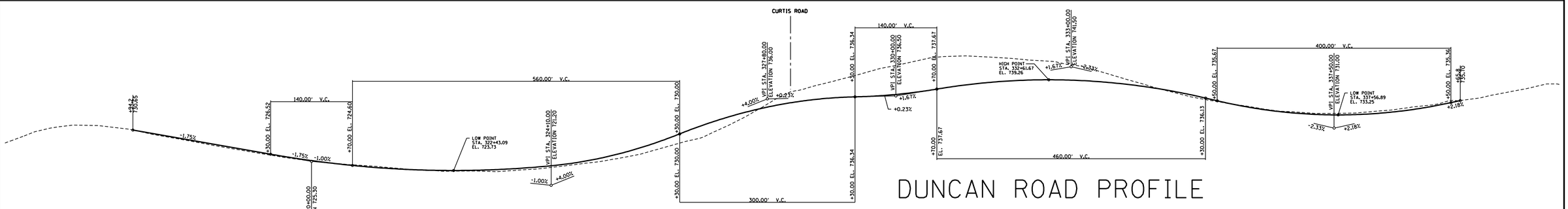
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 2-04

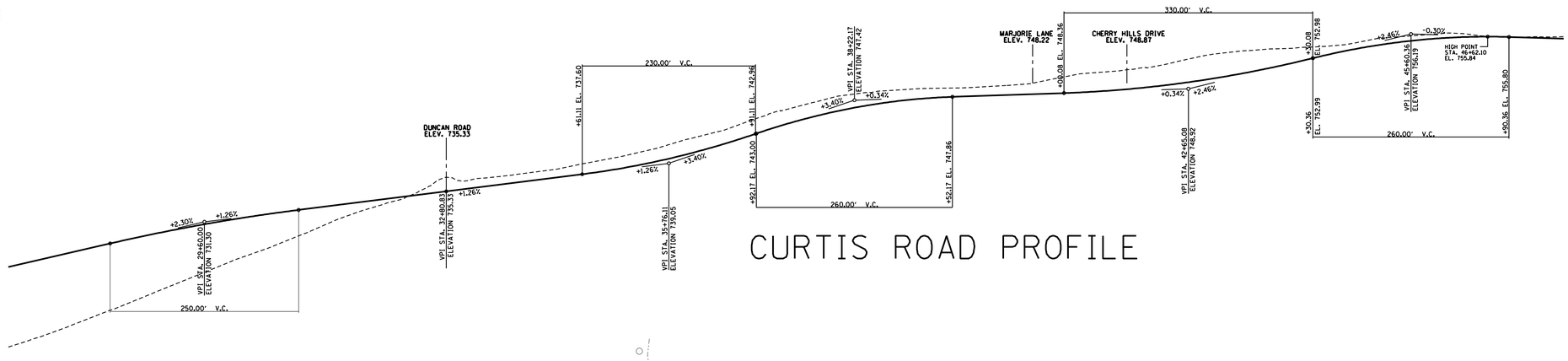
SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

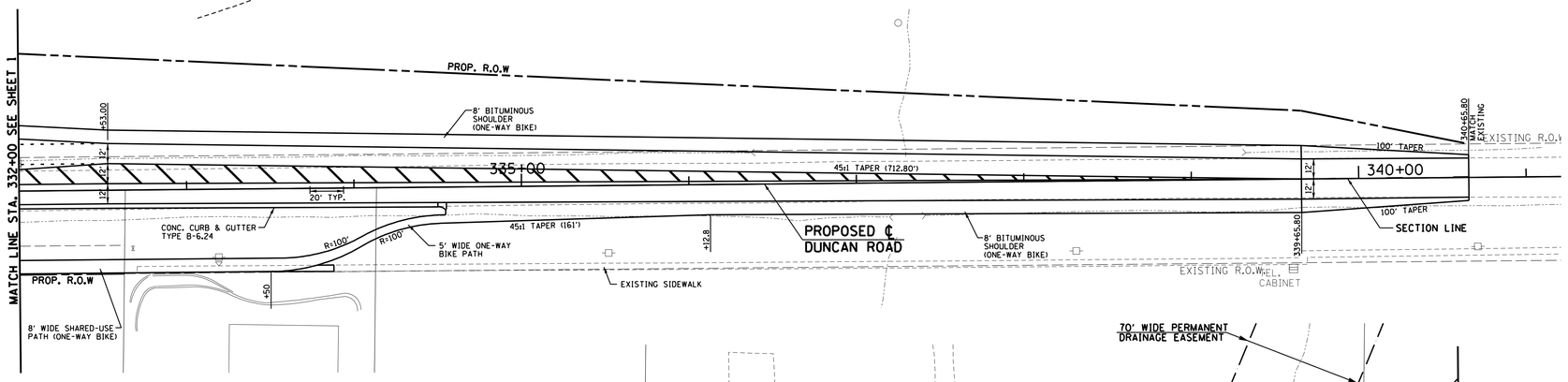
I.D.S. SHEET 1 OF 2

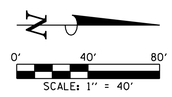
INTERSECTION DESIGN STUDIES (FULL BUILD)

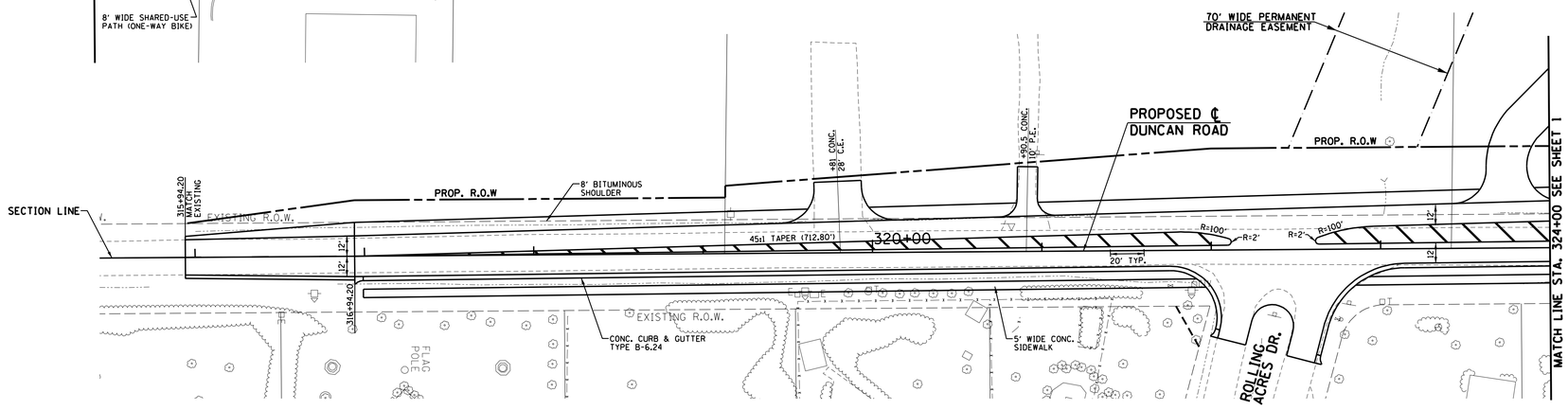
EXHIBIT 28











DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)

WITH

FAU ROUTE 7155 (DUNCAN ROAD)

SEC. NO. 00-00374-00-ES PROJ. NO. _____

SCALE: 1" = 40' COUNTY CHAMPAIGN

SJN : _____ REV. NO. ____

DESIGNED BY: CLARK DIETZ, INC. DATE: 2-04

SATISFACTORY _____ COUNTY ENGINEER DATE

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER DATE

SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER DATE

SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE

SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE

APPROVED _____ DISTRICT ENGINEER DATE

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 29

CAPACITY DESIGN STUDY

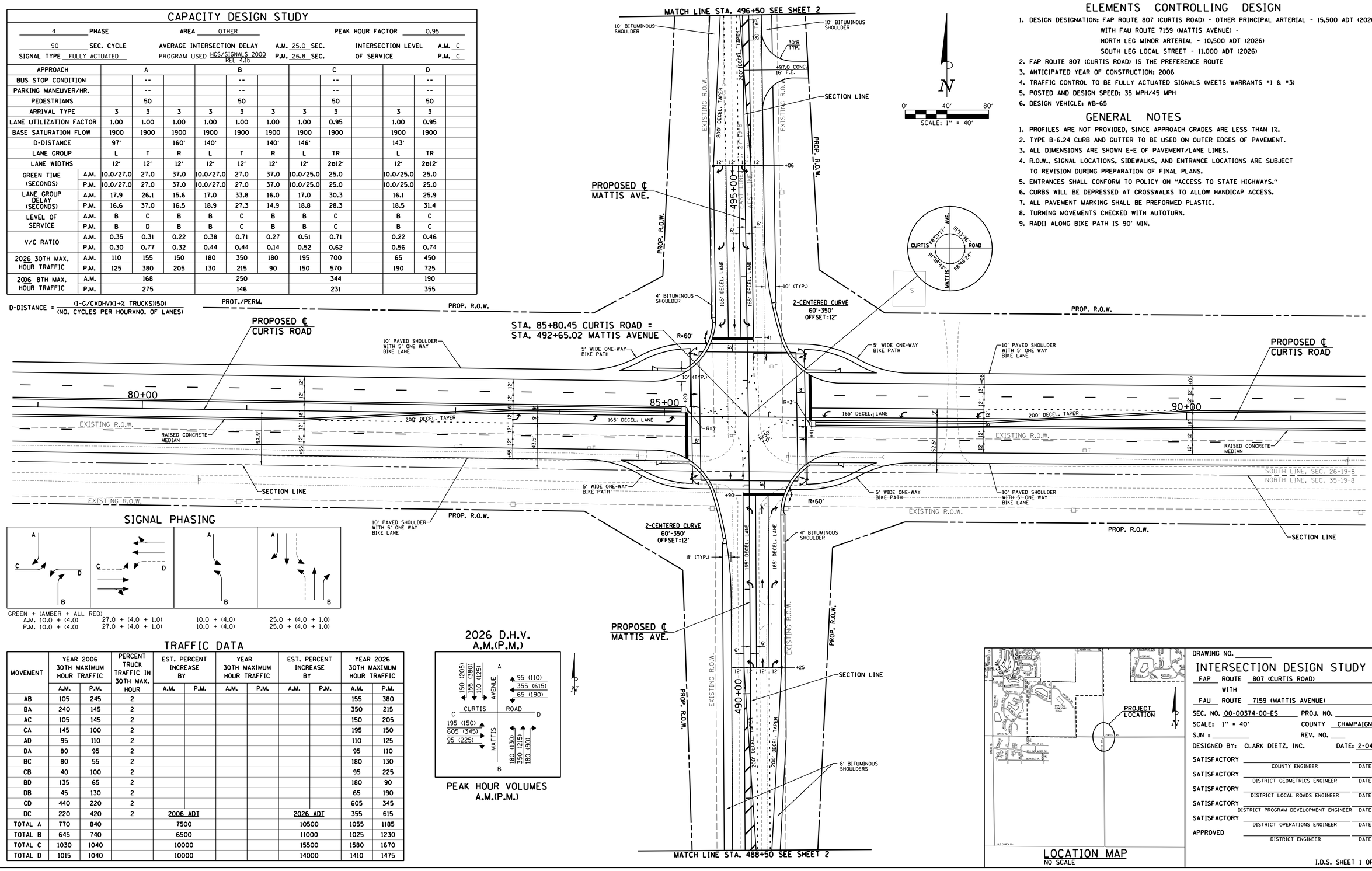
4 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 25.0 SEC. — INTERSECTION LEVEL OF SERVICE A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1b — P.M. 26.8 SEC. — P.M. C

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3	3	3	3	3	3	3		3	3	
LANE UTILIZATION FACTOR		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900	1900	1900		1900	1900	
D-DISTANCE		97'		160'	140'		140'	146'			143'		
LANE GROUP		L	T	R	L	T	R	L	TR		L	TR	
LANE WIDTHS		12'	12'	12'	12'	12'	12'	12'	2@12'		12'	2@12'	
GREEN TIME (SECONDS)	A.M.	10.0/27.0	27.0	37.0	10.0/27.0	27.0	37.0	10.0/25.0	25.0		10.0/25.0	25.0	
	P.M.	10.0/27.0	27.0	37.0	10.0/27.0	27.0	37.0	10.0/25.0	25.0		10.0/25.0	25.0	
LANE GROUP DELAY (SECONDS)	A.M.	17.9	26.1	15.6	17.0	33.8	16.0	17.0	30.3		16.1	25.9	
	P.M.	16.6	37.0	16.5	18.9	27.3	14.9	18.8	28.3		18.5	31.4	
LEVEL OF SERVICE	A.M.	B	C	B	B	C	B	B	C		B	C	
	P.M.	B	D	B	B	C	B	B	C		B	C	
V/C RATIO	A.M.	0.35	0.31	0.22	0.38	0.71	0.27	0.51	0.71		0.22	0.46	
	P.M.	0.30	0.77	0.32	0.44	0.44	0.14	0.52	0.62		0.56	0.74	
2026 30TH MAX. HOUR TRAFFIC	A.M.	110	155	150	180	350	180	195	700		65	450	
	P.M.	125	380	205	130	215	90	150	570		190	725	
2006 8TH MAX. HOUR TRAFFIC	A.M.		168			250			344			190	
	P.M.		275			146			231			355	

D-DISTANCE = (1-G/C)(DHV)(1+% TRUCKS)(50) / (NO. CYCLES PER HOUR)(NO. OF LANES)



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 15,500 ADT (2026)
   WITH FAU ROUTE 7159 (MATTIS AVENUE) -
   NORTH LEG MINOR ARTERIAL - 10,500 ADT (2026)
   SOUTH LEG LOCAL STREET - 11,000 ADT (2026)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH
6. DESIGN VEHICLE: WB-65

GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG BIKE PATH IS 90' MIN.

SIGNAL PHASING

GREEN + (AMBER + ALL RED)

A.M. 10.0 + (4.0)	27.0 + (4.0 + 1.0)	10.0 + (4.0)	25.0 + (4.0 + 1.0)
P.M. 10.0 + (4.0)	27.0 + (4.0 + 1.0)	10.0 + (4.0)	25.0 + (4.0 + 1.0)

TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2026 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	105	245	2							155	380
BA	240	145	2							350	215
AC	105	145	2							150	205
CA	145	100	2							195	150
AD	95	110	2							110	125
DA	80	95	2							95	110
BC	80	55	2							180	130
CB	40	100	2							95	225
BD	135	65	2							180	90
DB	45	130	2							65	190
CD	440	220	2							605	345
DC	220	420	2	2006 ADT				2026 ADT		355	615
TOTAL A	770	840		7500				10500		1055	1185
TOTAL B	645	740		6500				11000		1025	1230
TOTAL C	1030	1040		10000				15500		1580	1670
TOTAL D	1015	1040		10000				14000		1410	1475

2026 D.H.V. A.M.(P.M.)

PEAK HOUR VOLUMES A.M.(P.M.)

LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7159 (MATTIS AVENUE)

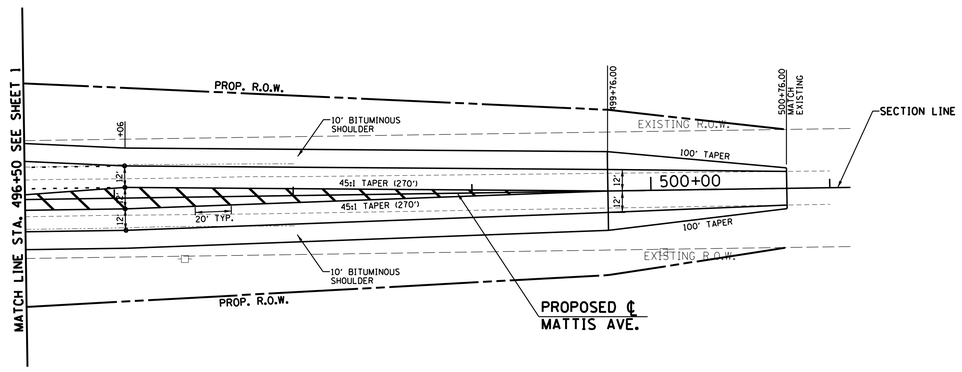
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 2-04

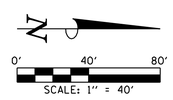
SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

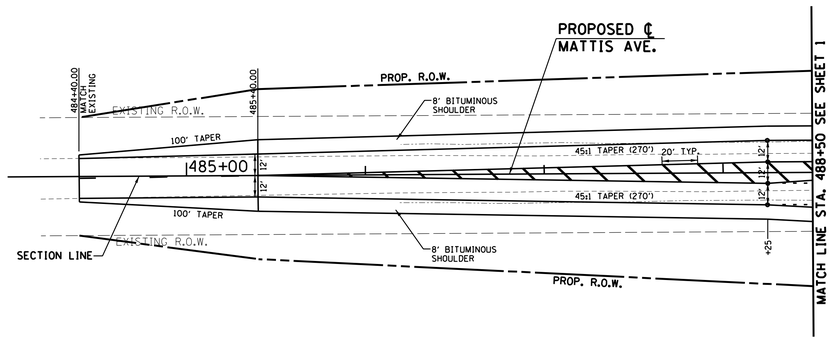
I.D.S. SHEET 1 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 30







DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)

WITH

FAU ROUTE 7159 (MATTIS AVENUE)

SEC. NO. 00-00374-00-ES PROJ. NO. _____

SCALE: 1" = 40' COUNTY CHAMPAIGN

SJN : _____ REV. NO. ____

DESIGNED BY: CLARK DIETZ, INC. DATE: 2-04

SATISFACTORY _____ COUNTY ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER _____ DATE

APPROVED _____ DISTRICT ENGINEER _____ DATE

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 31

CAPACITY DESIGN STUDY

3/2 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 13.4 SEC. — INTERSECTION LEVEL OF SERVICE A.M. B

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1d — P.M. 14.1 SEC. — P.M. B

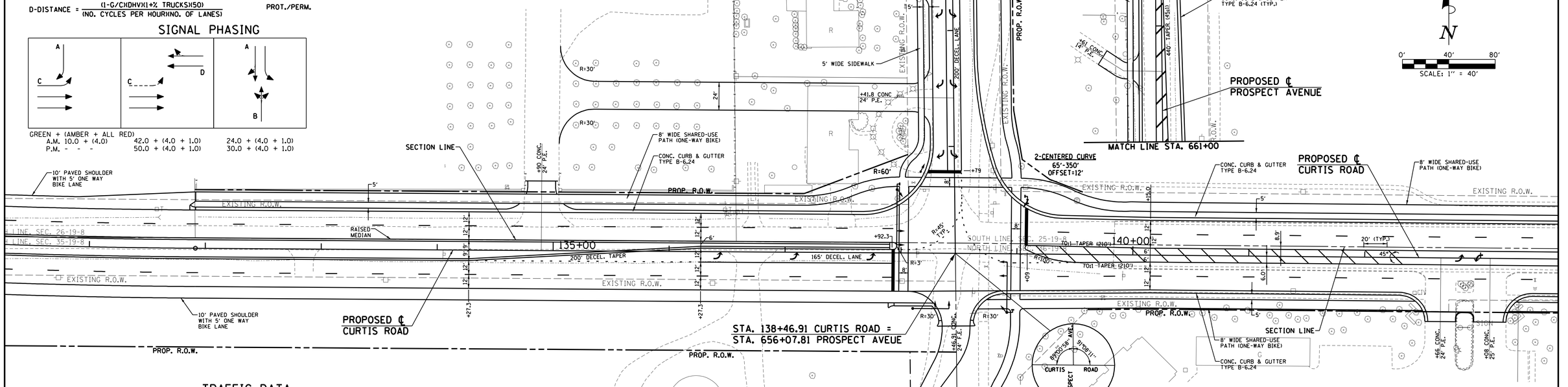
APPROACH		A		B		C		D	
BUS STOP CONDITION		---				--		--	
PARKING MANEUVER/HR.		---				--		--	
PEDESTRIANS		50		50		50		50	
ARRIVAL TYPE		3	3	3		3	3	3	
LANE UTILIZATION FACTOR		1.00	0.95	1.00		1.00	0.95	0.95	
BASE SATURATION FLOW		1900	1900	1900		1900	1900	1900	
D-DISTANCE		162′	---	---		58′			
LANE GROUP		L	TR	LTR		L	TR	TR	
LANE WIDTHS		12′	12′	12′		14′	2@12′	2@12′	
GREEN TIME (SECONDS)	A.M.	24.0	24.0	24.0		10.0/42.0	42.0	42.0	
	P.M.	30.0	30.0	30.0		50.0	50.0	50.0	
LANE GROUP DELAY (SECONDS)	A.M.	27.3	25.7	24.4		8.1	8.5	16.1	
	P.M.	24.0	21.9	20.1		12.5	10.5	13.1	
LEVEL OF SERVICE	A.M.	C	C	C		A	A	B	
	P.M.	C	C	C		B	B	B	
V/C RATIO	A.M.	0.35	0.19	0.02		0.26	0.37	0.41	
	P.M.	0.43	0.24	0.02		0.39	0.26	0.54	
2026 30TH MAX. HOUR TRAFFIC	A.M.	125	75	10		120	780	615	
	P.M.	190	120	10		80	485	980	
2006 8TH MAX. HOUR TRAFFIC	A.M.	91				369		245	
	P.M.	146				217		396	

$$\text{D-DISTANCE} = \frac{(1-G/C)(DHV)(1+\%\ \text{TRUCKS})(50)}{(\text{NO. CYCLES PER HOUR})(\text{NO. OF LANES})}$$ PROT./PERM.

SIGNAL PHASING

GREEN + (AMBER + ALL RED)

A.M.	10.0 + (4.0)	42.0 + (4.0 + 1.0)	24.0 + (4.0 + 1.0)
P.M.	- - -	50.0 + (4.0 + 1.0)	30.0 + (4.0 + 1.0)



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION:
   FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 14,500 ADT (2026)
   WITH FAU ROUTE 7163 (PROSPECT AVE.) - COLLECTOR - 5,100 ADT (2026)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH ON CURTIS ROAD; 35 MPH/40 MPH ON PROSPECT AVE.
6. DESIGN VEHICLE: WB-65

GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG SHARED-USE PATH IS 90′ MIN.

N

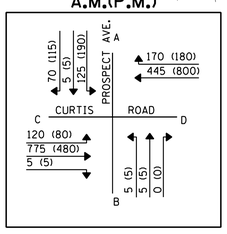
0′ 40′ 80′

SCALE: 1" = 40′

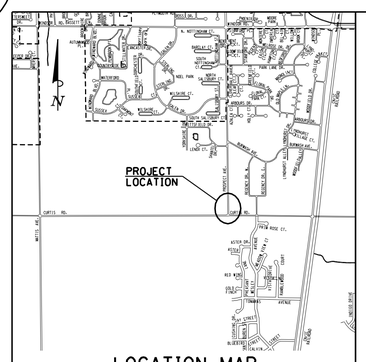
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2026 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB										5	5
BA										5	5
AC	55	90	2							70	115
CA	90	60	2							120	80
AD	110	175	2							125	190
DA	155	165	2							170	180
BC										5	5
CB										5	5
BD										---	---
DB										---	---
CD	580	335	2							775	480
DC	290	555	2	2006 ADT				2026 ADT		445	800
TOTAL A	410	490		4500				5100		495	575
TOTAL B								40		20	20
TOTAL C	1015	1040		10000				14000		1420	1485
TOTAL D	1135	1230		11500				15000		1515	1650

2026 D.H.V.
A.M.(P.M.)



PEAK HOUR VOLUMES
A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7163 (PROSPECT AVENUE)

SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40′ — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 1-04

SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

I.D.S. SHEET 1 OF 1

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 32

CAPACITY DESIGN STUDY

4 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

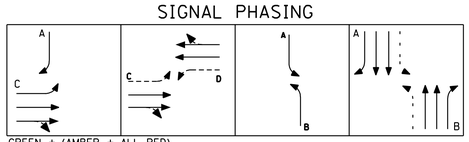
90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 30.8 SEC. — INTERSECTION LEVEL OF SERVICE A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1d — P.M. 26.3 SEC. — P.M. C

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3	3	3	3	3	3	3		3	3	
LANE UTILIZATION FACTOR		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900	1900	1900		1900	1900	
D-DISTANCE		121'	--	218'	121'	--	137'	283'	--		98'	--	
LANE GROUP		L	T	R	L	T	R	L	TR		L	TR	
LANE WIDTHS		12'	2@12'	12'	12'	2@12'	12'	12'	2@12'		12'	2@12'	
GREEN TIME (SECONDS)	A.M.	9.0/33.0	33.0	48.0	9.0/33.0	33.0	33.0	15.0/18.0	33.0		18.0	18.0	
	P.M.	9.0/35.0	35.0	45.0	9.0/35.0	35.0	35.0	10.0/21.0	31.0		21.0	21.0	
LANE GROUP DELAY (SECONDS)	A.M.	19.4	20.5	9.0	13.1	39.1	20.8	51.4	19.1		32.2	36.8	
	P.M.	13.2	33.1	13.0	30.0	20.1	17.8	32.7	19.9		32.4	33.5	
LEVEL OF SERVICE	A.M.	B	C	A	B	D	C	D	B		C	D	
	P.M.	B	C	B	C	C	B	C	B		C	C	
V/C RATIO	A.M.	0.49	0.31	0.17	0.37	0.93	0.32	0.94	0.42		0.34	0.70	
	P.M.	0.46	0.89	0.48	0.76	0.40	0.13	0.78	0.38		0.52	0.67	
2026 30TH MAX. HOUR TRAFFIC	A.M.	120	380	140	165	1145	170	350	550		50	440	
	P.M.	185	1160	375	185	520	70	225	445		100	505	
2006 8TH MAX. HOUR TRAFFIC	A.M.		286			688			380			223	
	P.M.		800			330			281			275	

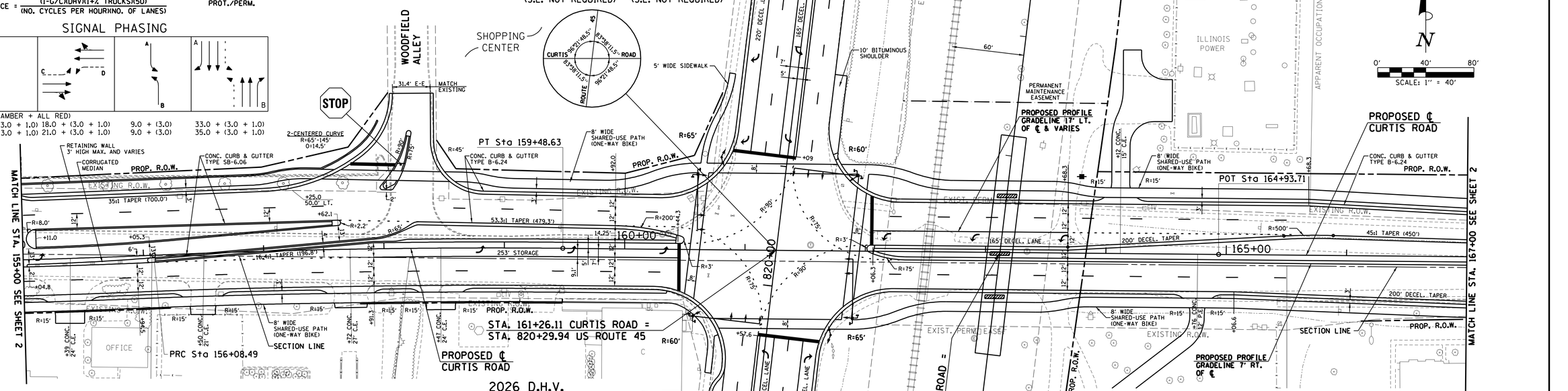
D-DISTANCE = (1-G/C)(DHV)(1+% TRUCKS)(50) / (NO. CYCLES PER HOUR)(NO. OF LANES) — PROT./PERM.

SIGNAL PHASING



GREEN + (AMBER + ALL RED)

A.M.	15.0 + (3.0 + 1.0)	18.0 + (3.0 + 1.0)	9.0 + (3.0)	33.0 + (3.0 + 1.0)
P.M.	10.0 + (3.0 + 1.0)	21.0 + (3.0 + 1.0)	9.0 + (3.0)	35.0 + (3.0 + 1.0)



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: CURTIS ROAD FAP ROUTE 807 (WEST) - OTHER PRICIPAL ARTERIAL/
   FAU ROUTE 7147 (EAST) - LOCAL STREET
   WEST LEG - 15,000 ADT (2026)
   EAST LEG - 10,000 ADT (2026)
   WITH FAP ROUTE 804 (US RTE 45/DUNLAP AVENUE)
   - OTHER PRINCIPAL ARTERIAL - 23,500 ADT (2026)
2. FAP ROUTE 804 (US RTE 45/DUNLAP AVENUE) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (SIGNAL MODERNIZATION)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH ON CURTIS ROAD; 45 MPH/45 MPH ON US RTE 45
6. DESIGN VEHICLE: WB-65
7. FAP ROUTE 804 (US RTE 45) IS A CLASS II TRUCK ROUTE.

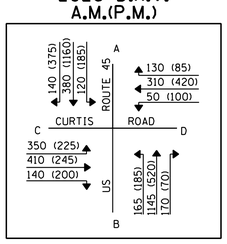
GENERAL NOTES

1. PROFILES ARE PROVIDED FOR CURTIS ROAD ON SHEET 2. PROFILES ARE NOT PROVIDED FOR US RTE 45 SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. PAVEMENT MARKINGS ARE IN ACCORDANCE WITH DISTRICT POLICY.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG SHARED-USE PATH IS 90' MIN.

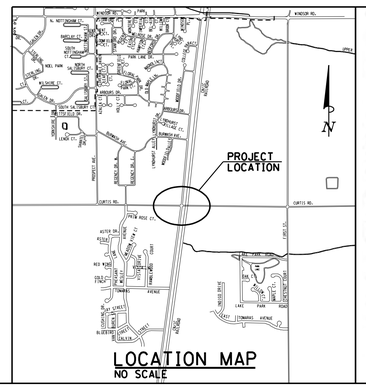
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2026 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	330	1010	2							380	1160
BA	995	450	2							1145	520
AC	90	280	2							140	375
CA	270	170	2							350	225
AD	100	165	2							120	185
DA	115	70	2							130	85
BC	105	95	2							165	185
CB	80	140	2							140	200
BD	150	55	2							170	70
DB	40	85	2							50	100
CD	340	200	2							410	245
DC	250	345	2	2006 ADT				2026 ADT		310	420
TOTAL A	1900	2145		20000				23500		2265	2550
TOTAL B	1700	1835		18000				21500		2050	2235
TOTAL C	1135	1230		11500				15000		1515	1650
TOTAL D	995	920		8500				10000		1190	1105

2026 D.H.V. A.M.(P.M.)



PEAK HOUR VOLUMES A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

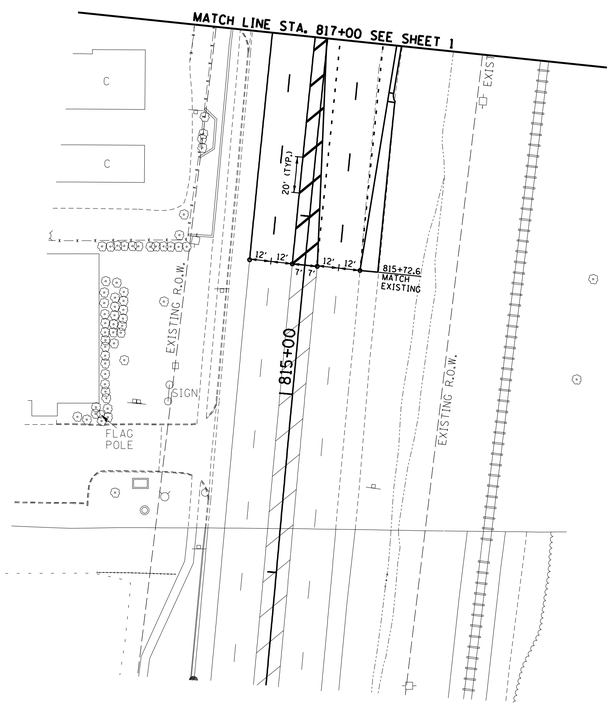
FAP ROUTE 804 (US RTE 45 / DUNLAP AVENUE.)
WITH
FAU ROUTE 7147 (WEST) - (CURTIS ROAD)

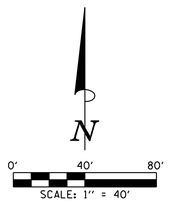
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 1-04

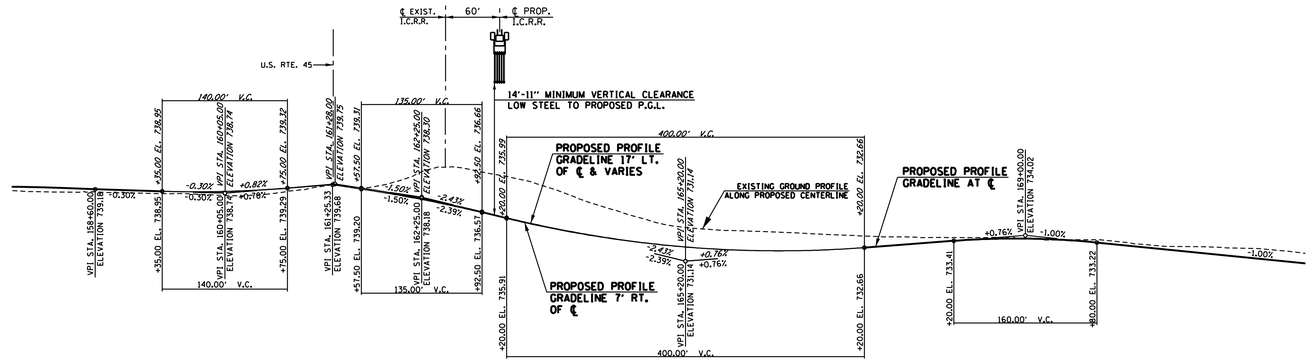
SATISFACTORY _____ COUNTY ENGINEER — DATE 5/11/04
SATISFACTORY _____ DISTRICT STUDIES AND PLANS ENGINEER — DATE 5/11/04
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE 5/11/04
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE 5/11/04
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE 5/11/04
APPROVED _____ DISTRICT ENGINEER — DATE 5/11/04

I.D.S. SHEET 1 OF 2

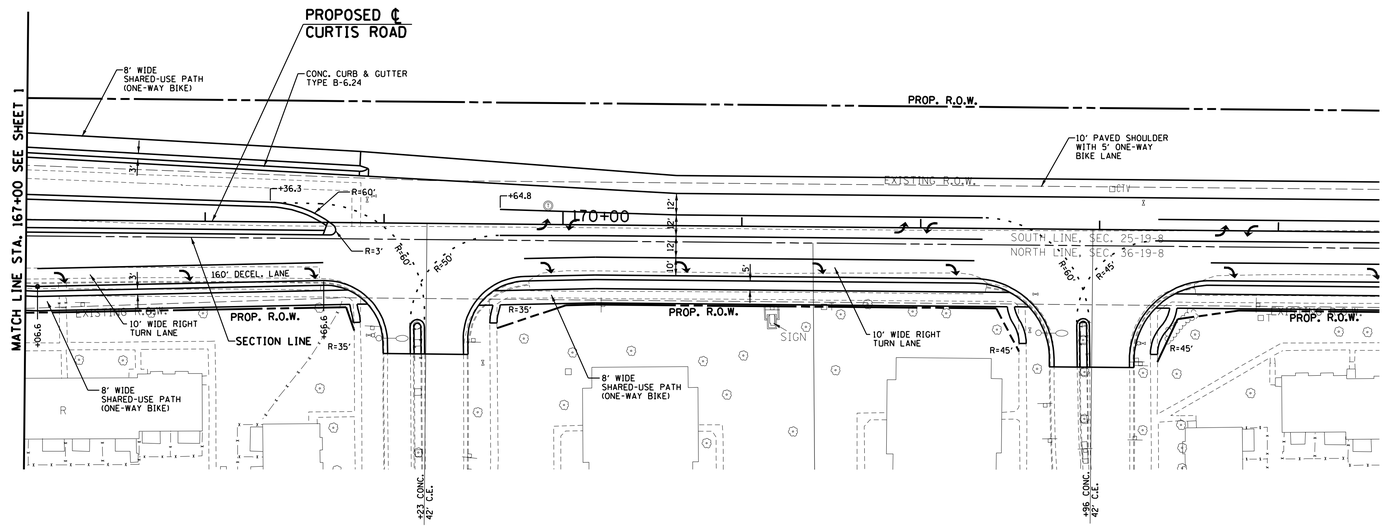
INTERSECTION DESIGN STUDIES (FULL BUILD) EXHIBIT 33



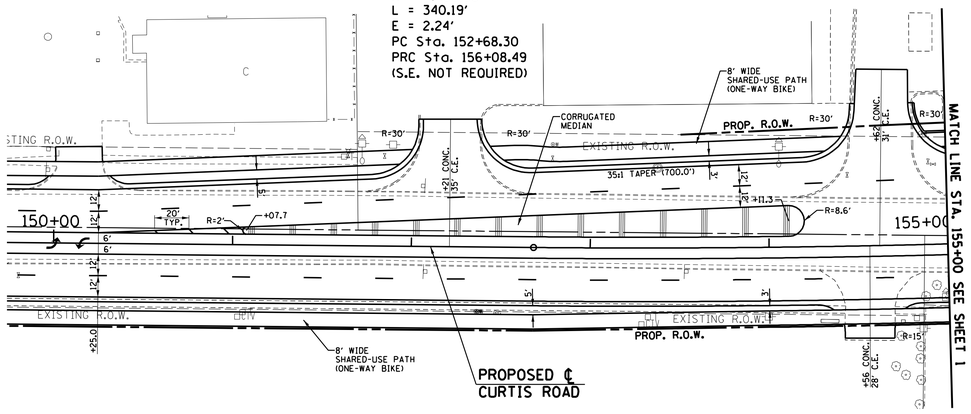




CURTIS ROAD PROFILE



Prop. Curve
PI Sta. 154+38.44
Δ = 3° 01' 08" (LT)
D = 0° 53' 15"
T = 170.13'
R = 6,456.68'
L = 340.19'
E = 2.24'
PC Sta. 152+68.30
PRC Sta. 156+08.49
(S.E. NOT REQUIRED)



DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP	ROUTE	804 (US RTE 45 / DUNLAP AVENUE)
FAP	WITH	807 (EAST) -
FAU	ROUTE	7147 (WEST) - (CURTIS ROAD)

SEC. NO. 00-00374-00-ES PROJ. NO. _____
SCALE: 1" = 40' COUNTY CHAMPAIGN
SJN : _____ REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. DATE: 1-04

SATISFACTORY _____ COUNTY ENGINEER DATE
SATISFACTORY _____ DISTRICT STUDIES AND PLANS ENGINEER DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE 5/11/04
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE 5/11/04
APPROVED _____ DISTRICT ENGINEER DATE 5/11/04

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 34

CAPACITY DESIGN STUDY

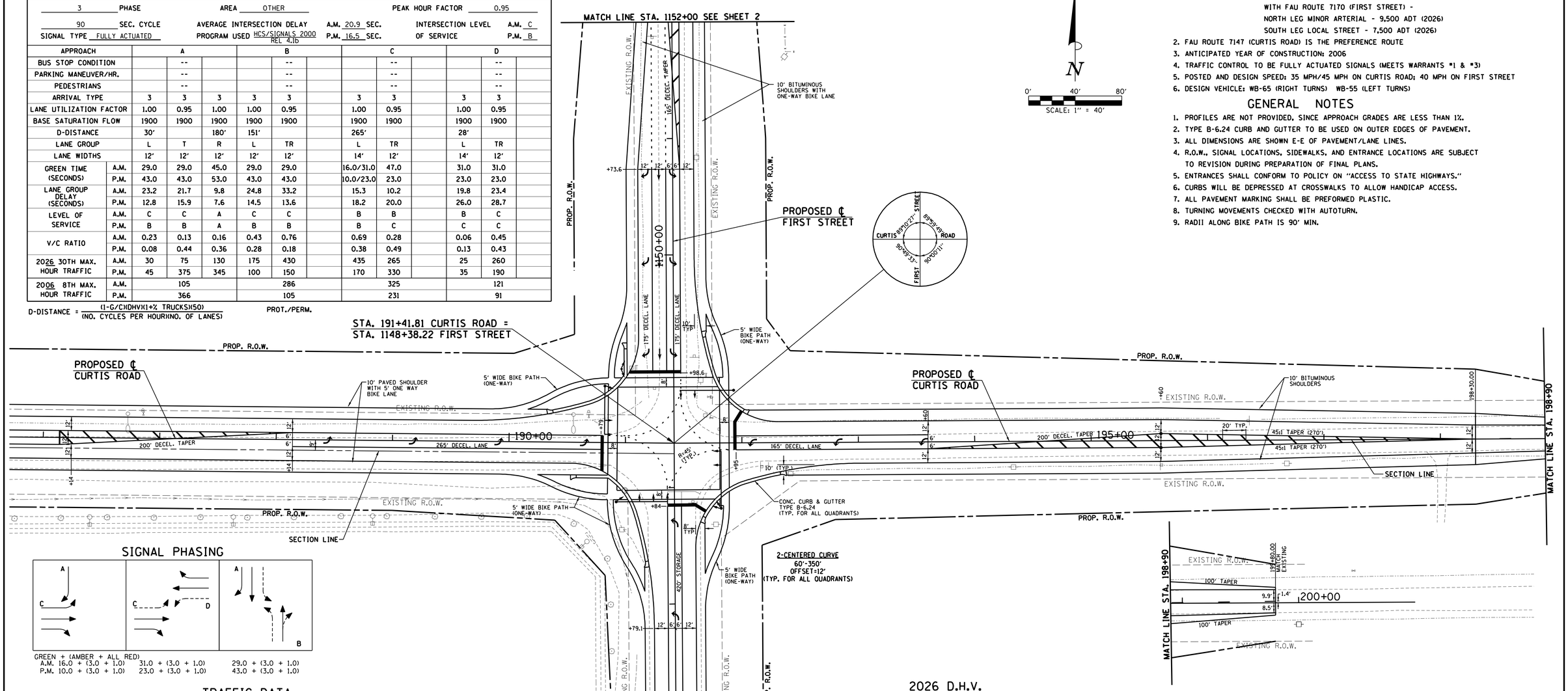
3 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 20.9 SEC. — INTERSECTION LEVEL OF SERVICE A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1b — P.M. 16.5 SEC. — P.M. B

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			--			--			--			--	
ARRIVAL TYPE		3	3	3	3	3		3	3		3	3	
LANE UTILIZATION FACTOR		1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
BASE SATURATION FLOW		1900	1900	1900	1900	1900		1900	1900		1900	1900	
D-DISTANCE		30′		180′	151′			265′			28′		
LANE GROUP		L	T	R	L	TR		L	TR		L	TR	
LANE WIDTHS		12′	12′	12′	12′	12′		14′	12′		14′	12′	
GREEN TIME (SECONDS)	A.M.	29.0	29.0	45.0	29.0	29.0		16.0/31.0	47.0		31.0	31.0	
	P.M.	43.0	43.0	53.0	43.0	43.0		10.0/23.0	23.0		23.0	23.0	
LANE GROUP DELAY (SECONDS)	A.M.	23.2	21.7	9.8	24.8	33.2		15.3	10.2		19.8	23.4	
	P.M.	12.8	15.9	7.6	14.5	13.6		18.2	20.0		26.0	28.7	
LEVEL OF SERVICE	A.M.	C	C	A	C	C		B	B		B	C	
	P.M.	B	B	A	B	B		B	C		C	C	
V/C RATIO	A.M.	0.23	0.13	0.16	0.43	0.76		0.69	0.28		0.06	0.45	
	P.M.	0.08	0.44	0.36	0.28	0.18		0.38	0.49		0.13	0.43	
2026 30TH MAX. HOUR TRAFFIC	A.M.	30	75	130	175	430		435	265		25	260	
	P.M.	45	375	345	100	150		170	330		35	190	
2006 8TH MAX. HOUR TRAFFIC	A.M.		105			286			325			121	
	P.M.		366			105			231			91	

D-DISTANCE = (1-G/C)(DHV)(1+% TRUCKS)(50) / (NO. CYCLES PER HOUR)(NO. OF LANES) PROT./PERM.



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: FAU ROUTE 7147 (CURTIS ROAD) - LOCAL STREET - 10,000 ADT (2026)
   WITH FAU ROUTE 7170 (FIRST STREET) -
   NORTH LEG MINOR ARTERIAL - 9,500 ADT (2026)
   SOUTH LEG LOCAL STREET - 7,500 ADT (2026)
2. FAU ROUTE 7147 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH ON CURTIS ROAD; 40 MPH ON FIRST STREET
6. DESIGN VEHICLE: WB-65 (RIGHT TURNS) WB-55 (LEFT TURNS)

GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG BIKE PATH IS 90' MIN.

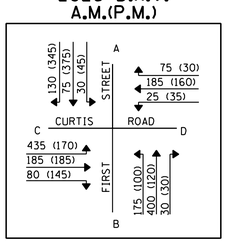
SIGNAL PHASING

GREEN + (AMBER + ALL RED)
A.M. 16.0 + (3.0 + 1.0) 31.0 + (3.0 + 1.0) 29.0 + (3.0 + 1.0)
P.M. 10.0 + (3.0 + 1.0) 23.0 + (3.0 + 1.0) 43.0 + (3.0 + 1.0)

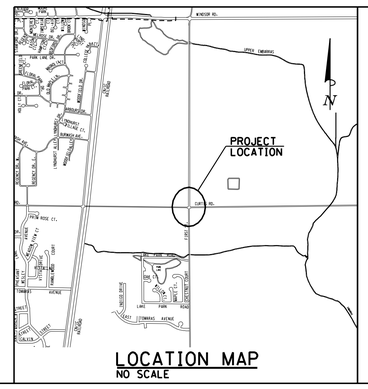
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2026 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	60	325	2							75	375
BA	355	100	2							400	120
AC	110	310	2							130	345
CA	400	145	2							435	170
AD	20	30	2							30	45
DA	55	20	2							75	30
BC	145	70	2							175	100
CB	50	120	2							80	145
BD	20	20	2							30	30
DB	15	25	2							25	35
CD	140	155	2							185	185
DC	150	120	2	2006 ADT				2026 ADT		185	160
TOTAL A	1000	930		8500				9500		1145	1085
TOTAL B	645	660		5800				7500		785	805
TOTAL C	995	920		8500				10000		1190	1105
TOTAL D	400	370		3500				4500		530	485

2026 D.H.V. A.M.(P.M.)



PEAK HOUR VOLUMES A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 7147 (CURTIS ROAD)
WITH
FAU ROUTE 7170 (FIRST STREET)

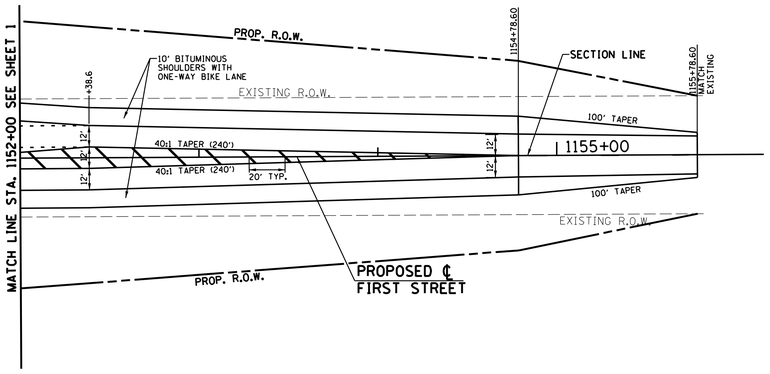
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 2-04

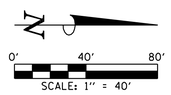
SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

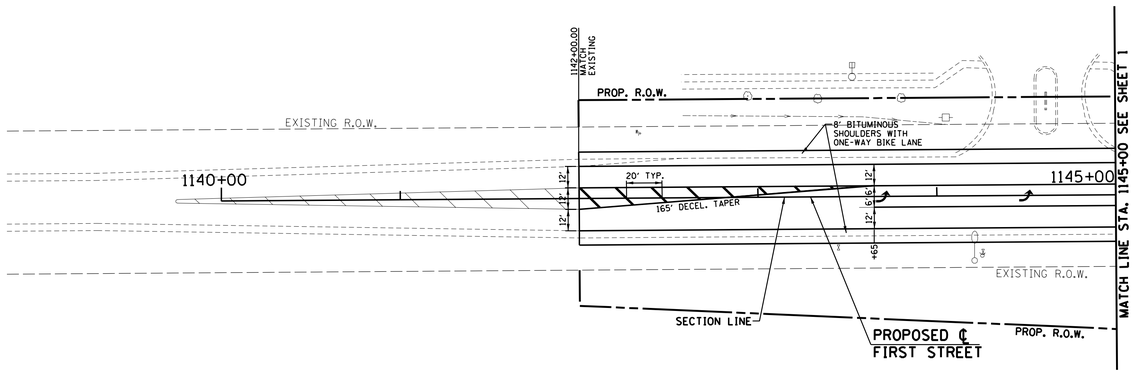
I.D.S. SHEET 1 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 35







DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 7147 (CURTIS ROAD)

WITH

FAU ROUTE 7170 (FIRST STREET)

SEC. NO. 00-00374-00-ES PROJ. NO. _____

SCALE: 1" = 40' COUNTY CHAMPAIGN

SJN : _____ REV. NO. ____

DESIGNED BY: CLARK DIETZ, INC. DATE: 2-04

SATISFACTORY _____ COUNTY ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER _____ DATE

APPROVED _____ DISTRICT ENGINEER _____ DATE

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (FULL BUILD)

EXHIBIT 36

CAPACITY DESIGN STUDY

4 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

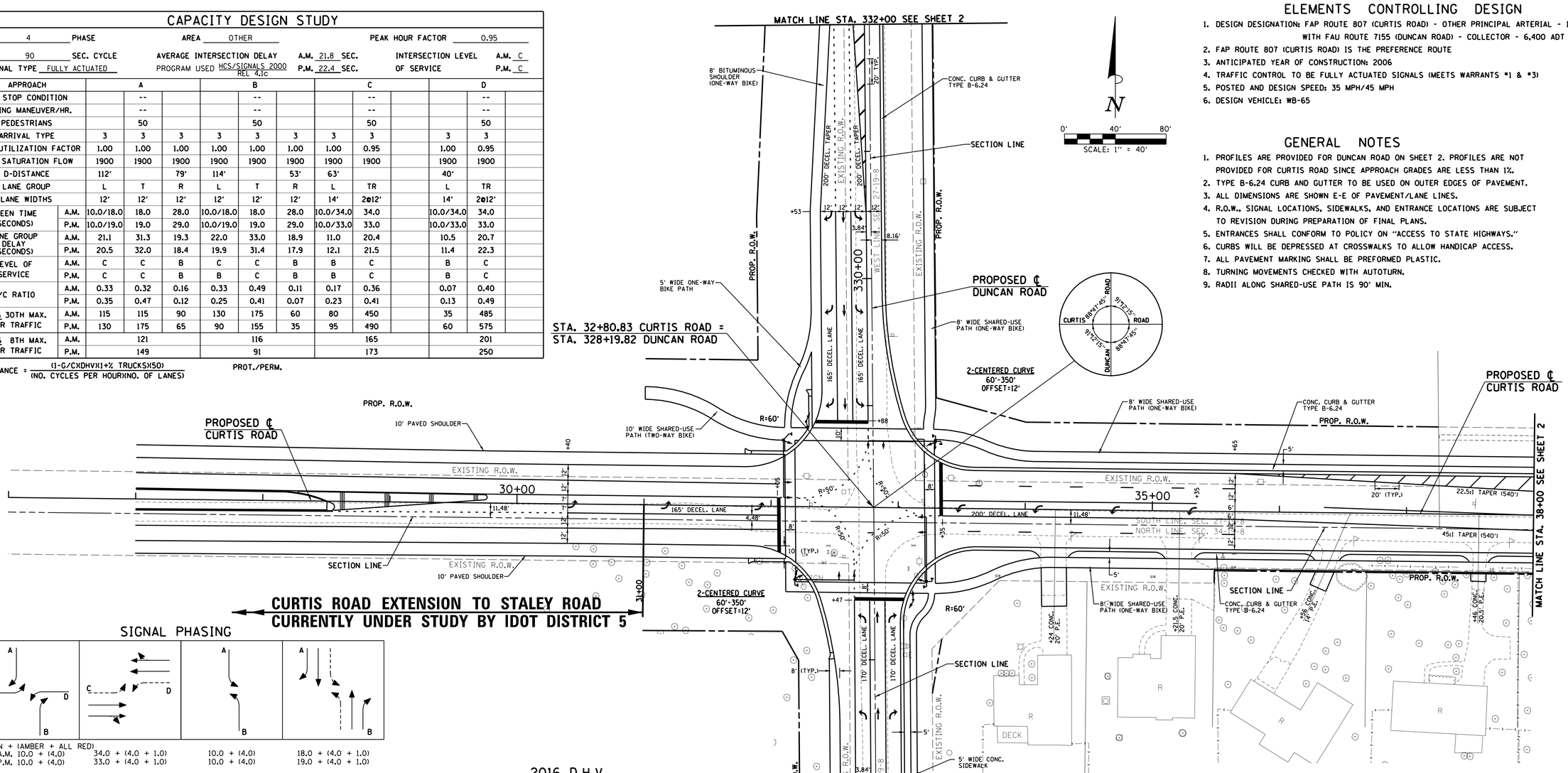
90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 21.8 SEC. — INTERSECTION LEVEL A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1c — P.M. 22.4 SEC. — OF SERVICE P.M. C

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3	3	3	3	3	3	3		3	3	
LANE UTILIZATION FACTOR		1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900	1900	1900		1900	1900	
D-DISTANCE		112'		79'	114'		53'	63'			40'		
LANE GROUP		L	T	R	L	T	R	L	TR		L	TR	
LANE WIDTHS		12'	12'	12'	12'	12'	12'	14'	2@12'		14'	2@12'	
GREEN TIME (SECONDS)	A.M.	10.0/18.0	18.0	28.0	10.0/18.0	18.0	28.0	10.0/34.0	34.0		10.0/34.0	34.0	
	P.M.	10.0/19.0	19.0	29.0	10.0/19.0	19.0	29.0	10.0/33.0	33.0		10.0/33.0	33.0	
LANE GROUP DELAY (SECONDS)	A.M.	21.1	31.3	19.3	22.0	33.0	18.9	11.0	20.4		10.5	20.7	
	P.M.	20.5	32.0	18.4	19.9	31.4	17.9	12.1	21.5		11.4	22.3	
LEVEL OF SERVICE	A.M.	C	C	B	C	C	B	B	C		B	C	
	P.M.	C	C	B	B	C	B	B	C		B	C	
V/C RATIO	A.M.	0.33	0.32	0.16	0.33	0.49	0.11	0.17	0.36		0.07	0.40	
	P.M.	0.35	0.47	0.12	0.25	0.41	0.07	0.23	0.41		0.13	0.49	
2016 30TH MAX. HOUR TRAFFIC	A.M.	115	115	90	130	175	60	80	450		35	485	
	P.M.	130	175	65	90	155	35	95	490		60	575	
2006 8TH MAX. HOUR TRAFFIC	A.M.		121			116			165			201	
	P.M.		149			91			173			250	

$$\text{D-DISTANCE} = \frac{(1-G/C)(DHV)(1+\%\ \text{TRUCKS})(50)}{(\text{NO. CYCLES PER HOUR})(\text{NO. OF LANES})}$$

PROT./PERM.



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 11,200 ADT (2016) WITH FAU ROUTE 7155 (DUNCAN ROAD) - COLLECTOR - 6,400 ADT (2016)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH
6. DESIGN VEHICLE: WB-65

GENERAL NOTES

1. PROFILES ARE PROVIDED FOR DUNCAN ROAD ON SHEET 2. PROFILES ARE NOT PROVIDED FOR CURTIS ROAD SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG SHARED-USE PATH IS 90' MIN.

SIGNAL PHASING

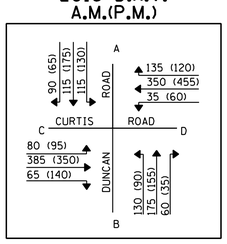
GREEN + (AMBER + ALL RED)

A.M. 10.0 + (4.0)	34.0 + (4.0 + 1.0)	10.0 + (4.0)	18.0 + (4.0 + 1.0)
P.M. 10.0 + (4.0)	33.0 + (4.0 + 1.0)	10.0 + (4.0)	19.0 + (4.0 + 1.0)

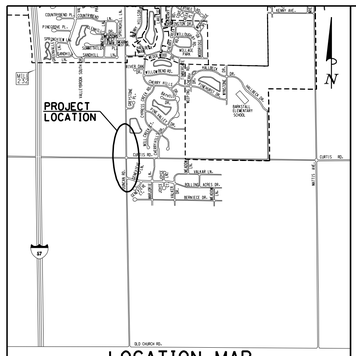
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2016 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	90	135	2							115	175
BA	145	120	2							175	155
AC	30	25	2							90	65
CA	25	30	2							80	95
AD	100	110	2							115	130
DA	120	90	2							135	120
BC	25	20	2							130	90
CB	15	25	2							65	140
BD	40	25	2							60	35
DB	25	40	2							35	60
CD	260	260	2							385	350
DC	220	325	2	2006 ADT				2016 ADT		350	455
TOTAL A	510	510		4500				6400		710	740
TOTAL B	340	365		3250				5600		550	655
TOTAL C	575	685		6000				11200		1100	1195
TOTAL D	765	850		7800				11100		1080	1150

2016 D.H.V. A.M.(P.M.)



PEAK HOUR VOLUMES A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7155 (DUNCAN ROAD)

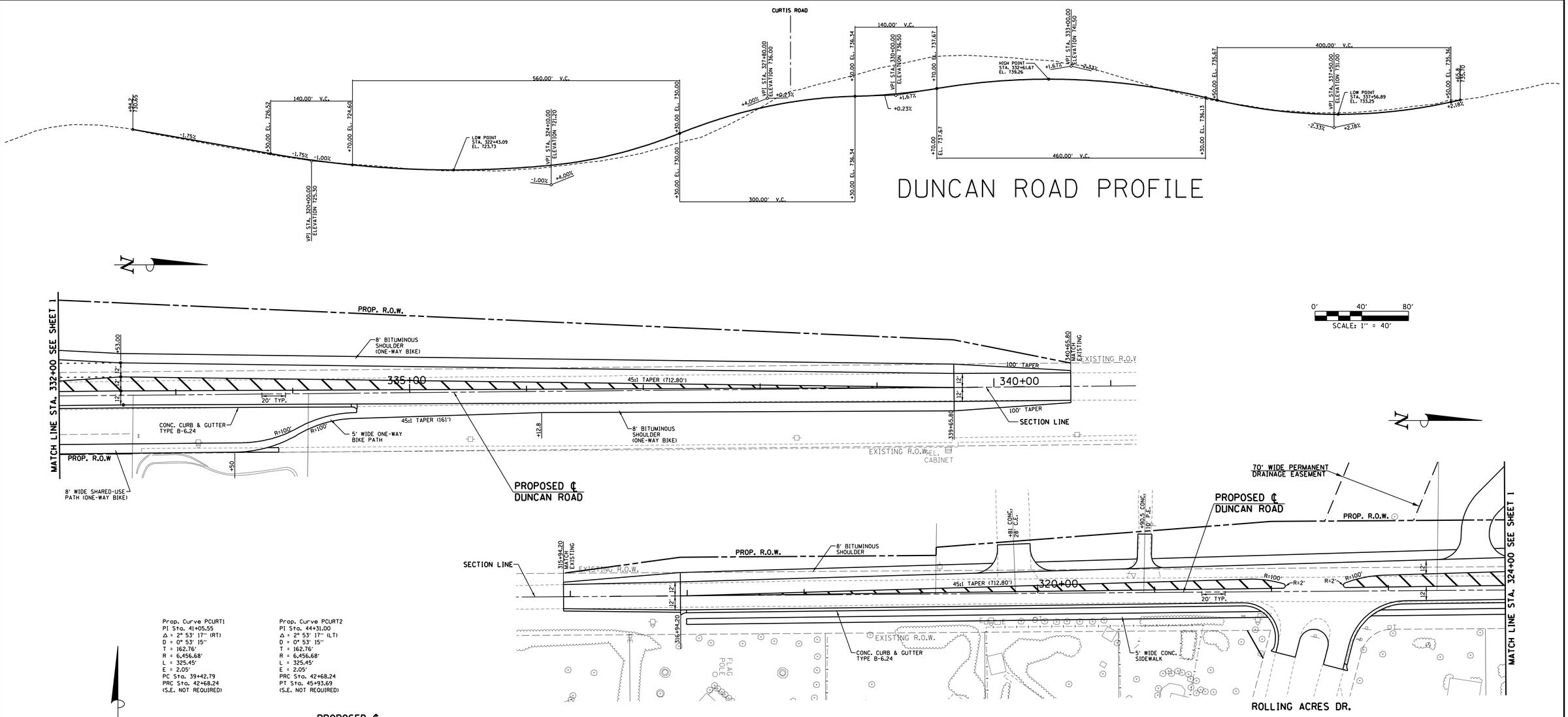
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 11/02

SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

INTERIM

I.D.S. SHEET 1 OF 2

INTERSECTION DESIGN STUDIES (INTERIM BUILD) EXHIBIT 37



INTERSECTION DESIGN STUDIES (INTERIM BUILD)

EXHIBIT 38

CAPACITY DESIGN STUDY

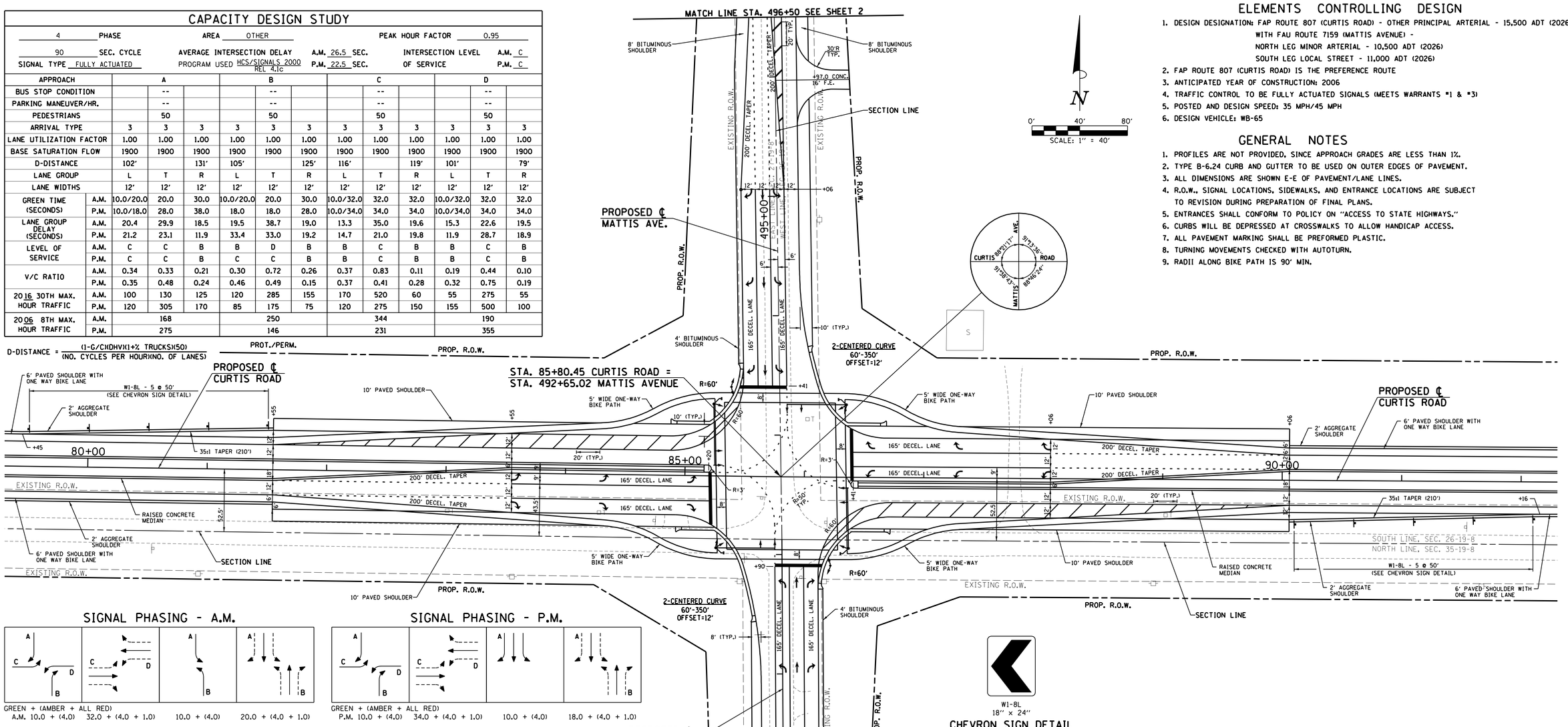
4 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY — A.M. 26.5 SEC. — INTERSECTION LEVEL OF SERVICE — A.M. C

SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1c — P.M. 22.5 SEC. — P.M. C

APPROACH		A			B			C			D		
BUS STOP CONDITION			--			--			--			--	
PARKING MANEUVER/HR.			--			--			--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3	3	3	3	3	3	3	3	3	3	3
LANE UTILIZATION FACTOR		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
D-DISTANCE		102'		131'	105'		125'	116'		119'	101'		79'
LANE GROUP		L	T	R	L	T	R	L	T	R	L	T	R
LANE WIDTHS		12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'	12'
GREEN TIME (SECONDS)	A.M.	10.0/20.0	20.0	30.0	10.0/20.0	20.0	30.0	10.0/32.0	32.0	32.0	10.0/32.0	32.0	32.0
	P.M.	10.0/18.0	28.0	38.0	18.0	18.0	28.0	10.0/34.0	34.0	34.0	10.0/34.0	34.0	34.0
LANE GROUP DELAY (SECONDS)	A.M.	20.4	29.9	18.5	19.5	38.7	19.0	13.3	35.0	19.6	15.3	22.6	19.5
	P.M.	21.2	23.1	11.9	33.4	33.0	19.2	14.7	21.0	19.8	11.9	28.7	18.9
LEVEL OF SERVICE	A.M.	C	C	B	B	D	B	B	C	B	B	C	B
	P.M.	C	C	B	C	C	B	B	C	B	B	C	B
V/C RATIO	A.M.	0.34	0.33	0.21	0.30	0.72	0.26	0.37	0.83	0.11	0.19	0.44	0.10
	P.M.	0.35	0.48	0.24	0.46	0.49	0.15	0.37	0.41	0.28	0.32	0.75	0.19
2016 30TH MAX. HOUR TRAFFIC	A.M.	100	130	125	120	285	155	170	520	60	55	275	55
	P.M.	120	305	170	85	175	75	120	275	150	155	500	100
2006 8TH MAX. HOUR TRAFFIC	A.M.		168			250			344			190	
	P.M.		275			146			231			355	

D-DISTANCE = (1-G/C)(DHV)(1+% TRUCKS)(50) / (NO. CYCLES PER HOUR)(NO. OF LANES)



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION: FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 15,500 ADT (2026)
   WITH FAU ROUTE 7159 (MATTIS AVENUE) -
   NORTH LEG MINOR ARTERIAL - 10,500 ADT (2026)
   SOUTH LEG LOCAL STREET - 11,000 ADT (2026)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH
6. DESIGN VEHICLE: WB-65

GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG BIKE PATH IS 90' MIN.

SIGNAL PHASING - A.M.

GREEN + (AMBER + ALL RED)
A.M. 10.0 + (4.0) 32.0 + (4.0 + 1.0) 10.0 + (4.0) 20.0 + (4.0 + 1.0)

SIGNAL PHASING - P.M.

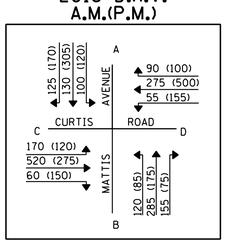
GREEN + (AMBER + ALL RED)
P.M. 10.0 + (4.0) 34.0 + (4.0 + 1.0) 10.0 + (4.0) 18.0 + (4.0 + 1.0)

W1-8L
18" x 24"
CHEVRON SIGN DETAIL

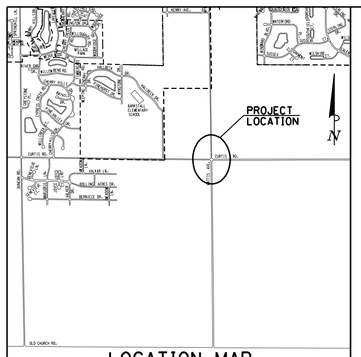
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2016 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	105	245	2							130	305
BA	240	145	2							285	175
AC	105	145	2							125	170
CA	145	100	2							170	120
AD	95	110	2							100	120
DA	80	95	2							90	100
BC	80	55	2							120	85
CB	40	100	2							60	150
BD	135	65	2							155	75
DB	45	130	2							55	155
CD	440	220	2							520	275
DC	220	420	2	2006 ADT				2016 ADT		275	500
TOTAL A	770	840		7500				8800		900	990
TOTAL B	645	740		6500				8400		805	945
TOTAL C	1030	1040		10000				12400		1270	1300
TOTAL D	1015	1040		10000				11800		1195	1225

2016 D.H.V. A.M.(P.M.)



PEAK HOUR VOLUMES A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7159 (MATTIS AVENUE)

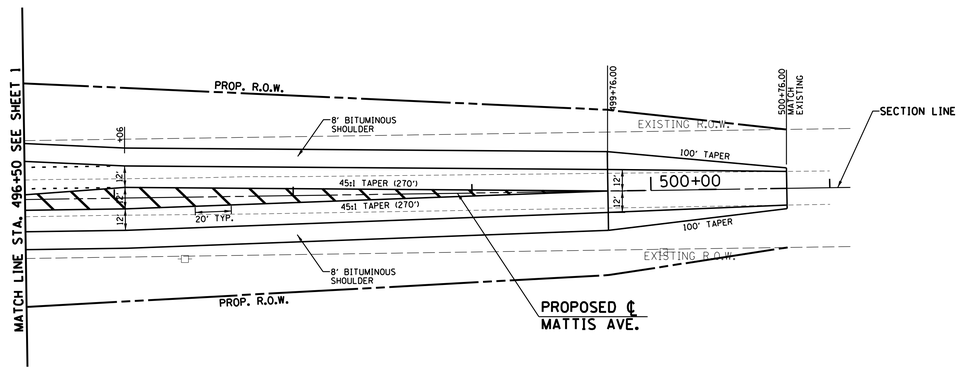
SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 11/02

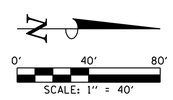
SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

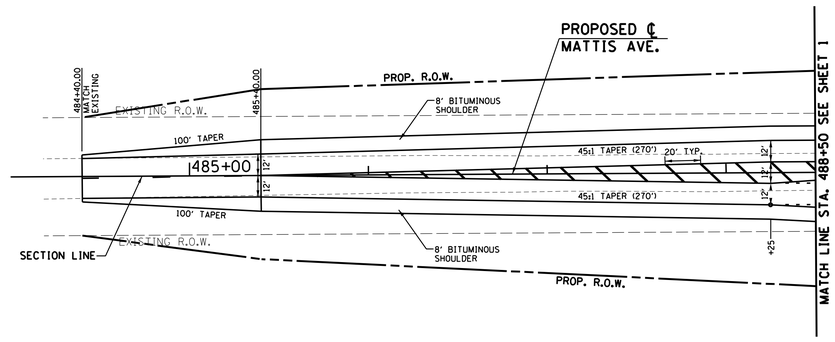
INTERIM

I.D.S. SHEET 1 OF 2

INTERSECTION DESIGN STUDIES (INTERIM BUILD) EXHIBIT 39







DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)

WITH

FAU ROUTE 7159 (MATTIS AVENUE)

SEC. NO. 00-00374-00-ES PROJ. NO. _____

SCALE: 1" = 40' COUNTY CHAMPAIGN

SJN : _____ REV. NO. ____

DESIGNED BY: CLARK DIETZ, INC. DATE: 11/02

SATISFACTORY _____ COUNTY ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER _____ DATE

APPROVED _____ DISTRICT ENGINEER _____ DATE

INTERIM

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (INTERIM BUILD) EXHIBIT 40

CAPACITY DESIGN STUDY

2 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.95

90 SEC. CYCLE — AVERAGE INTERSECTION DELAY A.M. 16.4 SEC. — INTERSECTION LEVEL OF SERVICE A.M. B

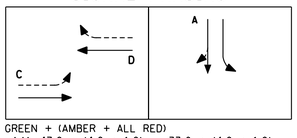
SIGNAL TYPE FULLY ACTUATED — PROGRAM USED HCS/SIGNALS 2000 REL 4.1d — P.M. 16.9 SEC. — P.M. B

APPROACH		A			B			C			D	
BUS STOP CONDITION								--			--	
PARKING MANEUVER/HR.								--			--	
PEDESTRIANS			50			50			50			50	
ARRIVAL TYPE		3	3			3		3	3			3	3
LANE UTILIZATION FACTOR		1.00	1.00			1.00		1.00	0.95			0.95	1.00
BASE SATURATION FLOW		1900	1900			1900		1900	1900			1900	1900
D-DISTANCE		161'						60'					
LANE GROUP		L	TR			LTR		L	TR			T	R
LANE WIDTHS		12'	12'			12'		12'	12'			12'	12'
GREEN TIME (SECONDS)	A.M.	33.0	33.0			33.0		47.0	47.0			47.0	47.0
	P.M.	33.0	33.0			33.0		47.0	47.0			47.0	47.0
LANE GROUP DELAY (SECONDS)	A.M.	20.0	18.9			18.2		12.2	19.1			13.2	11.7
	P.M.	21.3	19.5			18.2		12.7	13.6			19.1	11.8
LEVEL OF SERVICE	A.M.	B	B			B		B	B			B	B
	P.M.	C	B			B		B	B			B	B
V/C RATIO	A.M.	0.24	0.12			0.02		0.26	0.72			0.39	0.21
	P.M.	0.37	0.19			0.02		0.28	0.44			0.72	0.23
2016 30TH MAX. HOUR TRAFFIC	A.M.	115	65			10		107	665			360	160
	P.M.	180	95			10		70	405			665	170
2006 8TH MAX. HOUR TRAFFIC	A.M.		91						369			245	
	P.M.		146						217			396	

$$\text{D-DISTANCE} = \frac{(1-G/C)(DHV)(1+\%\ \text{TRUCKS})(50)}{(\text{NO. CYCLES PER HOUR})(\text{NO. OF LANES})}$$

PROT./PERM.

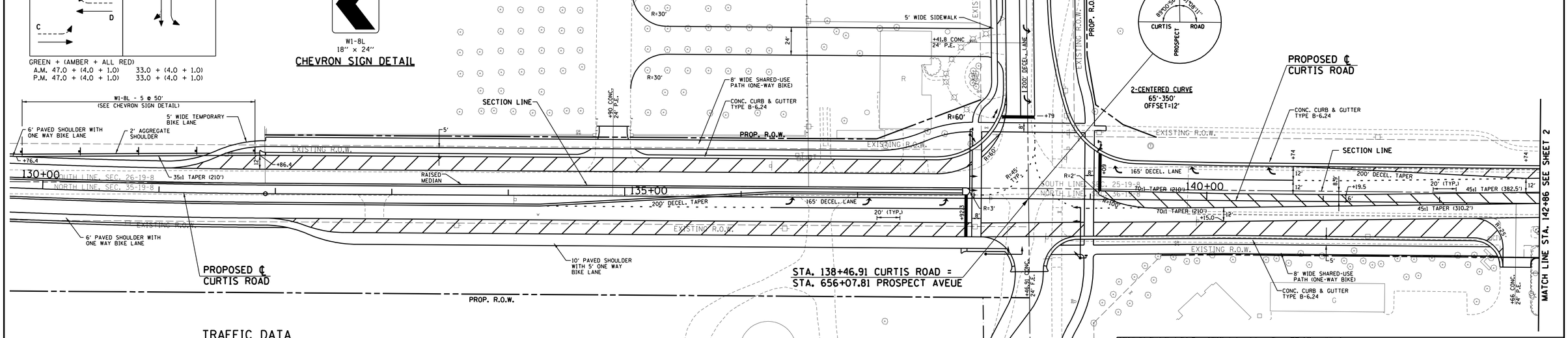
SIGNAL PHASING



GREEN + (AMBER + ALL RED)
A.M. 47.0 + (4.0 + 1.0) 33.0 + (4.0 + 1.0)
P.M. 47.0 + (4.0 + 1.0) 33.0 + (4.0 + 1.0)

W1-8L
18" x 24"

CHEVRON SIGN DETAIL



ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION:
   FAP ROUTE 807 (CURTIS ROAD) - OTHER PRINCIPAL ARTERIAL - 14,500 ADT (2016)
   WITH FAU ROUTE 7163 (PROSPECT AVE.) - COLLECTOR - 5,100 ADT (2016)
2. FAP ROUTE 807 (CURTIS ROAD) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION: 2006
4. TRAFFIC CONTROL TO BE FULLY ACTUATED SIGNALS (MEETS WARRANTS #1 & #3)
5. POSTED AND DESIGN SPEED: 35 MPH/45 MPH ON CURTIS ROAD; 35 MPH/40 MPH ON PROSPECT AVE.
6. DESIGN VEHICLE: WB-65

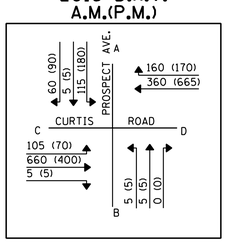
GENERAL NOTES

1. PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE LESS THAN 1%.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT/LANE LINES.
4. R.O.W., SIGNAL LOCATIONS, SIDEWALKS, AND ENTRANCE LOCATIONS ARE SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
5. ENTRANCES SHALL CONFORM TO POLICY ON "ACCESS TO STATE HIGHWAYS."
6. CURBS WILL BE DEPRESSED AT CROSSWALKS TO ALLOW HANDICAP ACCESS.
7. ALL PAVEMENT MARKING SHALL BE PREFORMED PLASTIC.
8. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
9. RADII ALONG SHARED-USE PATH IS 90' MIN.

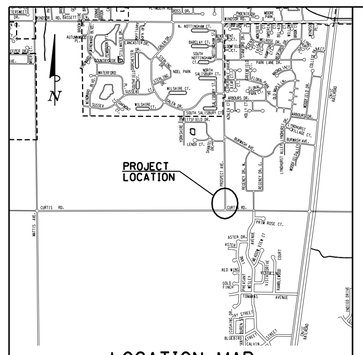
TRAFFIC DATA

MOVEMENT	YEAR 2006 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR	EST. PERCENT INCREASE BY		YEAR 30TH MAXIMUM HOUR TRAFFIC		EST. PERCENT INCREASE BY		YEAR 2016 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB										5	5
BA										5	5
AC	55	90	2							60	90
CA	90	60	2							105	70
AD	110	175	2							115	180
DA	155	165	2							160	170
BC										5	5
CB										5	5
BD										---	---
DB										---	---
CD	580	335	2							660	400
DC	290	555	2	2006 ADT				2016 ADT		360	665
TOTAL A	410	490		4500				4600		450	520
TOTAL B				---				40		20	20
TOTAL C	1015	1040		10000				14000		1195	1235
TOTAL D	1135	1230		11500				15000		1295	1415

2016 D.H.V.
A.M.(P.M.)



PEAK HOUR VOLUMES
A.M.(P.M.)



LOCATION MAP
NO SCALE

DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)
WITH
FAU ROUTE 7163 (PROSPECT AVENUE)

SEC. NO. 00-00374-00-ES — PROJ. NO. _____
SCALE: 1" = 40' — COUNTY CHAMPAIGN
SJN : _____ — REV. NO. ____
DESIGNED BY: CLARK DIETZ, INC. — DATE: 2-04

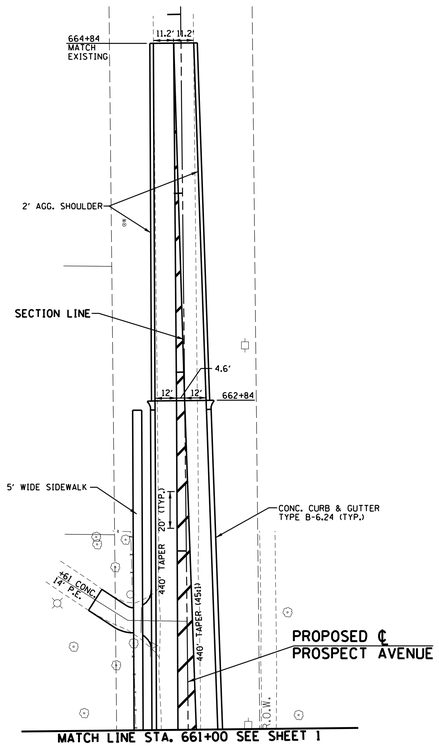
SATISFACTORY _____ COUNTY ENGINEER — DATE
SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER — DATE
SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER — DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER — DATE
APPROVED _____ DISTRICT ENGINEER — DATE

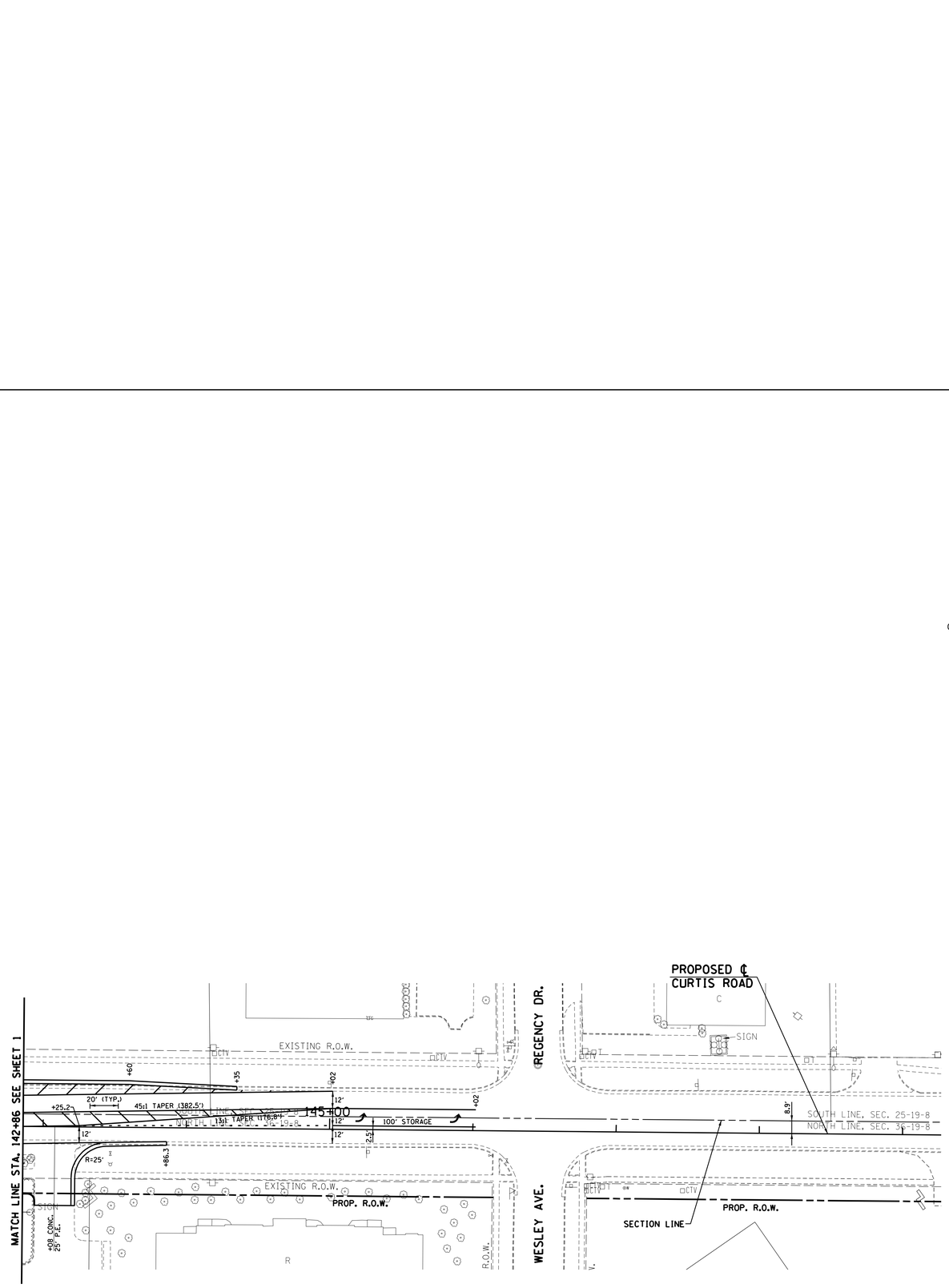
INTERIM

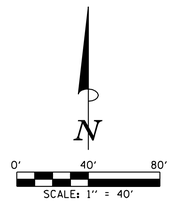
I.D.S. SHEET 1 OF 2

INTERSECTION DESIGN STUDIES (INTERIM BUILD)

EXHIBIT 41







DRAWING NO. _____

INTERSECTION DESIGN STUDY

FAP ROUTE 807 (CURTIS ROAD)

WITH

FAU ROUTE 7163 (PROSPECT AVENUE)

SEC. NO. 00-00374-00-ES PROJ. NO. _____

SCALE: 1" = 40' COUNTY CHAMPAIGN

SJN : _____ REV. NO. ____

DESIGNED BY: CLARK DIETZ, INC. DATE: 2-04

SATISFACTORY _____ COUNTY ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT LOCAL ROADS ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER _____ DATE

SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER _____ DATE

APPROVED _____ DISTRICT ENGINEER _____ DATE

INTERIM

I.D.S. SHEET 2 OF 2

INTERSECTION DESIGN STUDIES (INTERIM BUILD) EXHIBIT 42