INTERSECTION IMPROVEMENTS FOR

CENTRAL AND HILLSIDE

CITY OF WICHITA
SEDGWICK COUNTY, KANSAS

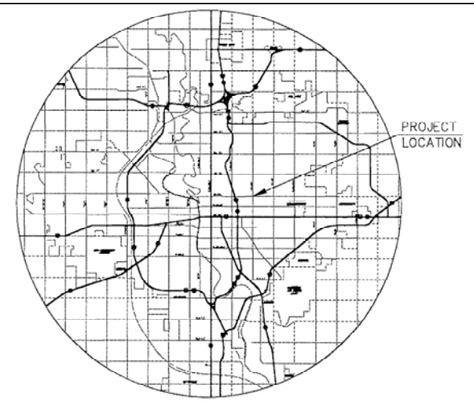
PROJECT NO. 472-83039 (PAVING)
PROJECT NO. 448-89341 (WATER)

MICHAEL E. LINDEBAK, CITY ENGINEER

OCA # 706822

CENTRAL AVENUE: PROVIDE TWO LANES EAST AND WEST BOUND; TOTAL RECONSTRUCTION EAST OF HILLSIDE

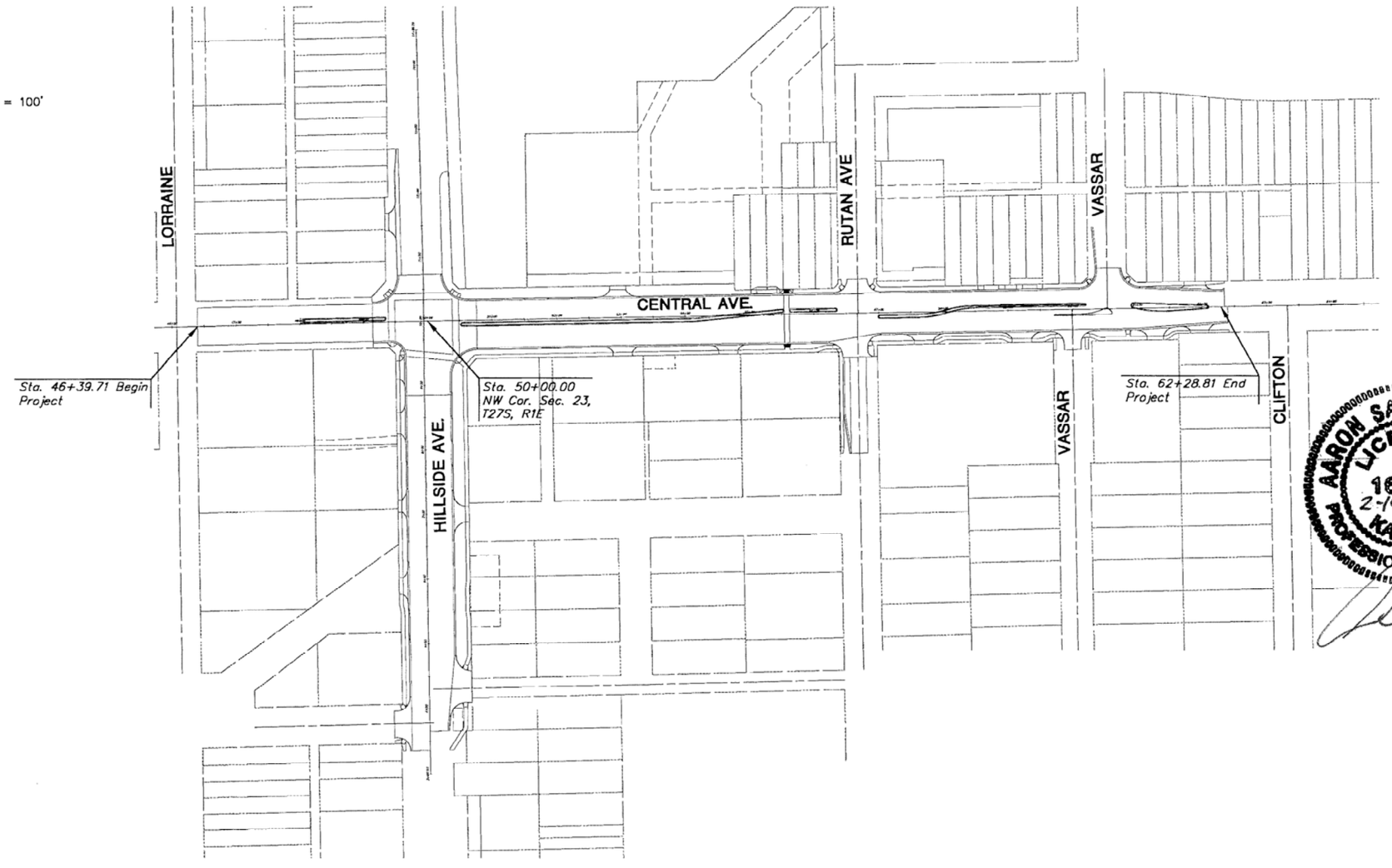
HILLSIDE STREET: PROVIDE RIGHT TURN LANE NORTH TO EAST; PROVIDE RIGHT TURN LANE SOUTH TO WEST; TOTAL RECONSTRUCTION SOUTH OF CENTRAL



LOCATION MAP

N

SCALE: 1" = 100'



INDEX TO DRAWINGS

BENCHMARKS

BM #1 COW BENCH MARK–SE COR. INTERSECTION SE CORNER OF BASE FOR LIGHT TOWER IN PARKING LOT
ELEV. = 145.320

BM #2 "□" CUT IN BASE OF LIGHT POLE SW COR PARKING LOT E SIDE HILLSIDE + 230' S CL OF CENTRAL
ELEV. = 142.275

BM #3 "□" CUT IN BASE OF CROSS WALK SIGNAL POLE NE COR INTERSECTION CENTRAL & HILLSIDE
ELEV. = 144.096

BM #4 "□" CUT TOP OF CONC. RAIL +510 ' E CL HILLSIDE N SIDE OF CENTRAL
ELEV. = 145.514

BM #5 "□" CUT TC S EDGE 1ST DRIVEWAY E SIDE VASSAR S OF CENTRAL
ELEV. = 157.586

MJH 61 1.5" CAP ON EAST SIDE OF HILLSIDE APPROX. 500' S OF CENTRAL, S SIDE OF DRIVE INTO OSCO DRUG
ELEV. = 138.546

IP 104
ELEV. = 149.833

AARON SANDOR HALE LICENSED 18079 2-14-02 KANSAS PROFESSIONAL ENGINEER

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CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

INTERSECTION IMPROVEMENTS
SHEET TITLE

GJA	KKL/BSH	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_ET	1 / 74
DATE	JOB NO.	SHEET/OF

GENERAL NOTES

The Contractor shall give all property owners and/or tenants of developed property abutting the project limits a minimum of ten (10) days advance notice prior to start of construction.

The Contractor shall be responsible for preserving existing property irons shown on the plans. The Contractor will be required to reestablish any shown property irons which are damaged or destroyed by his construction operations. Such irons shall be reestablished by a licensed land surveyor in accordance with state laws.

All construction staking shall be performed by the City of Wichita Public Works Department at no cost to the contractor. The contractor shall coordinate the survey staking with the City of Wichita Public Works Department and give the surveyor 48 hours notice when stakes are required.

A licensed land surveyor shall take field ties to all quarter section corners. The contractor shall set a city survey monument box in the required location where such quarter section corners fall within the limits of pavement construction. Survey Monument Boxes will be furnished at no cost by the City. The surveyor will accurately locate and install the iron at the quarter section corner.

Utility service lines, poles, valve boxes, meters, etc... are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the contractor. The contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

Existing utilities and their locations, as shown on the plans represent the best information obtainable for design. Location information has been obtained from the various utility companies and is either from company record drawings or company provided field locations. The plan locations shown are not guaranteed. Additional existing utilities may also be encountered.

The contractor shall adjust water valve boxes as directed by the engineer at the price bid for said adjustments. The water department shall field locate water valves one time during construction when requested by the contractor. It shall be the contractor's responsibility to preserve such field locations during the construction process. Water valves or water valve boxes damaged during construction shall be repaired by the contractor at his own expense.

All stationing, radii, pavement widths, offset distances, etc... are measured to the High Edge of the curb and along the project baseline unless otherwise noted on the plans. Elevations shown along the curb are for High Edge and Top of Curb. The elevations shown for the median are for the Top of Curb.

Properties within the project may have underground irrigation systems (drippers, sprinklers, and valves) which conflict with new construction. Contractor shall remove such components as needed during construction of the project. The irrigation system shall be reinstalled in like kind before project completion. Any irrigation system modifications required because of project improvements shall be coordinated with the property owner. Portions of underground irrigation systems not in conflict with new construction shall be protected from damage and shall remain in place. All work related to underground irrigation systems shall be Subsidiary to Site Restoration.

All adjacent buildings, structures, site improvements, parking lots, drives, street pavements, utility lines, utility structures and appurtenances other than shown for replacement shall be protected from damage during construction of the project. Damaged items shall be removed and replaced by the contractor at no additional cost to the owner. Sheeting and shoring may be required to protect the items mentioned above. Cost shall be Subsidiary to Site Restoration.

Connection of existing storm sewers or drainage structures to proposed conduits and/or structures shall include all material, equipment and labor. These connections shall not be paid for directly, but shall be considered subsidiary to the various proposed conduits or structures. This work shall be as directed by the engineer and shall be Subsidiary to the specific structure bid items.

A full depth saw cut of the existing surface courses or one-fourth the depth of the existing total pavement thickness shall be provided at locations where proposed construction abuts an existing surface course or pavement for which partial removal of that surface or pavement is required. Sawed joint to facilitate removal within three (3) feet of existing joints will not be permitted and for such instances the limits of removal shall extend to the existing joint. Such saw cuts will not be paid for directly, and this cost shall be considered as Subsidiary to the removal of the surface or pavement.

Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved. All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas Department of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

Trees in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor as approved by the Engineer. Trees 6" or smaller in diameter within 6' behind the curb, shall be relocated at the direction of the Park Department. Cost Subsidiary to Clearing Right-Of-Way.

Contractor Shall remove and deliver to City Storage at 1801 S. McLean Blvd. all existing traffic and regulatory signs, street name, speed limit, etc... Existing stop signs shall remain or be relocated as directed by the Engineer to allow for new construction. Cost shall be Subsidiary to other bid items.

Contractor will be required to provide a minimum advance notice of forty eight (48) hours to utility companies prior to starting any excavation as follows:

Kansas One Call	(State)	1-800-344-7233
	(Wichita)	687-2470

The Contractor must notify the following in case of emergency:

CATV-Cox Communications	(316)262-4270
E-KGE	(316)383-8600
T-Southwestern Bell Telephone Co.	(800)246-8464
G-Kansas Gas Service	(316)383-8600
G-Peoples Natural Gas	(316)941-1608
	or (800)303-0752
SS & W-City of Wichita Water & Sewer Dept.	(316)268-4940
SWS-City of Wichita Stormwater Utility	(316)268-4071

Driveway widths and locations shown are tentative. Contractor will be required to obtain a properly executed driveway request form signed by property owner or his authorized representative verifying such driveway widths and locations. Such forms shall be submitted to the Engineer for his review and approval.

All structures and/or foundations located within the construction limits shall be removed to a minimum depth of 18" below the subgrade in areas to be paved or to a minimum of 18" below the ground line in areas to be seeded.

Contractor shall adjust sidewalk alignment if necessary to clear existing utilities and improvements and landscaping (gas meters, telephone pedestals, trees, etc.) located at right-of-way line, and as approved by the Engineer. Payment for alignment adjustment shall be Subsidiary to the bid item for Sidewalk.

All Water mains and appurtenances shall be installed in accordance with City of Wichita, Kansas Standard Specifications for water main installations.

Opening and closing water valves shall be done slowly to prevent damage to the water distribution system from water hammer. All valves closed by the contractor must be reopened as new construction permits. Project inspector must ascertain that any valve closed by the contractor is reopened. Contractor will be permitted to operate water valves only when the project inspector assigned to the project is present.

Contractor shall not start work on the project until the project inspector is assigned to the project and is present on the site. Any work done without inspection will be required to be uncovered for inspection.

Fire hydrants designated to be removed shall be returned to the Wichita Water Department storage yard at 1701 Sim Park Drive.

Existing Valve boxes designated to be removed shall be returned to the Wichita Water Department storage yard at 1701 Sim Park Drive. The holes shall be filled and the existing valves abandoned in place.

The Contractor shall be required to notify each customer before water service to that customer is turned off and to make reasonable effort to restrict shut downs to times that are acceptable to the customer.

Water service connections as shown on the drawings represents the best information available for design. All service connections to include connections, tubing, meter setter, meter box, ring and cover; Reinstallation of existing meter. Payment Subsidiary to Service Replacement.

All water line pipe material used for this project shall be C-900 unless noted otherwise.

The Contractor shall lay a tracer wire and set test stations along all water line pipe in accordance with City of Wichita Specifications and Tracer Wire Detail on Detail Sheet. Cost is Subsidiary to pipe installation.

Install new standard manhole frames and covers on all existing storm water and sanitary sewer manholes located in new pavement. Old frames and covers shall be taken to the City Yard at 1801 S. McLean Blvd. for salvage. Sanitary sewer covers shall have the lettering "City of Wichita Sewer Dept.". Storm water sewer covers shall have the lettering "City of Wichita Storm Water".

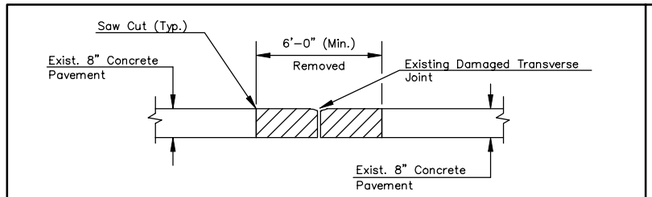
Contractor to support all underground utilities during construction.

Cost of excavation, hauling, and dumping of excess excavation shall be Subsidiary to the project.

Construction Traffic Control: The Contractor shall prepare a Traffic Control Plan in consultation with the Traffic Engineer. Two way traffic will be maintained on both Central and Hillside. The Contractor shall install and operate Temporary Traffic Signals as required by the Signalization Plans and Details.

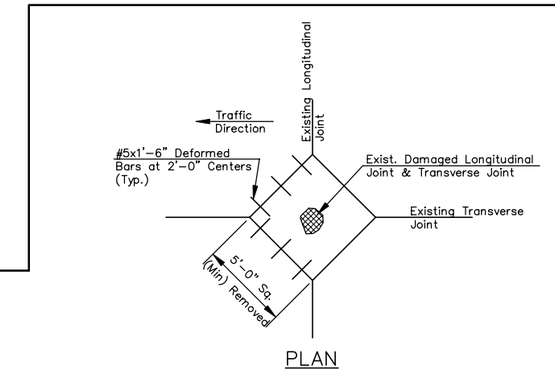
All concrete pavement to be reinforced with 6x12 W4xW4 Wire Mesh.

All elevations shown are City Datum. City Datum = NGVD - 1187.40

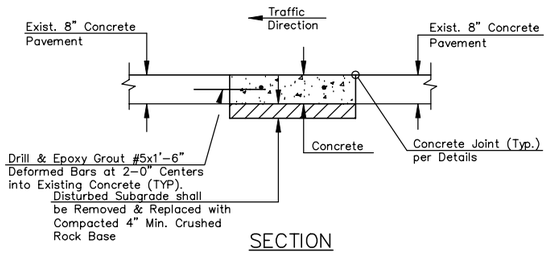


JOINT REPAIR DETAILS (TRANSVERSE)

Joint Repair:
Concrete Joint Repair (Transverse and Diamond) shall be at locations designated by the Engineer. Payment shall be on a measured unit basis under the bid item "Concrete Joint Repair". Repair Slab Longitudinal Joint at centerline of pavement shall be keyed and non-doweled.



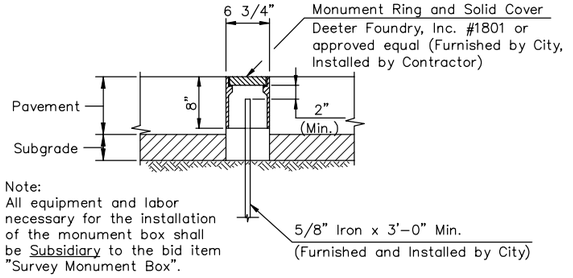
PLAN



SECTION

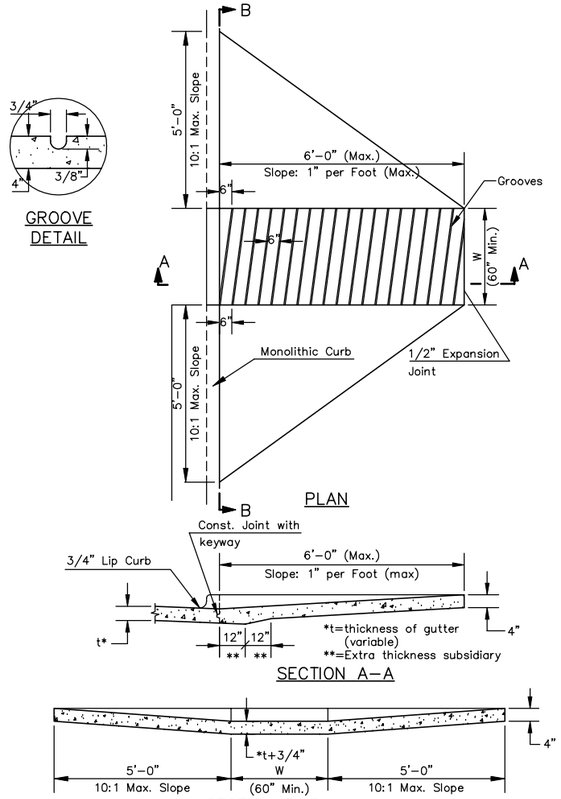
JOINT REPAIR DETAILS (DIAMOND)

Joint Repair:
Concrete Joint Repair (Transverse and Diamond) shall be at locations designated by the Engineer. Payment shall be on a measured unit basis under the bid item "Concrete Joint Repair". Repair Slab Longitudinal Joint at centerline of pavement shall be keyed and non-doweled.



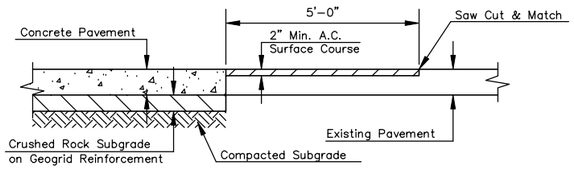
Note:
All equipment and labor necessary for the installation of the monument box shall be Subsidiary to the bid item "Survey Monument Box".

SURVEY MONUMENT BOX DETAIL



NOTE:
THE COST OF ALL WORK INDICATED ON THIS DETAIL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SIDEWALK RAMP.

STANDARD SIDEWALK RAMP



HOOKUP DETAIL

Typical at Side Streets with Existing A.C. Pavement. (Central Sta. 49+14.66, Rutan and Vassar) Cost Subsidiary to Project.

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CENTRAL & HILLSIDE INTERSECTION
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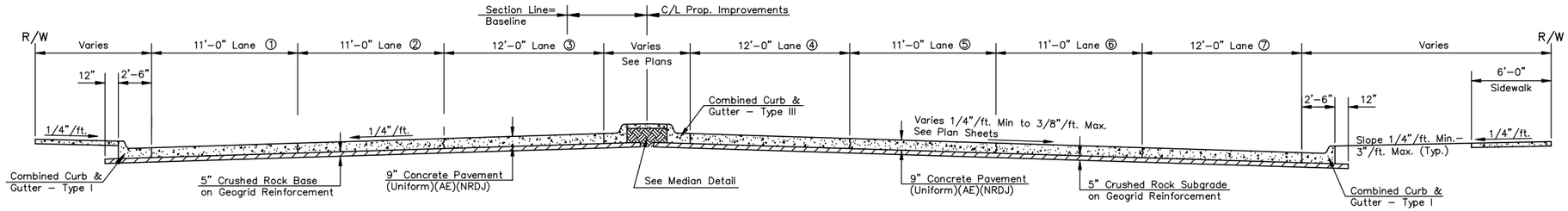
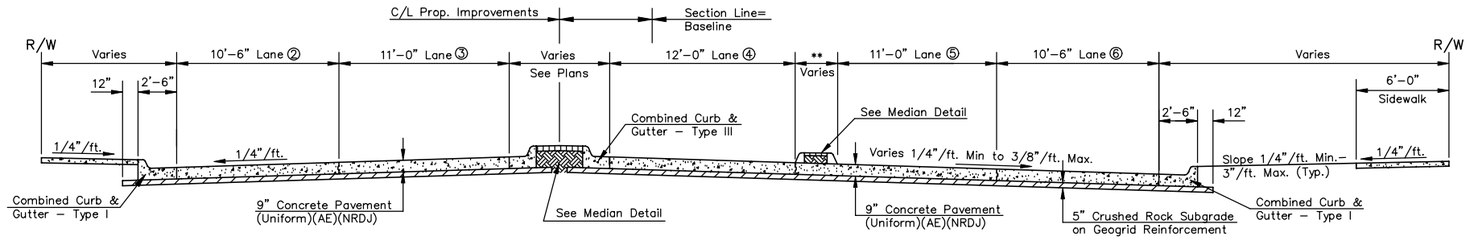


TYPICAL SECTION - CENTRAL AVE.

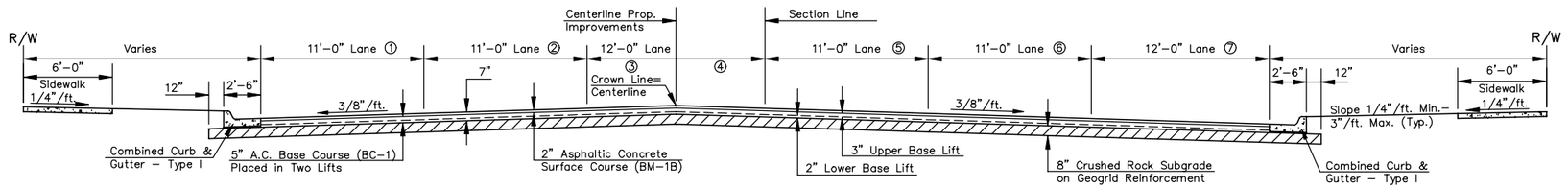
Sta. 50+76.34 to Sta. 59+72.12 &
Sta. 60+60.15 to Sta. 62+39.45



TYPICAL SECTION - CENTRAL AVE.

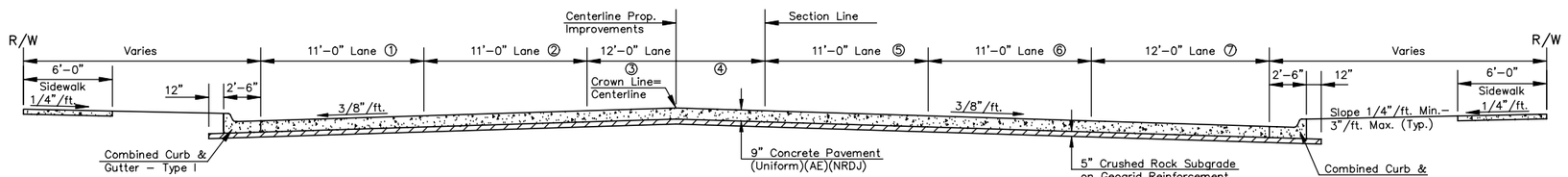
Sta. 59+72.12 to Sta. 60+60.15

** 2'6" from Sta. 59+72.12 to Sta. 60+14.58
** Varies from 2'6" at Sta. 60+14.58 to Sta. 60+60.15



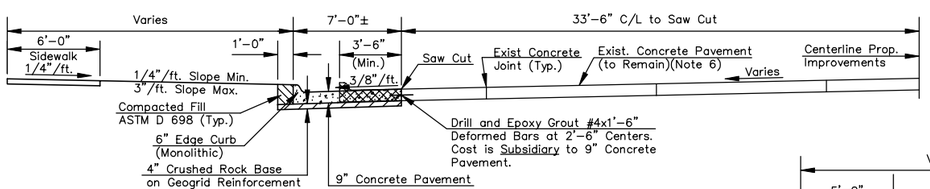
TYPICAL SECTION - HILLSIDE AVE.

Sta. 3+36.49 to Sta. 8+84.42



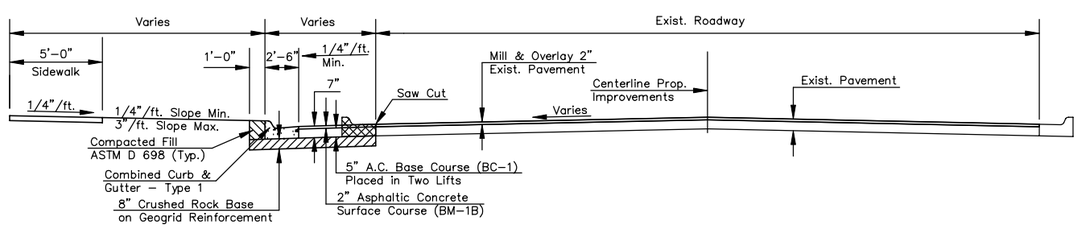
TYPICAL SECTION - HILLSIDE AVE.

Sta. 8+84.42 to Sta. 9+14.42



TYPICAL WIDENING DETAIL - HILLSIDE AVE.

Sta. 10+73.06 to Sta. 12+70.54



TYPICAL WIDENING & MILLING DETAIL - RUTAN AVE.

Sta. 7+82.19 to Sta. 9+31.38

TRAFFIC LANE INFORMATION - CENTRAL AVE.

Station	①	②	③	④	⑤	⑥	⑦
50+76.34 to 54+00.09	11'–0"	11'–0"	12'–0"	0'–0"	11'–0"	11'–0"	12'–0"
54+00.09 to 54+08.20	11'–0"	11'–0"	12'–0"	0'–0"	11'–0"	11'–0"	12'–0"
54+08.20 to 54+62.75	11'–0"	11'–0"	Varies	Varies	11'–0"	11'–0"	12'–0"
54+62.75 to 55+58.20	11'–0"	11'–0"	Varies	Varies	11'–0"	11'–0"	12'–0"
55+58.20 to 56+21.33	11'–0"	11'–0"	0'–0"	12'–0"	11'–0"	11'–0"	12'–0"
56+21.33 to 56+33.20	11'–0"	11'–0"	0'–0"	12'–0"	11'–0"	11'–0"	Varies
56+33.20 to 57+01.65	11'–0"	11'–0"	Varies	Varies	11'–0"	11'–0"	Varies
57+01.65 to 57+02.33	11'–0"	11'–0"	12'–0"	0'–0"	11'–0"	11'–0"	Varies
57+02.33 to 57+61.65	11'–0"	11'–0"	12'–0"	0'–0"	11'–0"	11'–0"	0'–0"
57+61.65 to 58+04.00	11'–0"	11'–0"	Varies	Varies	11'–0"	11'–0"	0'–0"
58+04.00 to 58+52.23	Varies	11'–0"	Varies	Varies	11'–0"	11'–0"	0'–0"
58+52.23 to 59+72.12	10'–6"	11'–0"	0'–0"	12'–0"	Varies	11'–0"	0'–0"
59+72.12 to 60+18.49	10'–6"	11'–0"	0'–0"	12'–0"	11'–0"	10'–6"	0'–0"
60+18.49 to 60+86.04	10'–6"	11'–0"	Varies	Varies	11'–0"	10'–6"	0'–0"
60+86.04 to 62+34.57	11'–0"	11'–0"	0'–0"	0'–0"	11'–0"	11'–0"	0'–0"
62+34.57 to 62+39.45	0'–0"	0'–0"	0'–0"	0'–0"	11'–0"	11'–0"	0'–0"

* CENTRAL CENTERLINE ALIGNMENT

P.R.C.	Station	Offset	Radius	Length	Δ	Tangent
P.I.	49+14.66	4.93' Lt.				
P.I.	49+36.59	4.93' Lt.				
P.I.	50+50.83	6.00' Rt.				
P.C.	54+08.20	6.00' Rt.				
P.V.I.	54+14.70	6.00' Rt.	148.50'	12.99'	5°00'37"	6.50'
P.T.	54+21.17	5.43' Rt.				
P.C.	55+44.97	5.42' Lt.				
P.V.I.	55+51.57	6.00' Lt.	151.50'	13.25'	5°00'37"	6.63'
P.T.	55+58.20	6.00' Lt.				
P.I.	56+36.45	6.00' Lt.				
P.I.	56+98.40	6.00' Rt.				
P.C.	57+61.65	6.00' Rt.				
P.V.I.	57+84.11	4.33' Rt.	151.50'	45.08'	17°2'58"	22.71'
P.R.C.	58+06.07	0.66' Lt.				
P.V.I.	58+27.82	5.59' Lt.	150.00'	44.63'	17°2'58"	22.48'
P.T.	58+50.05	7.25' Lt.				
P.I.	60+20.99	7.25' Lt.				
P.I.	60+89.49	5.26' Lt.				
P.I.	62+10.98	0.00' Rt.				
P.I.	62+28.81	0.00' Rt.				

TRAFFIC LANE INFORMATION - HILLSIDE AVE.

Station	①	②	③	④	⑤	⑥	⑦
3+36.49 to 3+65.23	11'–0"	11'–0"	6'–0"	---	---	---	---
3+65.23 to 4+64.85	11'–0"	11'–0"	6'–0"	6'–0"	11'–0"	11'–0"	Varies
4+64.85 to 9+14.42	11'–0"	11'–0"	6'–0"	6'–0"	11'–0"	11'–0"	12'–0"

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CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TYPICAL SECTIONS
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168ED1	3 / 74
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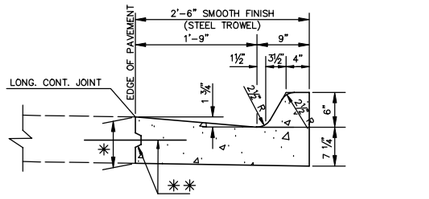
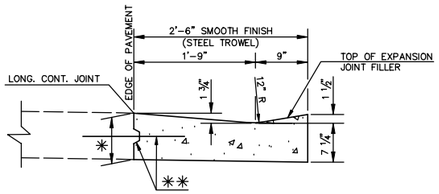


✳ 9" WHERE CONCRETE PAVEMENT IS CONSTRUCTED.
7" WHERE ASPHALTIC CONCRETE IS CONSTRUCTED.

✳✳ LONGITUDINAL CONSTRUCTION JOINT AND #4x1'-6" DEFORMED BARS AT 2'-6" CENTERS, WHERE CONCRETE PAVEMENT IS CONSTRUCTED.

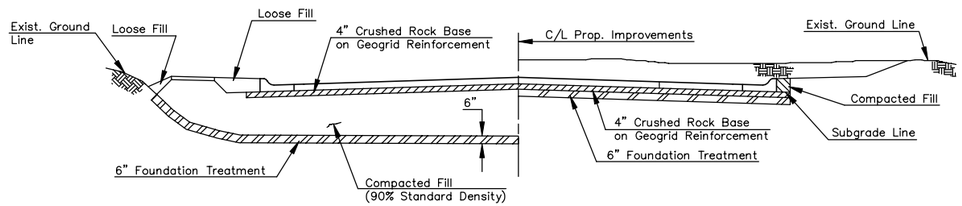
COMBINED CURB & GUTTER - TYPE I



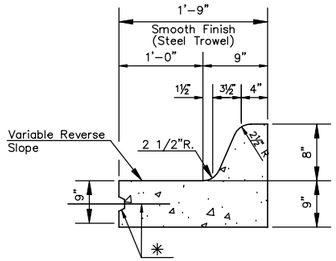
✳ 9" WHERE CONCRETE PAVEMENT IS CONSTRUCTED.
7" WHERE ASPHALTIC CONCRETE IS CONSTRUCTED.

✳✳ LONGITUDINAL CONSTRUCTION JOINT AND #4x1'-6" DEFORMED BARS AT 2'-6" CENTERS, WHERE CONCRETE PAVEMENT IS CONSTRUCTED.

COMBINED CURB & GUTTER - TYPE II

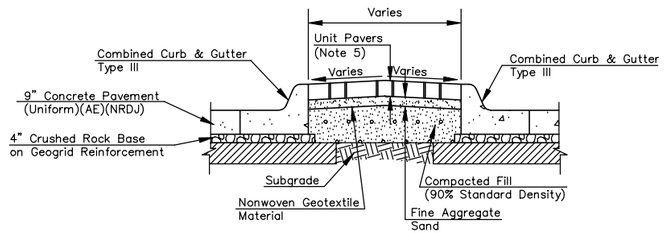


FOUNDATION TREATMENT AND COMPACTION OF EARTHWORK

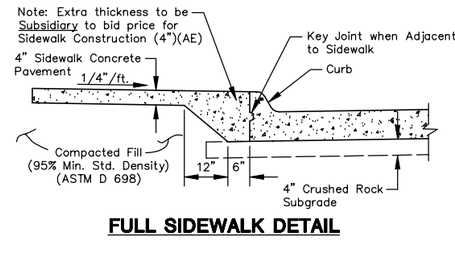


✳ LONGITUDINAL CONSTRUCTION JOINT AND #4x1'-6" DEFORMED BARS AT 2'-6" CENTERS, WHERE CONCRETE PAVEMENT IS CONSTRUCTED.

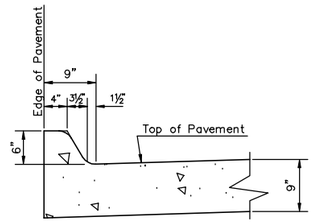
COMBINED CURB & GUTTER - TYPE III



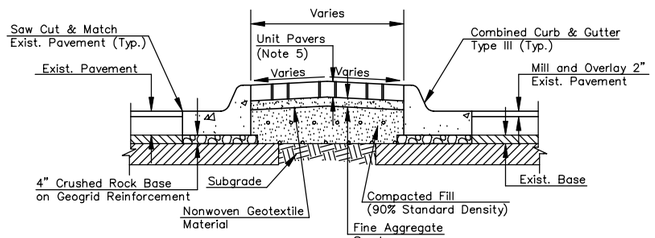
MEDIAN DETAIL



FULL SIDEWALK DETAIL

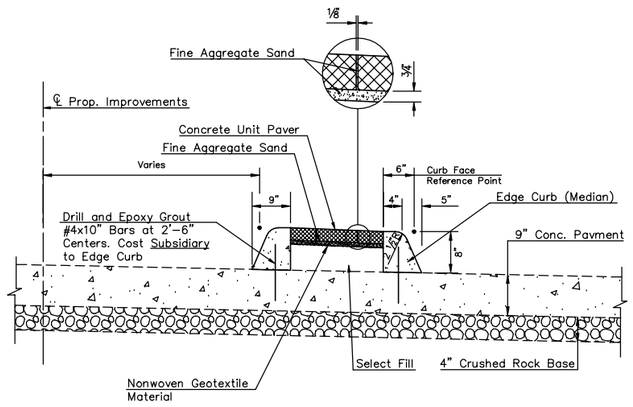


EDGE CURB (MONOLITHIC)



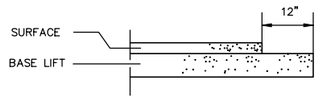
MEDIAN DETAIL

Central – STA. 48+00.90 TO STA. 49+14.66



MEDIAN DETAIL

Central – STA. 59+72.12 TO STA. 60+60.15



TRANSVERSE CONSTRUCTION JOINTS

TRANSVERSE CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN FLEXIBLE BASE PAVEMENTS AT LOCATIONS WHERE PAVEMENT JOINS EXISTING FLEXIBLE BASE PAVEMENT AS SHOWN BY THE DETAIL. ALL COSTS ASSOCIATED WITH THE CONSTRUCTION OF THE TRANSVERSE JOINT SHALL BE INCLUDED IN THE BID PRICE FOR SQUARE YARDS 7" ASPHALTIC CONCRETE (5" BITUMINOUS BASE).

GENERAL NOTES

1) ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PRIOR TO PLACEMENT OF PAVEMENT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

2) A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASHPALTIC MATERIAL.

3) BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

4) CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

5) MATERIALS AND INSTALLATION OF UNIT PAVERS OR BRICK SHALL BE AS SHOWN ON CROSSWALK DETAILS, WITH THE FOLLOWING EXCEPTIONS: PAVER THICKNESS SHALL BE 2 3/8" MIN. GEO-TEXTILE MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO M 288, CLASS 2 (CONTECH C-60NW OR APPROVED EQUAL).

6) CONCRETE PAVEMENT TO REMAIN IN PLACE SHALL BE PREPARED IN ACCORDANCE WITH CITY OF WICHITA SPECIFICATIONS. ALL JOINTS AND CRACKS SHALL BE BLOWN WITH COMPRESSED AIR TO REMOVE ALL DELETERIOUS MATERIALS. THEN SEAL WITH CRAFCO ROADSAVER 205, OR APPROVED EQUAL, APPLIED PER MANUFACTURER'S RECOMMENDATIONS.

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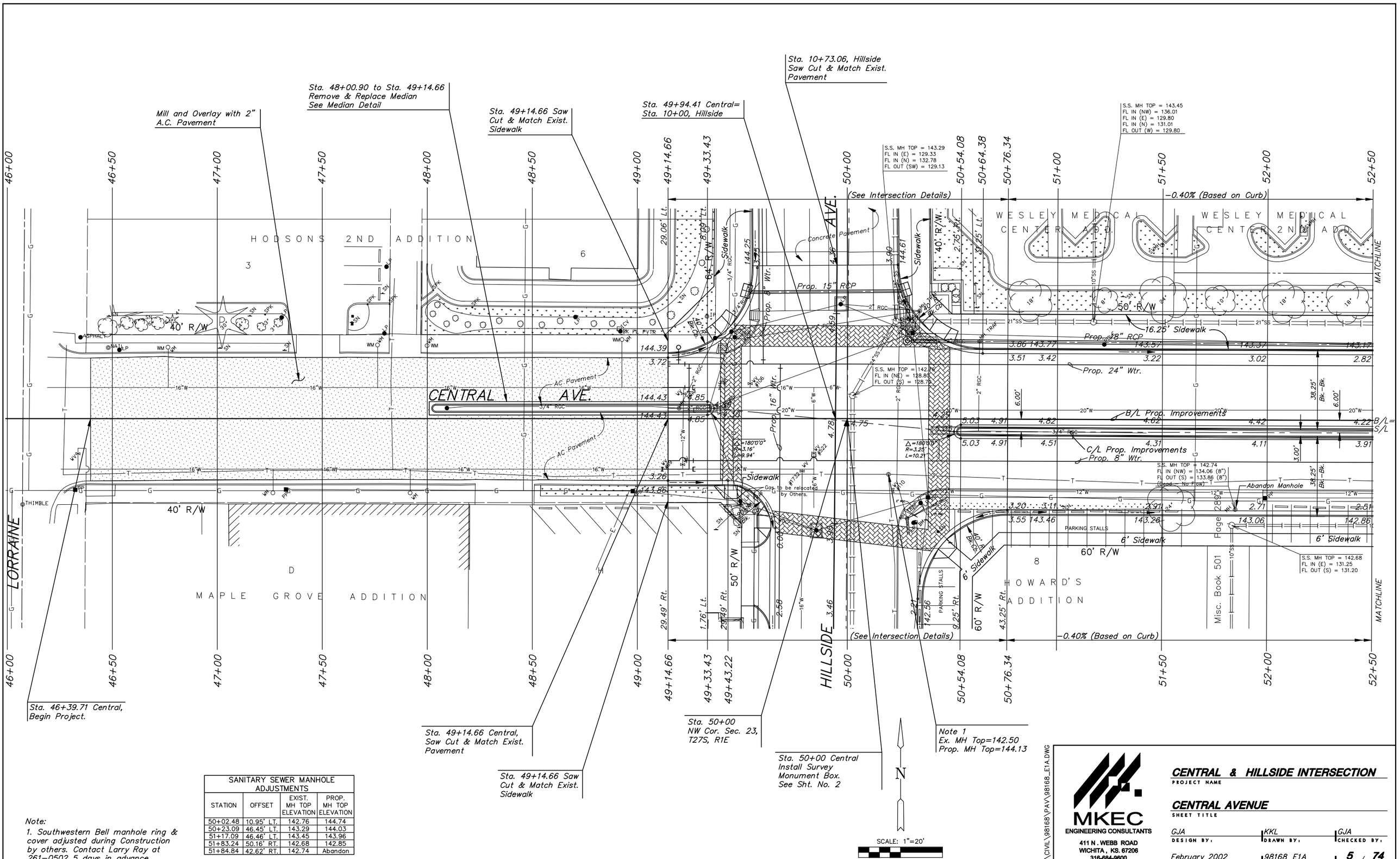
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TYPICAL SECTIONS
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168ED2	4 / 74
DATE	JOB NO.	SHEET/OF



SANITARY SEWER MANHOLE ADJUSTMENTS			
STATION	OFFSET	EXIST. MH TOP ELEVATION	PROP. MH TOP ELEVATION
50+02.48	10.95' LT.	142.76	144.74
50+23.09	46.45' LT.	143.29	144.03
51+17.09	46.46' LT.	143.45	143.96
51+83.24	50.16' RT.	142.68	142.85
51+84.84	42.62' RT.	142.74	Abandon

Note:
1. Southwestern Bell manhole ring & cover adjusted during Construction by others. Contact Larry Ray at 261-0502 5 days in advance.

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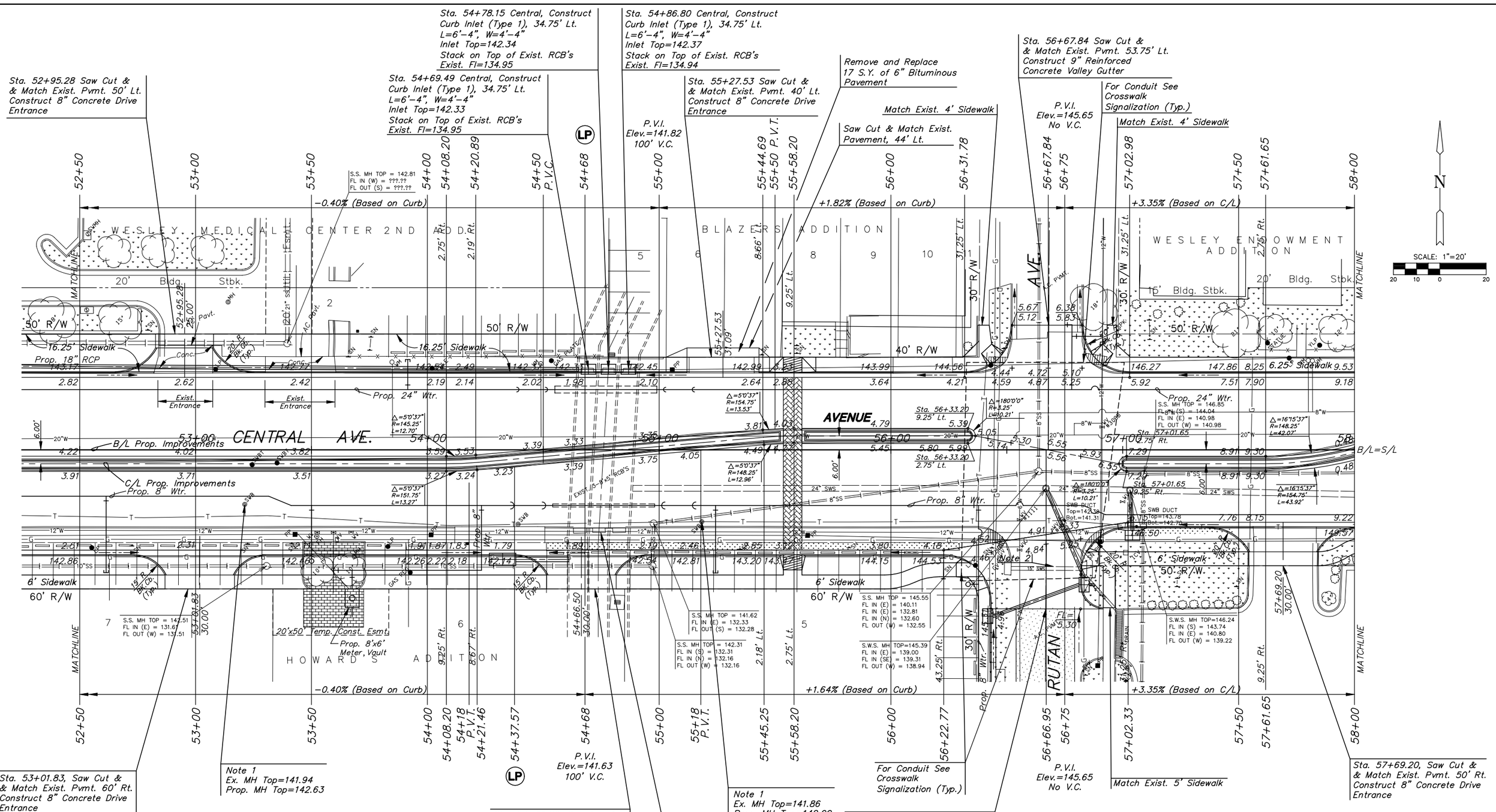
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL AVENUE
SHEET TITLE

GJA	KKL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_E1A	5 / 74
DATE	JOB NO.	SHEET/OF



Notes:

1. Southwestern Bell manhole ring & cover adjusted during Construction by others. Contact Larry Ray at 261-0502 5 days in advance.

2. Remove or abandon storm water sewer pipe and structures as required (Typ.). Payment subsidiary to other Bid Items.

SANITARY SEWER MANHOLE ADJUSTMENTS			
STATION	OFFSET	EXIST. MH TOP ELEVATION	PROP. MH TOP ELEVATION
53+30.64	50.08' RT.	142.51	142.62
53+39.58	45.97' LT.	142.81	142.73
54+97.16	50.10' RT.	142.31	142.60
54+97.57	31.72' RT.	141.62	142.40
56+63.67	9.26' RT.	145.55	145.33
57+09.54	10.49' RT.	146.85	146.82

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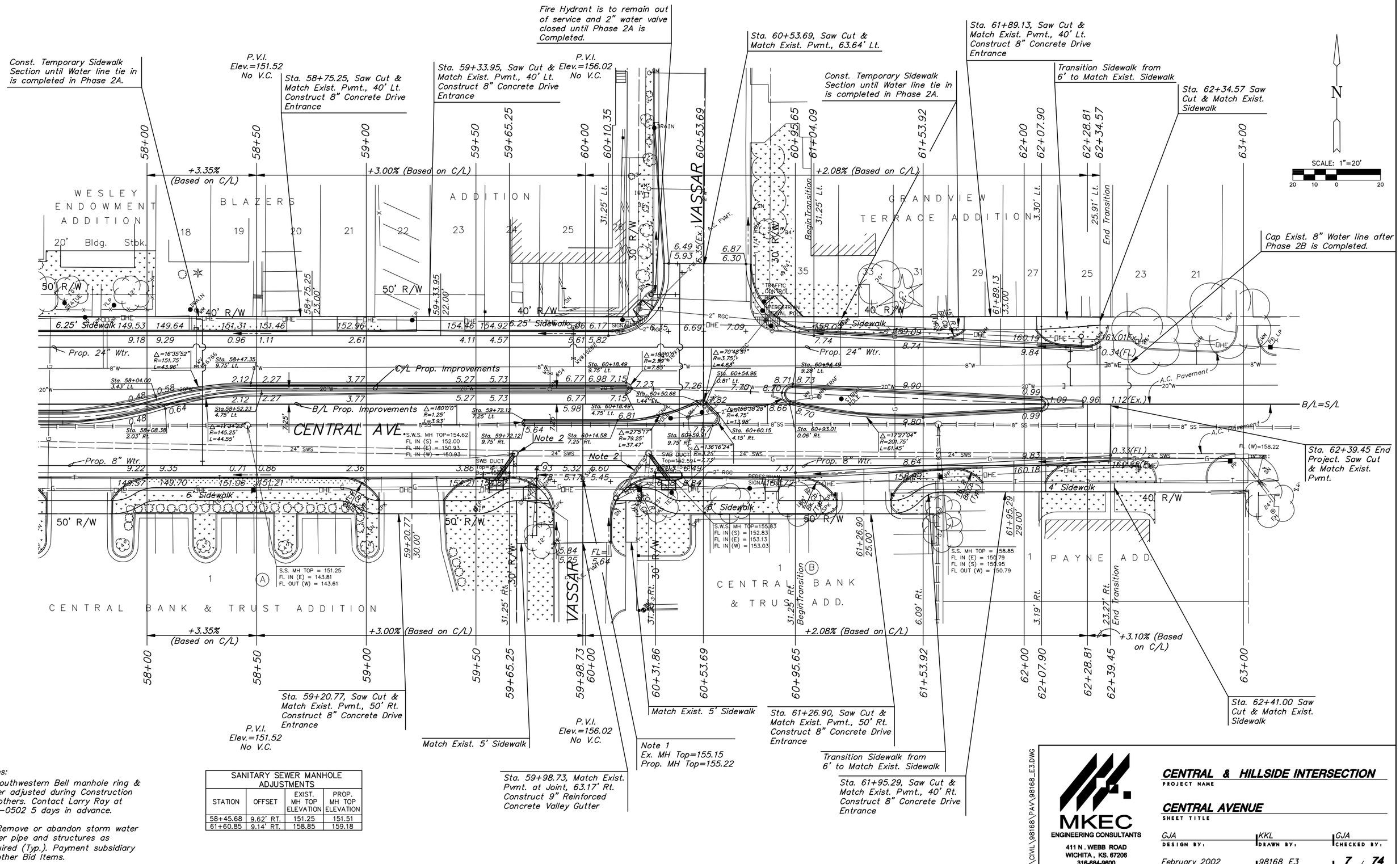
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL AVENUE
SHEET TITLE

GJA	KKL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_E2A	6 / 74
DATE	JOB NO.	SHEET/OF



Notes:

1. Southwestern Bell manhole ring & cover adjusted during Construction by others. Contact Larry Ray at 261-0502 5 days in advance.

2. Remove or abandon storm water sewer pipe and structures as required (Typ.). Payment subsidiary to other Bid Items.

SANITARY SEWER MANHOLE ADJUSTMENTS			
STATION	OFFSET	EXIST. MH TOP ELEVATION	PROP. MH TOP ELEVATION
58+45.68	9.62' RT.	151.25	151.51
61+60.85	9.14' RT.	158.85	159.18

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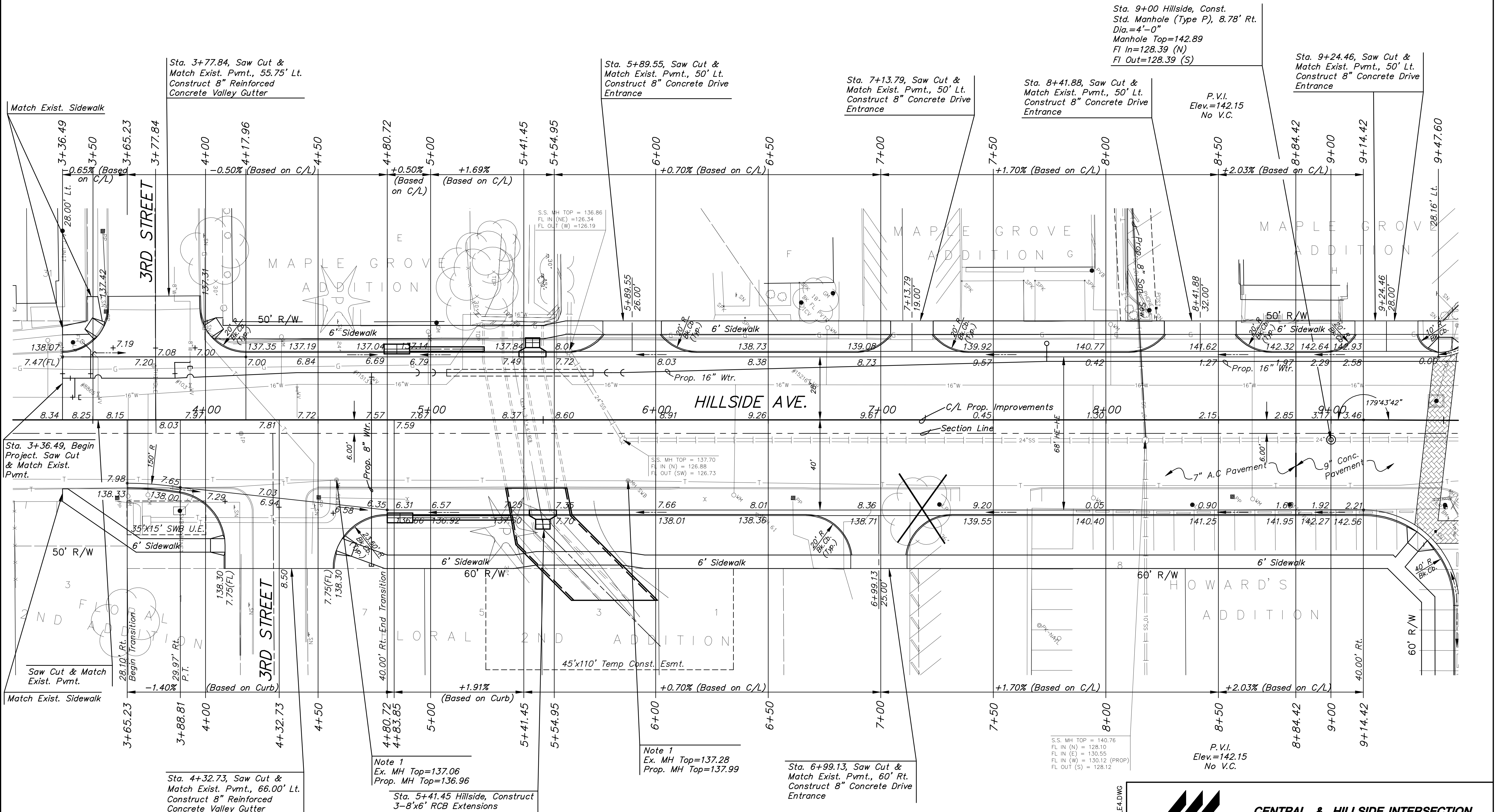
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL AVENUE
SHEET TITLE

GJA	KKL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_E3	7 / 74
DATE	JOB NO.	SHEET/OF



Note:
1. Southwestern Bell manhole ring & cover adjusted during Construction by others. Contact Larry Ray at 261–0502 5 days in advance.

2. Contractor to coordinate RCB construction with Southwestern Bell and their adjustments.

SANITARY SEWER MANHOLE ADJUSTMENTS

STATION	OFFSET	EXIST. MH TOP ELEVATION	PROP. MH TOP ELEVATION
5+61.34	30.60' LT.	136.86	138.11
5+85.56	8.87' RT.	137.70	138.53
8+17.53	9.10' RT.	140.76	141.32

X = TREES TO BE REMOVED

SCALE: 1"=20'
20 10 0 20

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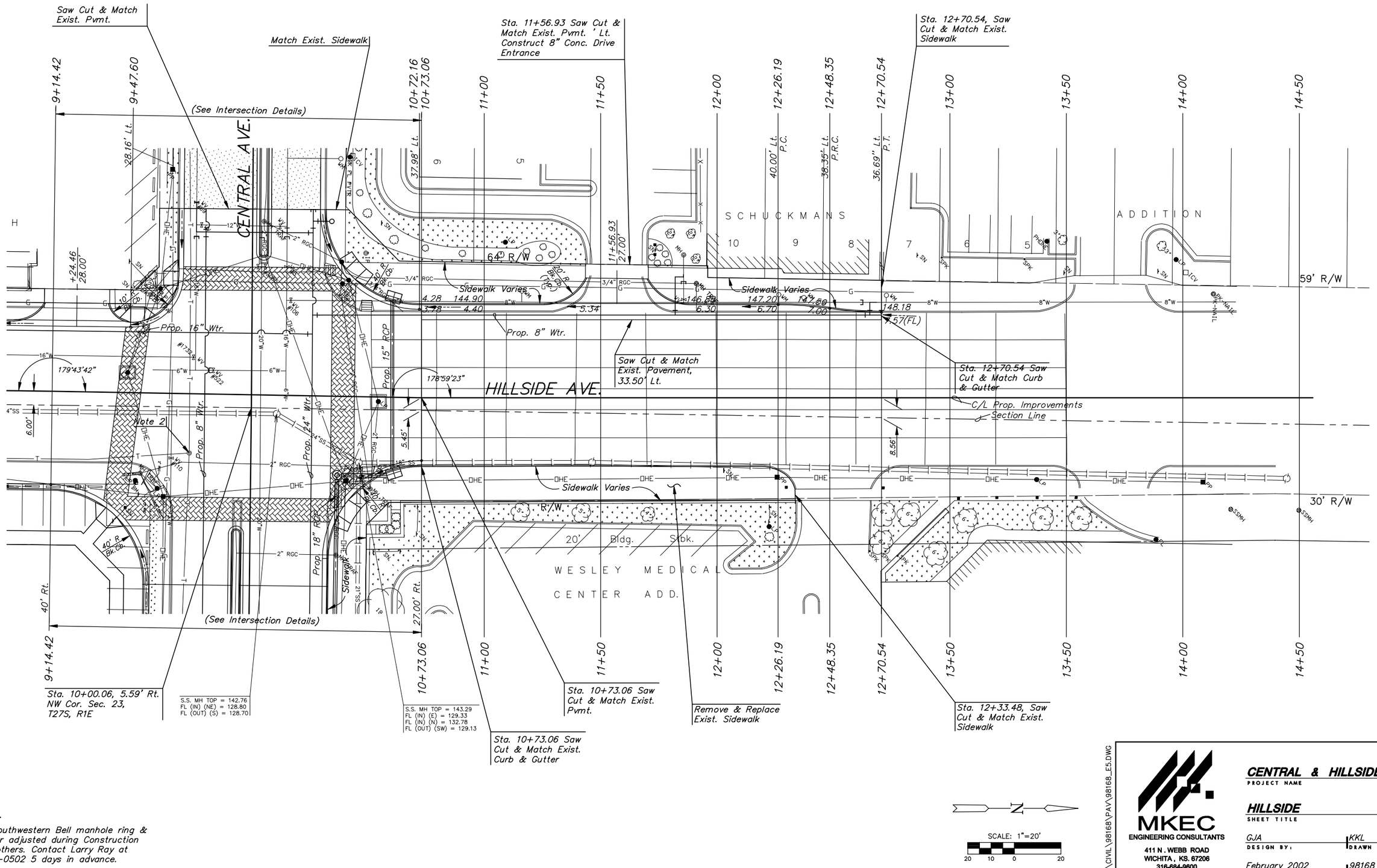
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

HILLSIDE
SHEET TITLE

DESIGN BY:	DRAWN BY:	CHECKED BY:
GJA	KKL	GJA

DATE	JOB NO.	SHEET/OF
February 2002	98168_E4	8 / 74



Note:
1. Southwestern Bell manhole ring & cover adjusted during Construction by others. Contact Larry Ray at 261-0502 5 days in advance.

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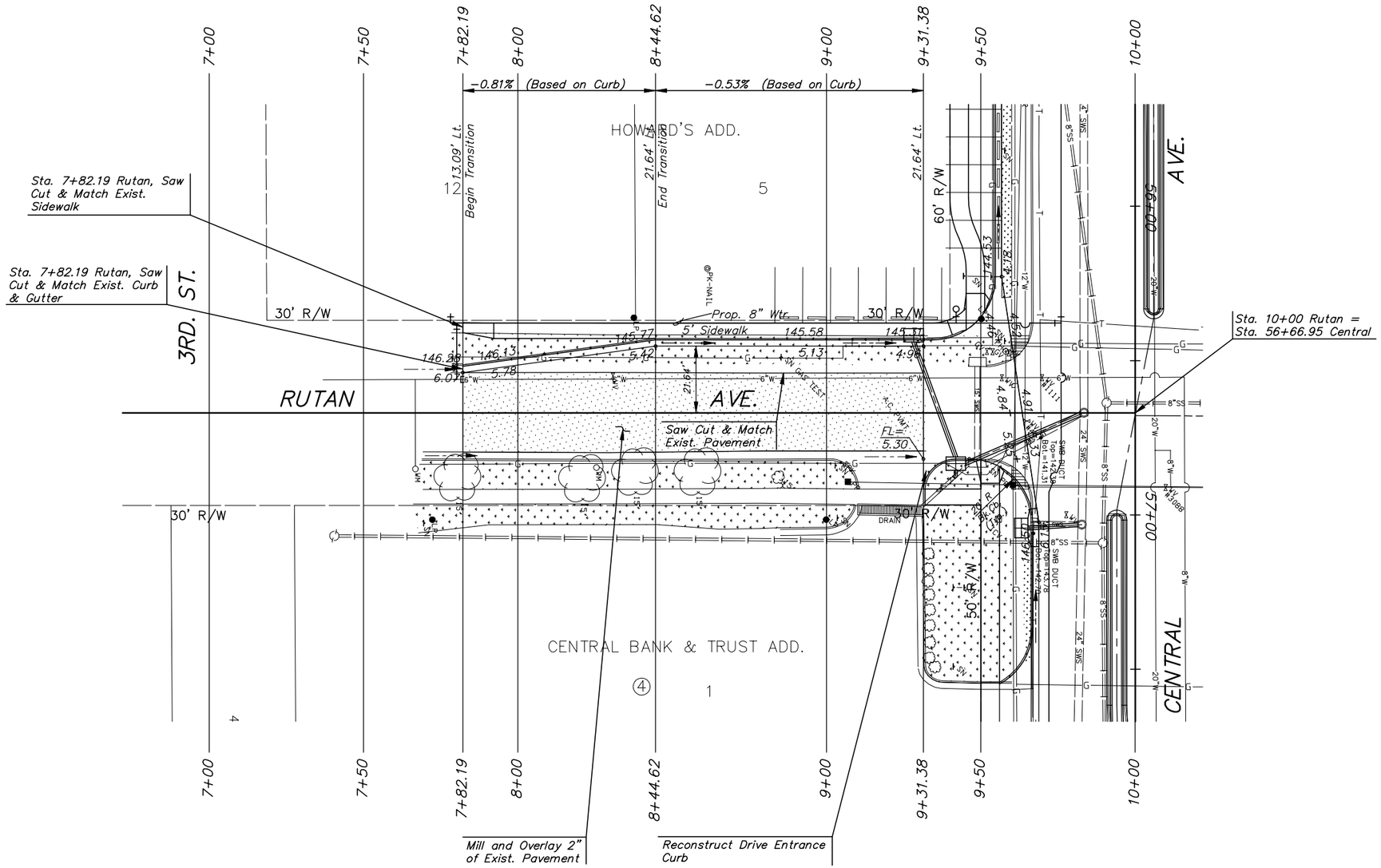
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

HILLSIDE
SHEET TITLE

GJA	KKL	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_E5	9 / 74
DATE	JOB NO.	SHEET/OF



Notes:

1. Remove or abandon storm water sewer pipe and structures as required (Typ.). Payment subsidiary to other Bid Items.

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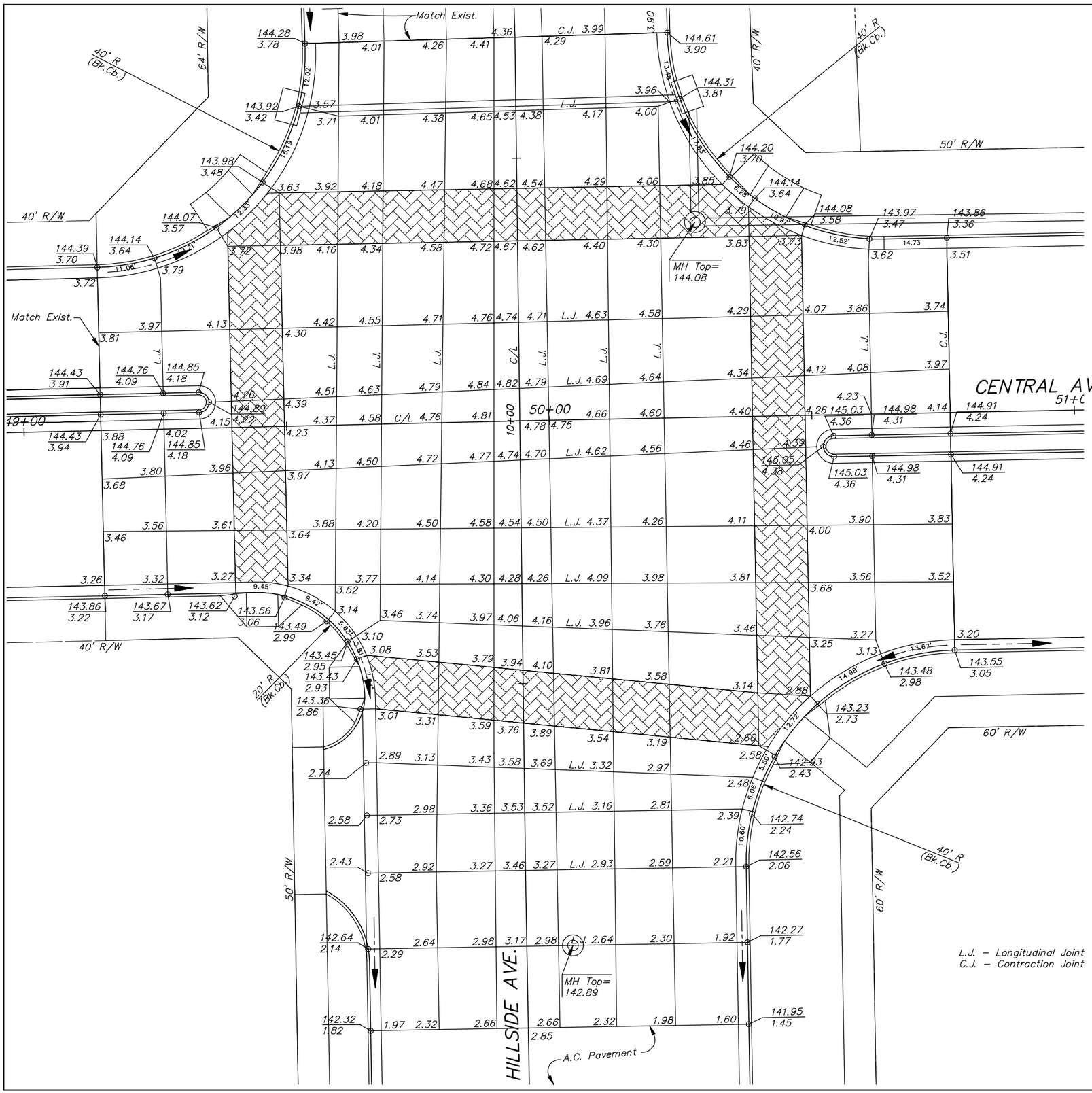
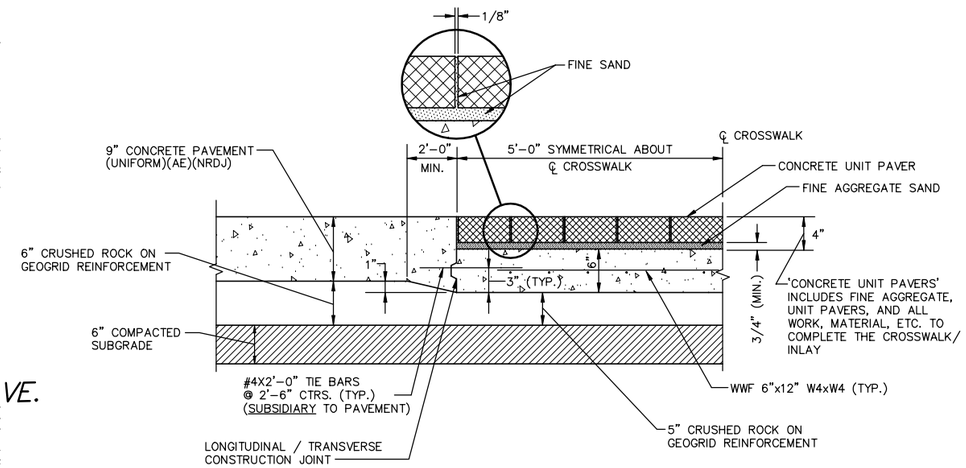
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

RUTAN AVENUE
SHEET TITLE

GJA	WNJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168_E6	10 / 74
DATE	JOB NO.	SHEET/OF





1. See separate sheet for Joint Details.
2. Curb Elevations shown are High Edge (0.00) and Top of Curb (000.00).
3. Elevations shown in Paving Brick inlay are for top of pavement: Deduct thickness of Paving Brick and Bedding for elevation at top of concrete.

NOTES:

1. CONCRETE UNIT PAVERS SHALL MEET OR EXCEED ASTM C 936. THE STYLE SHALL BE "HOLLAND STONE" (4"x8"x3 1/8") AS MANUFACTURED BY PAVESTONE, INC., OR EQUAL AS APPROVED BY THE ENGINEER. (ALTERNATIVE: CLAY PAVING BRICKS SHALL BE DRY PRESSED BEVEL EDGED STREET PAVERS, DESIGNED FOR HEAVY VEHICLES PER ASTM C 1272, TYPE F APPLICATION PX. SIZE SHALL BE 4"x8"x3", COMPRESSIVE STRENGTH 8,000 PSI MINIMUM, AND ABSORPTION 5% MAXIMUM). COLOR SHALL BE RED AND LAYING PATTERN SHALL BE HERRINGBONE. PAYMENT SHALL BE AT THE CONTRACT BID PRICE PER SQUARE YARD FOR CONCRETE UNIT PAVERS.
2. ADDITIONAL CONCRETE THICKNESS IN TRANSITION TO CROSSWALK AND 7 INCH CONCRETE PAVEMENT SHALL BE SUBSIDIARY TO THE BID PRICE FOR 9 INCH CONCRETE PAVEMENT.
3. SAND BEDDING SHALL MEET THE SPECIFICATION REQUIREMENTS FOR FINE AGGREGATE. AN UNCOMPACTED SAND LAYING COURSE SHALL BE SPREAD EVENLY OVER THE AREA TO BE PAVED AND THEN SCREEDED TO A LEVEL OF APPROXIMATELY 3/4" THICKNESS. ONCE SCREEDED AND LEVELED TO THE DESIRED ELEVATION, THE SAND LAYING COURSE SHALL NOT BE DISTURBED IN ANY WAY.
4. PAVERS SHALL BE PLACED WITH THE CHAMFERED SIDE UP, AND JOINT SPACES KEPT UNIFORM APPROXIMATELY 1/8 INCH THICK. THE GAPS AT THE EDGE OF THE PAVED SURFACE SHALL BE FILLED WITH PAVERS CUT TO FIT. CUTTING SHALL BE ACCOMPLISHED TO LEAVE A CLEAN EDGE TOWARD THE TRAFFIC SURFACE, USING A MASONRY SAW. WHENEVER POSSIBLE, NO CUTS SHOULD RESULT WITH A PAVER LESS THAN ONE–THIRD OF ITS ORIGINAL DIMENSION.
5. UNIT PAVERS SHALL BE VIBRATED TO THEIR FINAL LEVEL IN THE SAND LAYING COURSE BY TWO OR THREE PASSES OF VIBRATING COMPACTOR CAPABLE OF 3,000 TO 5,000 POUNDS COMPACTION FORCE WITH THE SURFACE CLEAN AND JOINTS OPEN.
6. AFTER VIBRATION, CLEAN CONCRETE SAND SHALL BE SPREAD OVER THE PAVER SURFACE, ALLOWED TO DRY, AND VIBRATED INTO THE JOINTS WITH ADDITIONAL PASSES OF THE PLATE VIBRATOR SO AS TO COMPLETELY FILL THE JOINTS. A LIGHT COATING OF SAND SHALL BE SWEPT OVER THE COMPLETED SURFACE AND LEFT TO WEATHER IN.

CROSSWALK DETAILS

N

SCALE: 1"=10'

0 10 20

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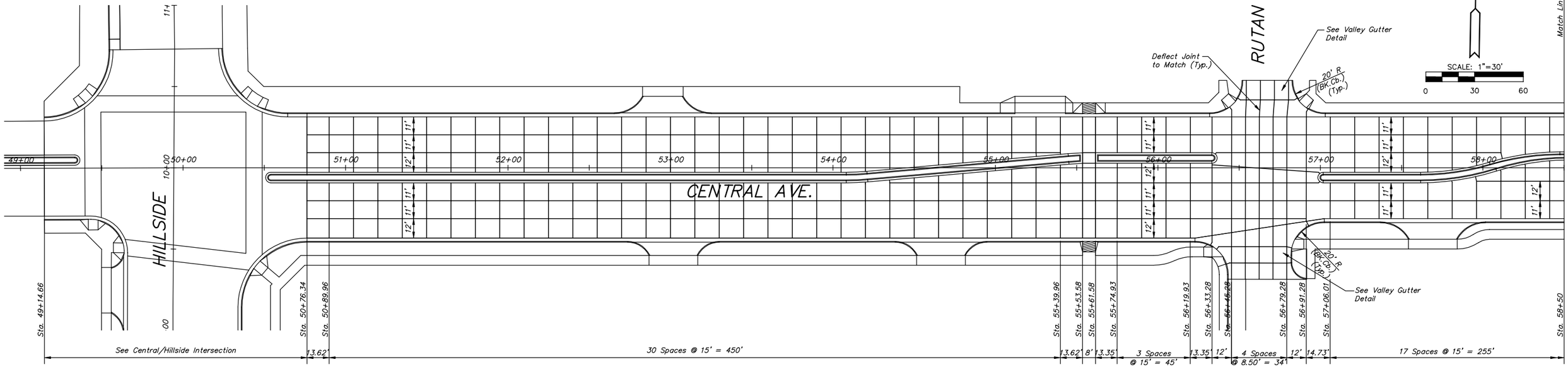
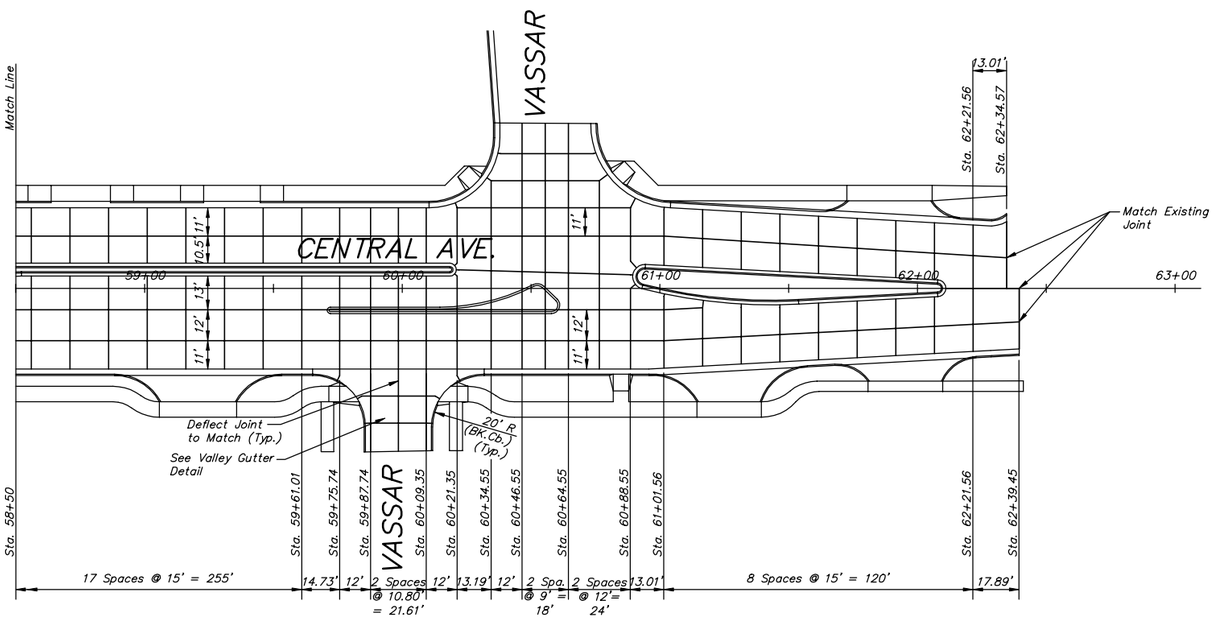
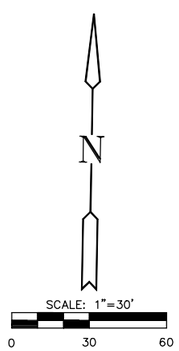
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

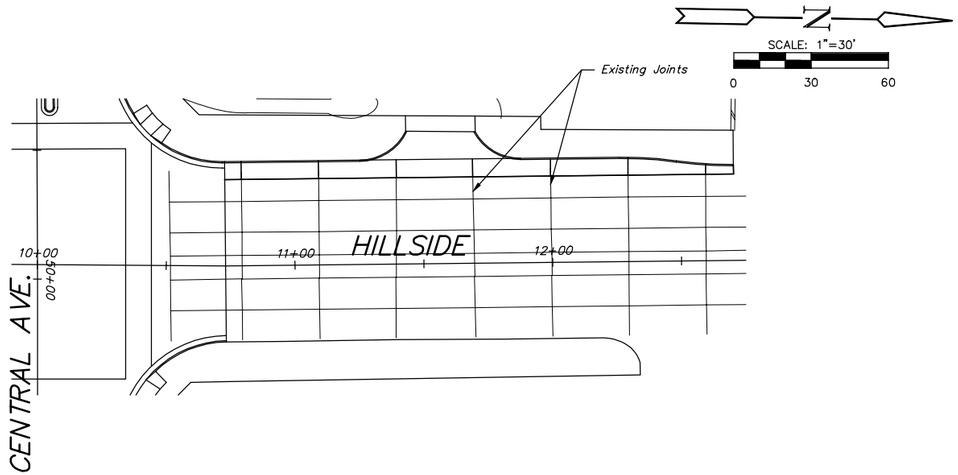
INTERSECTION DETAILS
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168INT	11 / 74
DATE	JOB NO.	SHEET/OF









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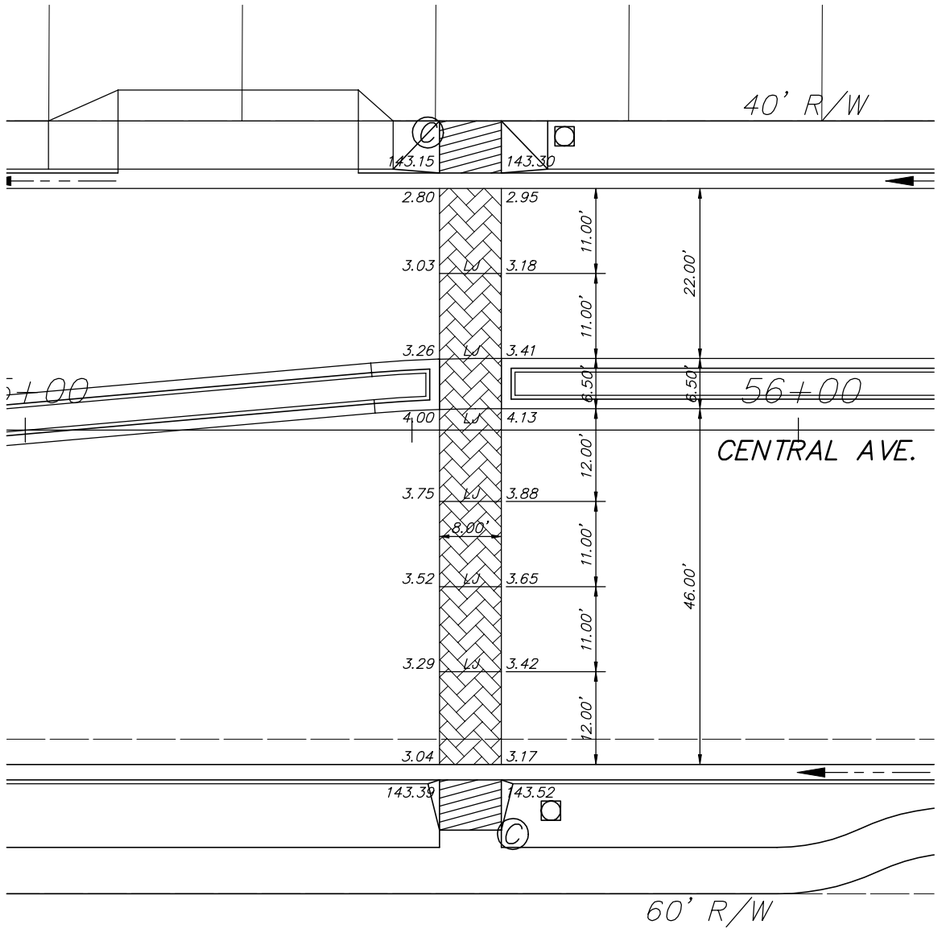
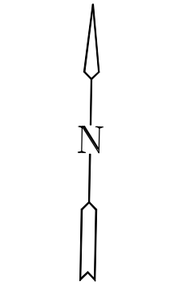
CENTRAL AND HILLSIDE INTERSECTION
PROJECT NAME

JOINT PLAN
SHEET TITLE

ASH	WNJ	ASH
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168JT1	11A / 74
DATE	JOB NO.	SHEET/OF



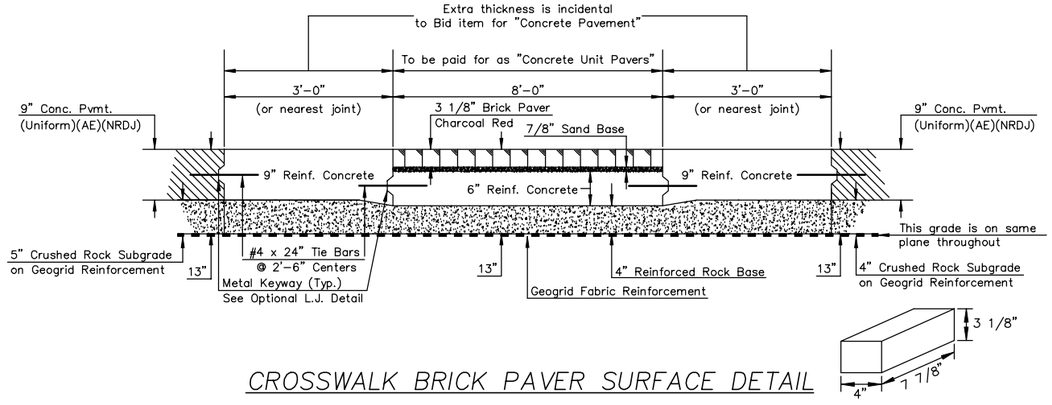


LEGEND

○	TRAFFIC SIGNAL POLE
◘	SERVICE BOX
LJ	LONGITUDINAL JOINT
CJ	CONTRACTION JOINT
▨	CONCRETE UNIT PAVERS

Notes:

1. Curb elevations shown are High Edge (0.00) and Top Curb (000.00).
2. Elevations shown in Paving Brick inlay are for top of pavement: Deduct thickness of Paving Brick and Bedding for elevation at top of concrete.



CROSSWALK BRICK PAVER SURFACE DETAIL

Notes:

1. Concrete Unit Pavers shall meet or exceed ASTM C 936. The style shall be "Holland Stone" (4"x8"x3 1/8") as manufactured by Pavestone, Inc. or equal as approved by the Engineer. (Alternative: Clay Paving Brick shall be dry pressed bevel edged street pavers, designed for heavy vehicles per ASTM C 1272, Type F Application PX. Size shall be 4"x8"x3". Compressive strength 8,000 P.S.I. minimum, and absorption 5% maximum.) Color shall be Red and laying pattern shall be Herringbone. Payment shall be at the contract bid price per square yard for Concrete Unit Pavers.
2. Additional concrete thickness in transition to crosswalk and 6 inch concrete pavement shall be Subsidiary to the bid price for 9 Inch Concrete Pavement.
3. Sand Bedding shall meet the specification requirements for fine aggregate. An uncompacted sand laying course shall be spread evenly over the area to be paved and then screeded to a level of approximately 3/4" thickness. Once screeded and leveled to the desired elevation, the sand laying course shall not be disturbed in any way.
4. Pavers shall be placed with the chamfered side up, and joint spaces kept uniform approximately 1/8 inch thick. The gaps at the edge of the paved surface shall be filled with Pavers cut to fit. Cutting shall be accomplished to leave a clean edge toward the traffic surface, using a masonry saw. Whenever possible, no cuts should result with a brick less than one-third of its original dimension.
5. Unit Pavers shall be vibrated to their final level in the sand laying course by two or three passes of vibrating compactor capable of 3,000 to 5,000 pounds compaction force with the surface clean and joints open.
6. After vibration, clean concrete sand shall be spread over the paver surface, allowed to dry, and vibrated into the joints with additional passes of the plate vibrator so as to completely fill the joints. A light coating of sand shall be swept over the completed surface and left to weather in.

PEDESTRIAN CROSSING DETAILS

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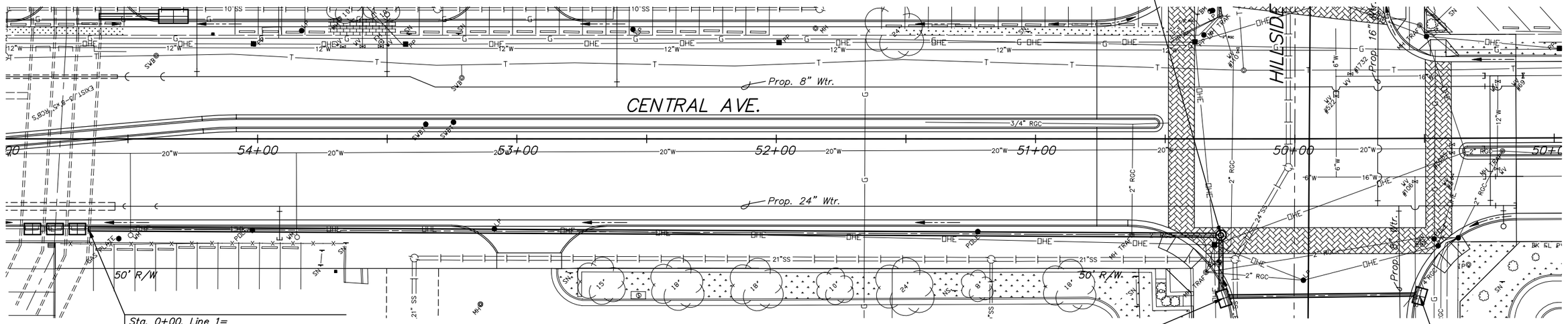
CENTRAL AND HILLSIDE INTERSECTION
PROJECT NAME

PEDESTRIAN CROSSING
SHEET TITLE

ASH	WNJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168PED	12 / 74
DATE	JOB NO.	SHEET/OF

CENTRAL & HILLSIDE STORM SEWER PLAN & PROFILE LINE - 1



Sta. 0+00, Line 1=
BL Sta. 54+65.29 Central, 34.75' Lt.
Connect 18" RCP to Exist.
3-8'x5' RCB's
Install 18" x 436.83' Storm Swr. (RCP)(W)

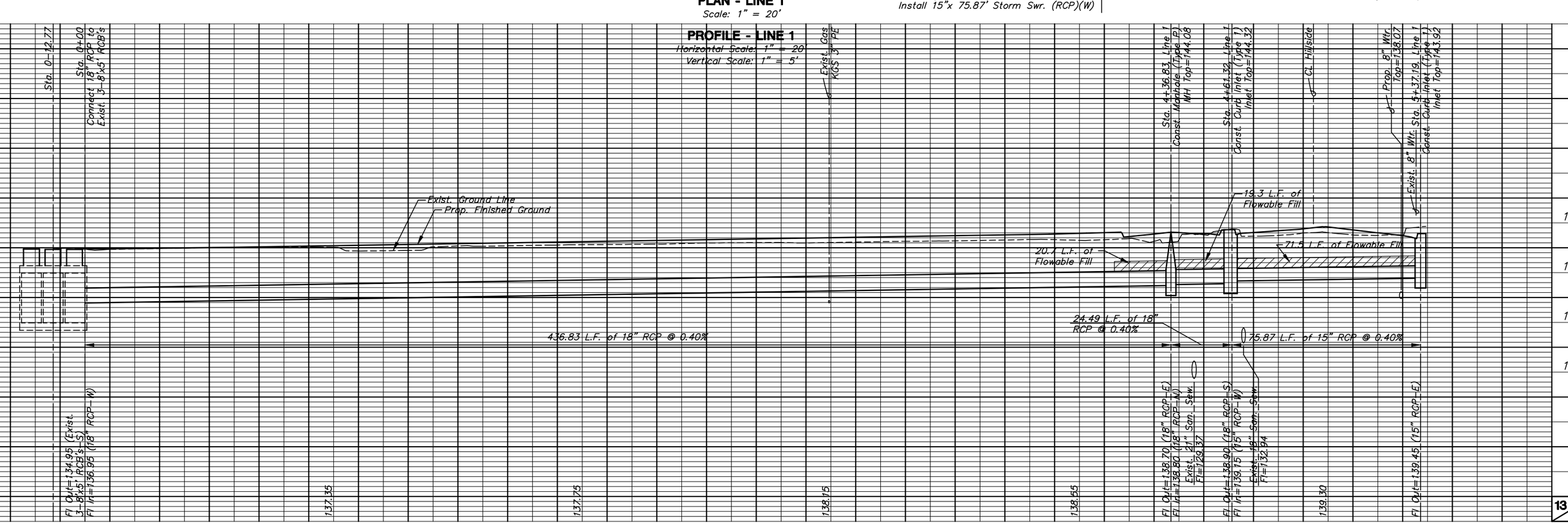
Sta. 4+36.83, Line 1=
BL Sta. 50+28.47 Central, 37.17' Lt.
Const. Shallow Manhole (Type B)
Dia.=4'-0"
MH Top=144.08
Install 18"x 24.49' Storm Swr. (RCP)(N)

Sta. 4+61.32, Line 1=
BL Sta. 10+61.74 Hillside, 32.67' Rt.
Const. Curb Inlet (Type 1)
L=6'-4", W=4'-4"
Inlet Top=144.32
Install 15"x 75.87' Storm Swr. (RCP)(W)

Sta. 5+37.19, Line 1=
BL Sta. 10+60.36 Hillside, 43.00' Lt.
Const. Curb Inlet (Type 1)
L=6'-4", W=4'-4"
Inlet Top=143.92

PLAN - LINE 1
Scale: 1" = 20'

PROFILE - LINE 1
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 5'



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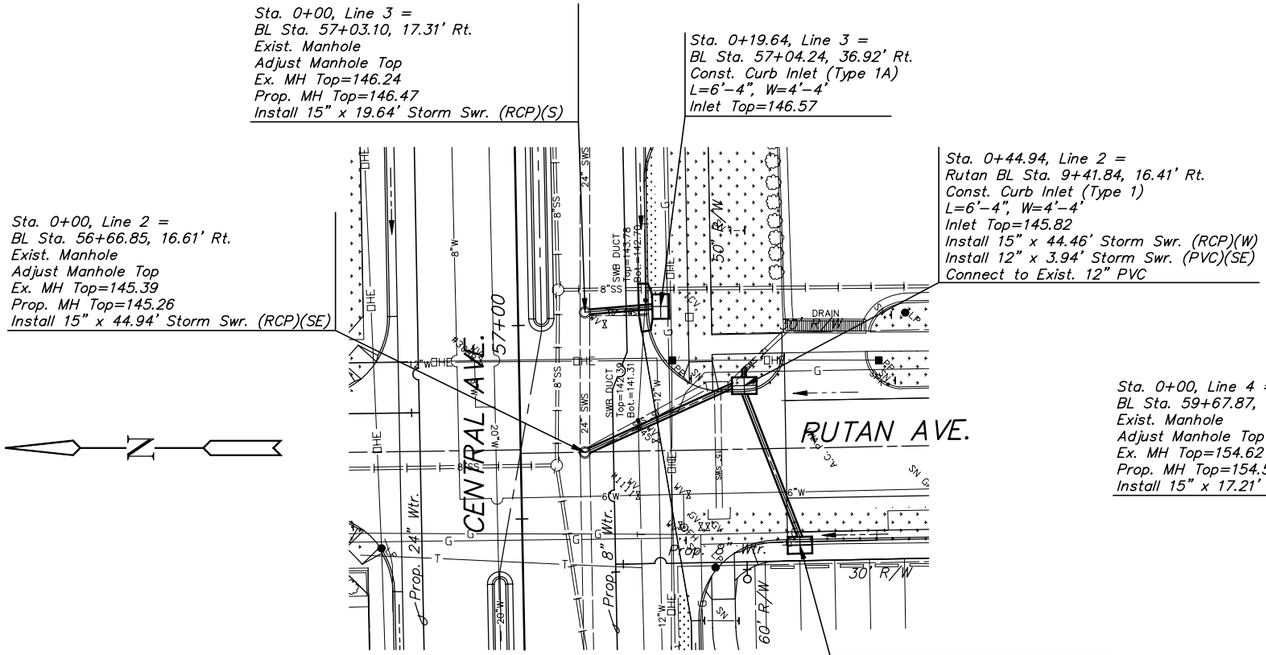
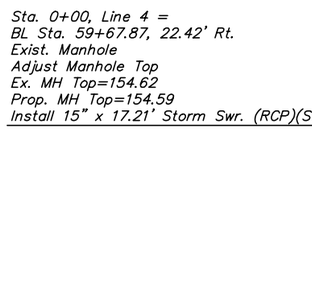
CENTRAL & HILLSIDE STORM SEWER PLAN & PROFILE LINE 2, 3, 4, & 5

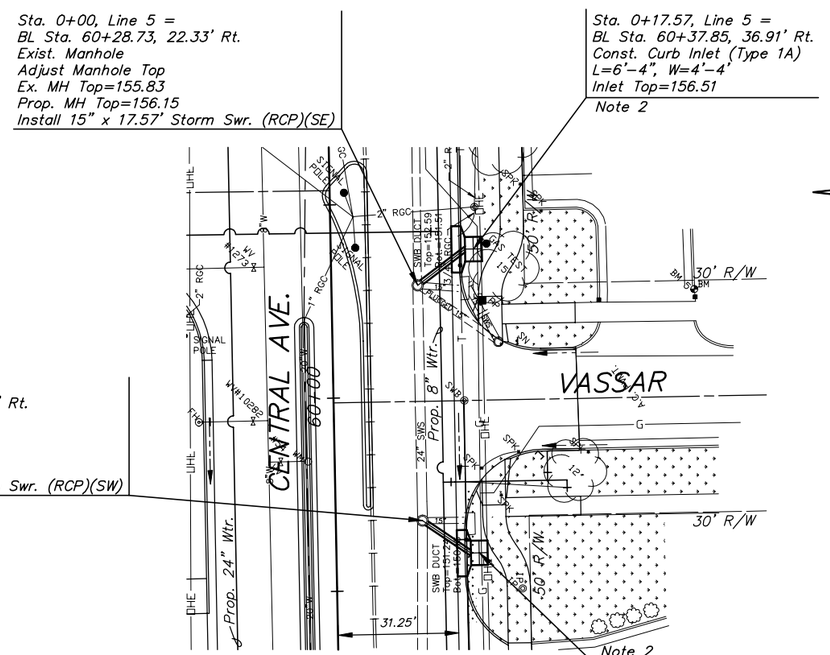


Notes:
1. Contractor shall support SWB Duct in place during construction & protect from damage (Lines 2 & 3)
2. CAUTION: SWB Conduit (Lines 4 & 5)

PLAN - LINE 2
Scale: 1" = 20'

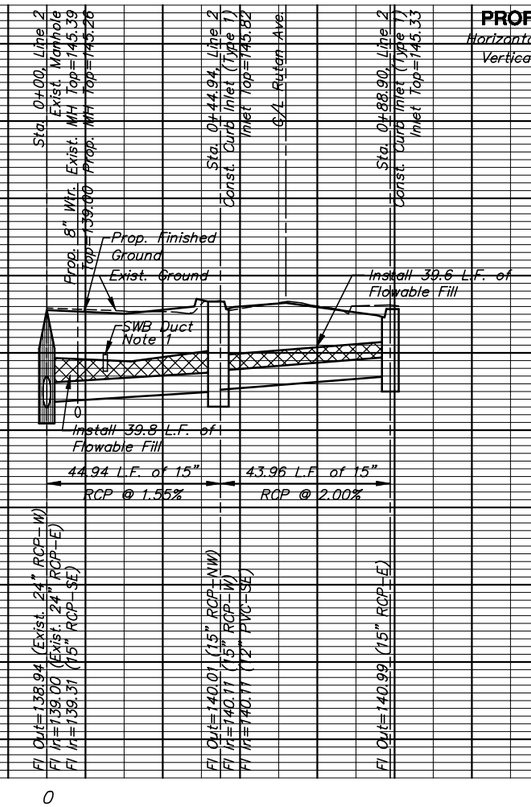


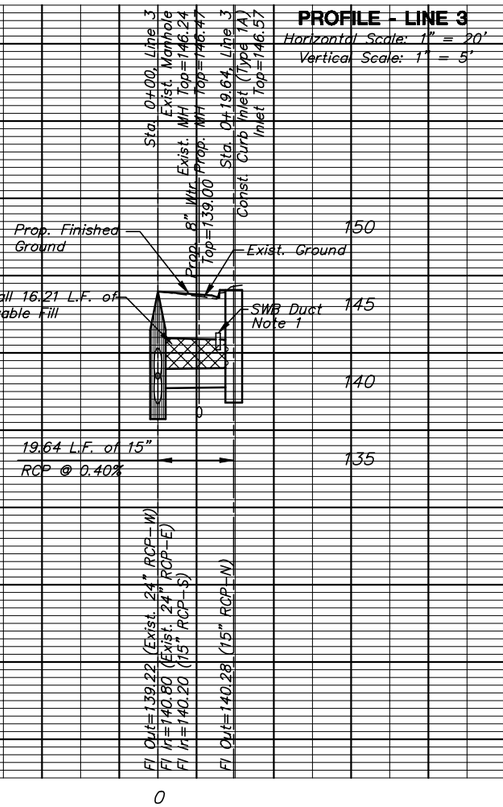
PLAN - LINE 3
Scale: 1" = 20'

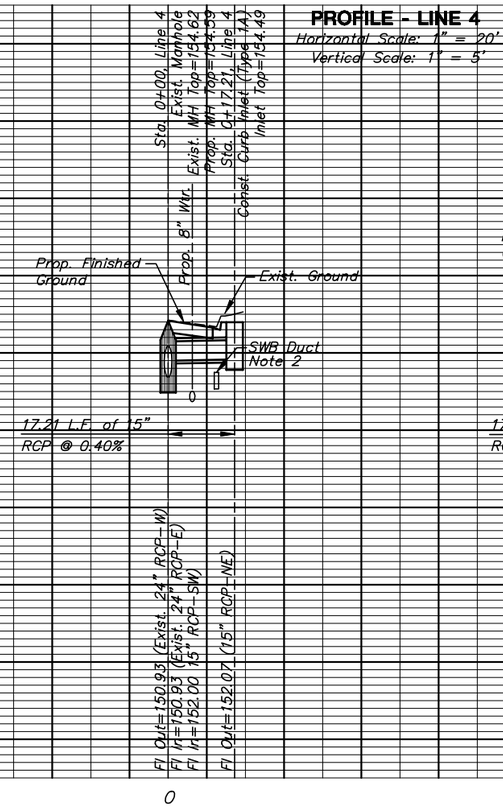


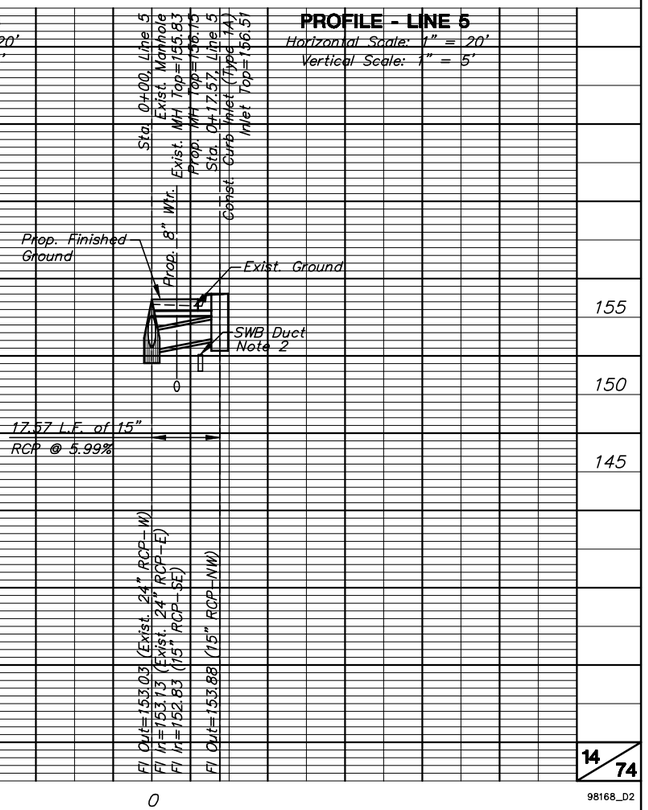
PLAN - LINE 4
Scale: 1" = 20'

PLAN - LINE 5
Scale: 1" = 20'



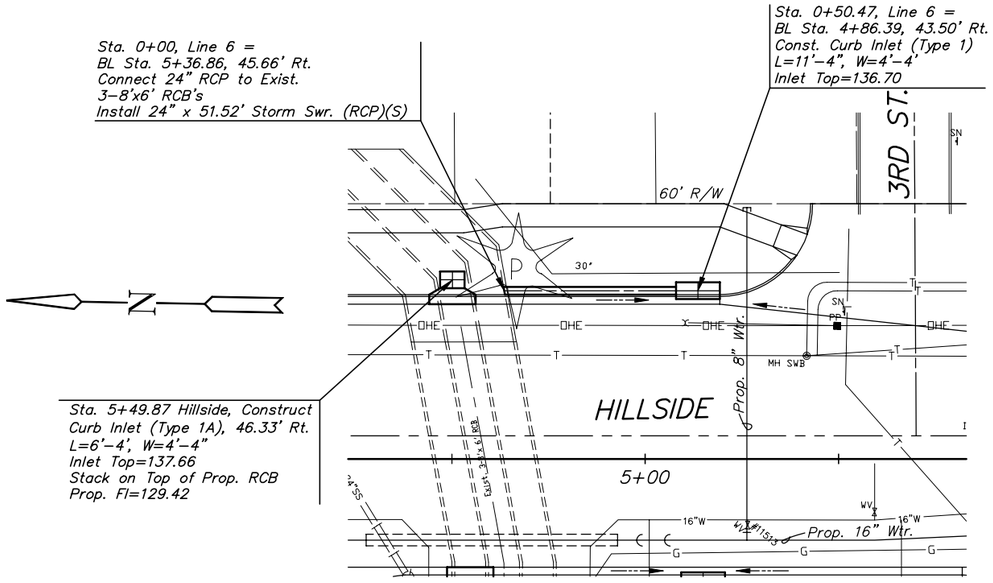




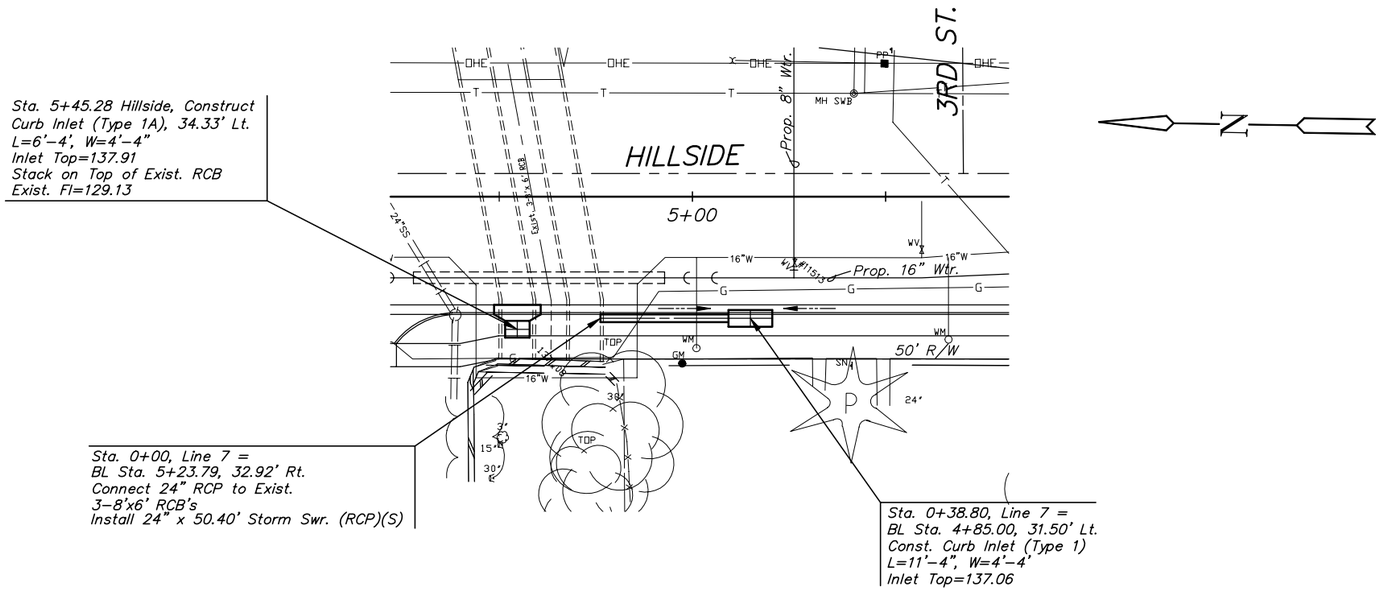


98168_D2

CENTRAL & HILLSIDE STORM SEWER PLAN & PROFILE LINES 6 & 7

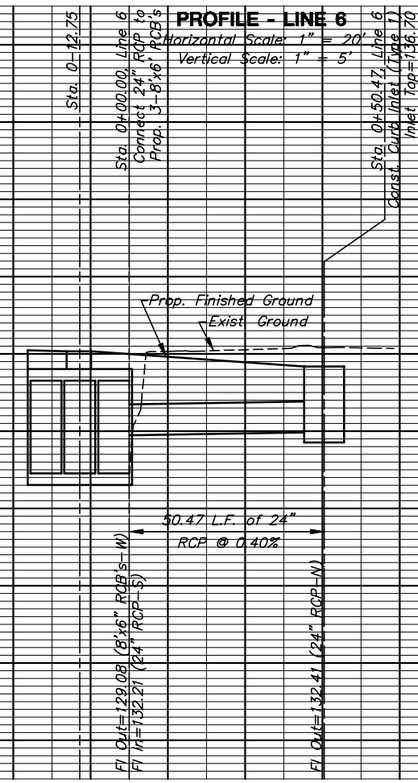


PLAN - LINE 6
Scale: 1" = 20'

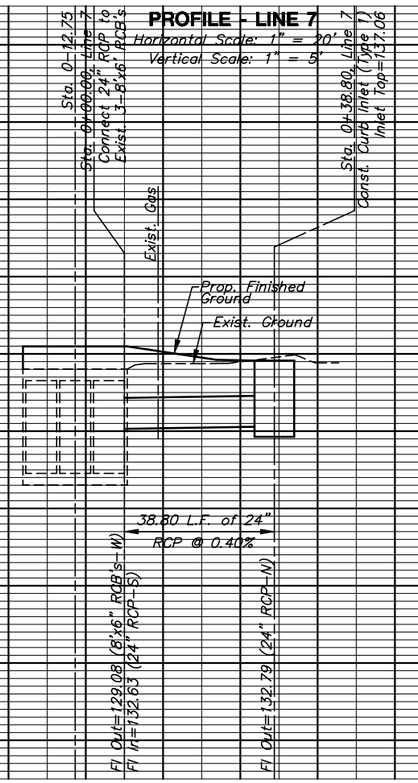


PLAN - LINE 7
Scale: 1" = 20'

PROFILE - LINE 6
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 5'

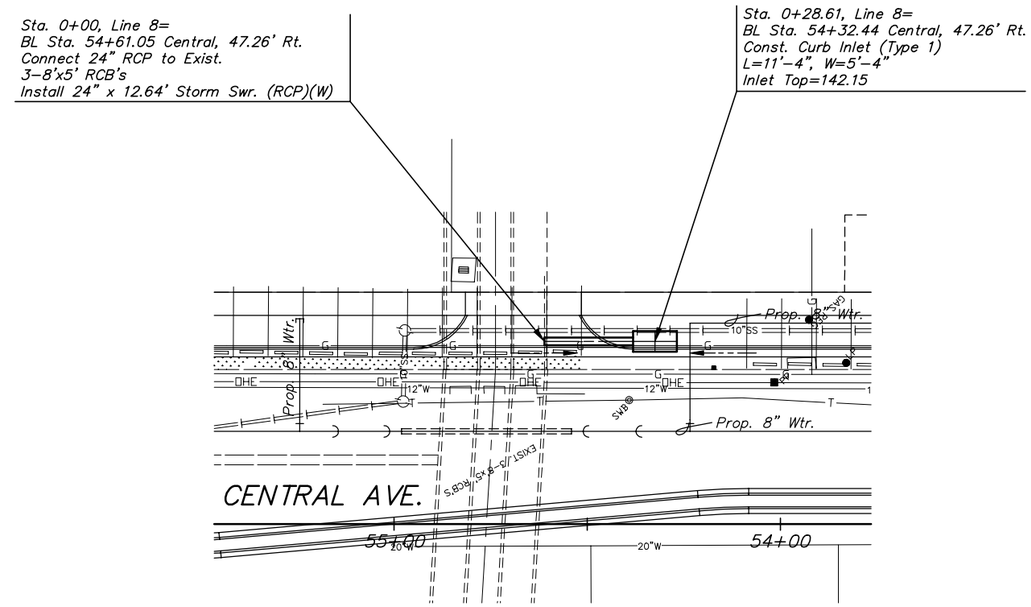


PROFILE - LINE 7
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 5'

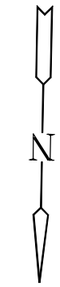


98168_D3

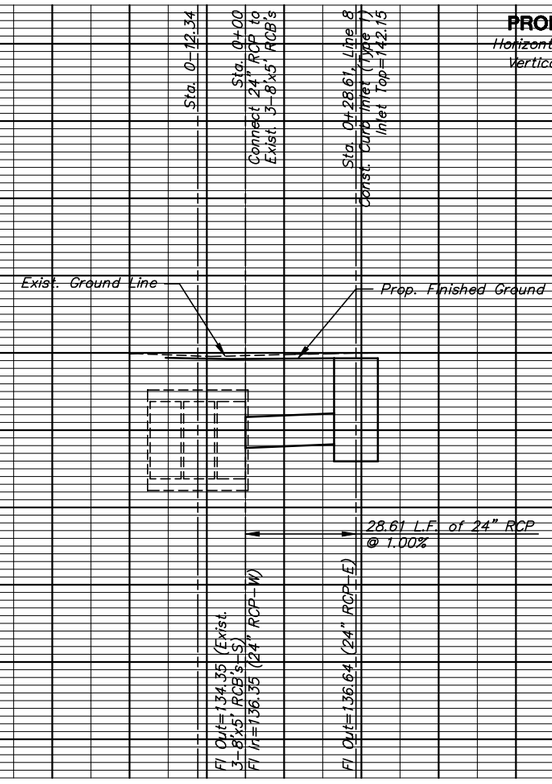
CENTRAL & HILLSIDE
STORM SEWER
PLAN & PROFILE
LINE - 8



PLAN - LINE 8
Scale: 1" = 20'



PROFILE - LINE 8
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 5'



98168_D4

CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 1 & MAIN 3

Sta. 0+00, Main 1=
BL Sta. 49+14.66, 26.0' Lt.
1–24" MJ Cap

Sta. 0+05, Main1=
BL Sta. 49+19.66, 26.0' Lt.
1–Fire Hydrant Assy.
L=8.0'

Sta. 0+10, Main 1=
BL Sta. 49+24.66, 26' Lt.
1–24"X16" DICL MJ Tee (S)
1–24" Valve Assy. (W)
(MJ Butterfly Valve)
1–16" Valve Assy. (S)
(MJ Butterfly Valve)
Valve Box El.=143.85

35.34 L.F. of 24" Pipe

Sta. 0+45.34, Main 1=
BL Sta. 49+60, 26.0' Lt.
1–24"x8" DICL MJ Tee (N)
1–8" Anch. Valve Assy. (N)
(MJ Gate Valve)
Valve Box El.=144.29

Sta. 0+53.48, Main 1=
BL Sta. 49+68.14, 26.0' Lt.
1–24"x16" DICL MJ Tee (S)
1–16" Anch. Valve Assy. (S)
(MJ Butterfly Valve)
Valve Box El.=144.45

Sta. 3+40.00, Main 1
2" Air Release Assy.

8.14 L.F. of 24" DICL Pipe

Prop. 8" Wtr.

Prop. 15" RCP

5.0 L.F. of 24" DICL Pipe

Prop. 18" RCP

286.52 L.F. of 24" Pipe

Prop. 24" Wtr.

5.0 L.F. of 24" DICL Pipe

11.19 L.F. of 16" DICL Pipe

Sta. 0+51.54, Main 3=
BL Sta. 49+24.66, 14.81' Lt.
1–16"x16" DICL MJ Tee
1–16" Valve Assy. (W)
1–16" Anch. Valve Assy. (S)
(MJ Butterfly Valves)
Valve Box El.=144.04
12.66 L.F. of 16" DICL Pipe
1–16" MJ Sleeve

Prop. 16" Wtr.

Cap Exist. 20" Main

NW Cor. Sec 23
T27S, R1E

Prop. 8" Wtr.

34.81 L.F. of 16" Pipe

Sta. 0+10, Main 2=
BL Sta. 49+24.66, 20.0' Rt.
1–16"x8" DICL MJ Cross
2–8" Anch. Valve Ass'ys (E&W)
(MJ Gate Valves)
Valve Box El.=143.86

Prop. 16" Wtr.

Sta. 0+00, Main 3=
BL Sta. 49+12.00, 24.07' Rt.
Remove 16" Ludlow Valve
& Install:
12.66 L.F. of 16" DICL Pipe (E)
1–16" MJ Sleeve

Sta. 0+12.66, Main 3=
BL Sta. 49+24.66, 24.07' Rt.
1–16" DICL MJ 90° Bend
4.07 L.F. of 16" DICL Pipe (N)

Cap Exist. 16" Water
Mains that are being
Abandoned

(to be abandoned)

(to be abandoned)

CENTRAL AVE.

HILLSIDE

Section Line

MAIN 1

MAIN 2

MAIN 3

MAIN 4

MAIN 5

MATCH LINE STA. 3+40

BL STA. 52+54.66

N

PLAN - MAIN 1 & MAIN 3
SCALE: 1" = 20'

PROFILE - MAIN 3
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

Exist. 16" CI. Water
16"–90° Bend
Exist. 16" Wtr. Top=140.46
16"x8" Cross
16"x16" Tee
Exist. 16" Wtr. Top=140.85
24"x16" Tee (Main 1)
Exist. Grade on ℄ of Pipe
Prop. Pvmt. on ℄ of Pipe
℄ Central
Top of Prop. 16" Water
Exist. 16" Wtr.
53.7 L.F. of Flowable Fill
16" Pipe @ −11.53%
16" Pipe @ +0.64%

+00.00 +12.66 +16.73 +51.54 +62.73

139.00 139.03 (16") 138.68 (8") 139.05 139.32 (16") 139.67 (24")

PROFILE - MAIN 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

Begin Project
Fire Hydrant
Bury Line El.=144.30
Valve Box El.=143.76
24"x16" Tee
2" RGC
Gas
8" Water
Top=139.96
24"x8" Tee
24"x16" Tee
℄ Hillside Improvements
Section Line
2" RGC
2" RGC
Exist. Grade on ℄ of Pipe
Prop. Pvmt. on ℄ of Pipe
Top of Prop. 24" Water
KGS 3" PE
340 L.F. of Flowable Fill
Match Line
24" Pipe @ 0.00%
24" Pipe @ −6.14%
24" Pipe @ 0.00%
24" Pipe @ +0.23%
24" San. Sew. (VCP) FL=128.94

+00.00 +05.00 +10.00 +45.34 +53.48 +20.00 +40.00

139.67 139.67 (24") 139.32 (16") 137.50 (24") 136.61 (8") 137.50 (24") 137.15 (16") 137.50 137.50 137.68 137.91 138.00

145 140 135 130

0 0 1 2 3

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98168_C1

CENTRAL & HILLSIDE WATER MAIN PLANS
MAIN 1

Sta. 5+25.00, to Sta. 5+37.34, Main 1=
BL Sta. 54+39.66 to BL Sta. 54+52, 26.0' Lt.
2–24" DICL MJ 22 1/2° Bends
13.35 L.F. of 24" DICL Pipe

Install 44.0 L.F. of 36" Stl. Casing Pipe By Boring.

50.0 L.F. of 24" DICL Pipe

Sta. 5+87.34, to Sta. 5+99.68, Main 1=
BL Sta. 55+02.00 to BL Sta. 55+14.34, 26.0' Lt.
2–24" DICL MJ 22 1/2° Bends
13.35 L.F. of 24" DICL Pipe

Sta. 7+63.40, Main 1=
BL Sta. 56+78.06, 26.0' Lt.
1–24"x12" DICL MJ Tee
1–12" Anch. Valve Assy. (N)
(MJ Butterfly Valve)
Valve Box El.=145.25

NOTE:
NO Service Connections to be off the new 24" Main.

137.00 L.F. of 24" Pipe

163.72 L.F. of 24" Pipe

126.60 L.F. of 24" Pipe

48.00 L.F. of 24" Pipe (to be abandoned)

Sta. 4+77.00, Main 1=
BL Sta. 53+91.66, 26.0' Lt.
1–24"x12" DICL MJ Tee
1–12" Anch. Valve Assy. (N)
(MJ Butterfly Valve)
Valve Box El.=142.36
13.0 L.F. of 12" Pipe
1–12" MJ Cap

MATCH LINE WL STA. 3+40

MATCH LINE WL STA. 8+90

BL STA. 52+54.66

BL STA. 58+04.66

CENTRAL AVE.

RUTAN AVE.

Prop. 18" RCP

Prop. 24" Wtr.

Prop. 8" Wtr.

Prop. 12" Wtr.

Prop. 10" Wtr.

MAIN 1

MAIN 2

MAIN 7

MAIN 10

MAIN 11

MAIN 12

MAIN 6

Existing Rock Outcrop

SWB DUCT Top=142.39 Bot.=141.31

SWB DUCT Top=143.78 Bot.=142.70

7+53.40, 90°06'3", 30.67.84

53+00 54+00 55+00 56+00 57+00 58+00

4+00 5+00 6+00 7+00 8+00 9+00

N

PLAN - MAIN 1
SCALE: 1" = 20'

PROFILE - MAIN 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

MATCH LINE

24"x12" Tee

24" 22 1/2° Bend

Water Service

@ Ex. 3'-8"x5'-1" RCB

Prop. Pvmt. on ℄ of Pipe

Exist. Grade on ℄ of Pipe

Top of Prop. 24" Water

Telephone

4" PGS Gas

4" PNG Gas

@ Rutan

Ex. 12" Water Top=142.36

2" Gas

305.7 L.F. of Flowable Fill

200.3 L.F. of Flowable Fill

Fl.=134.85

24" Pipe @ −0.54%

24" Pipe @ −41.41%

24" Pipe @ 0.00%

24" Pipe @ +41.41%

24" Pipe @ +2.03%

24" Pipe @ +3.64%

8" San. Sew. Fl.=132.74

Ex. 12" (24") 140.32 (24") 139.50 (12")

+40.00 +77.00 +25.00 +37.34 +87.34 +99.68 +63.40 +90.00 +90.00

138.00 137.68 137.26 137.14 137.00 131.89 131.89 137.00 137.01 139.03 140.96 141.22 144.50

145 140 135 130

4 5 6 7 8 9

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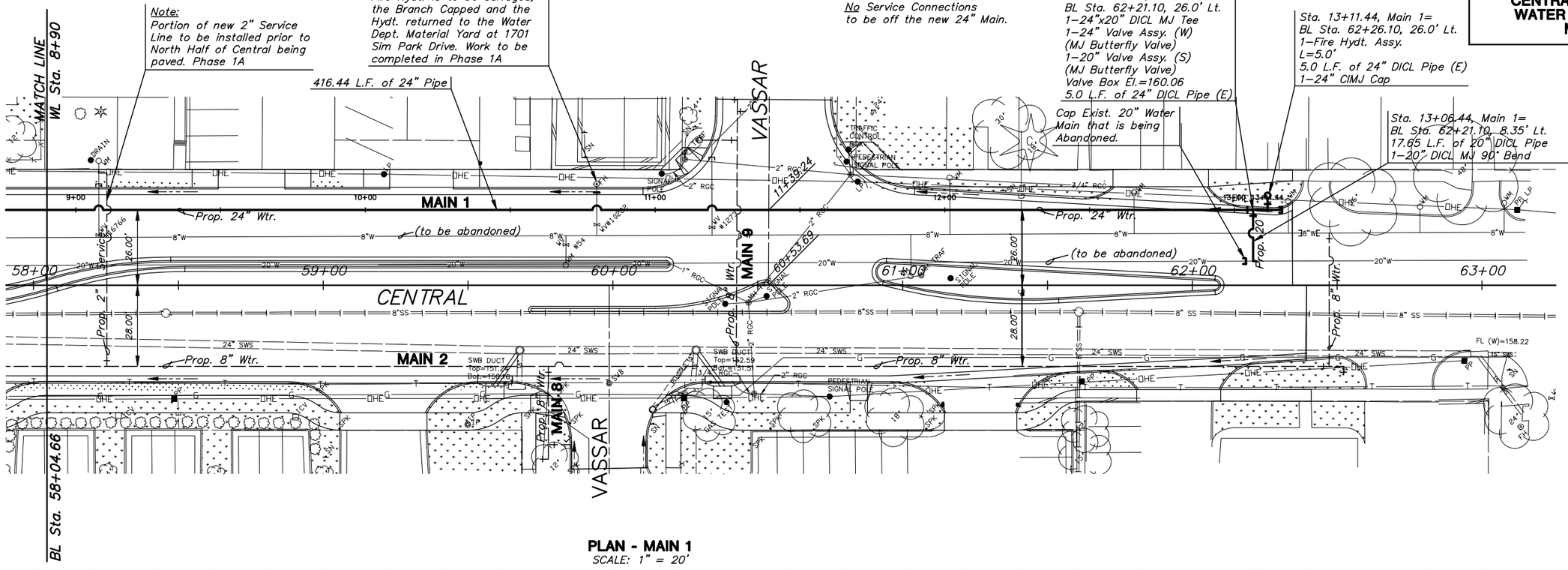
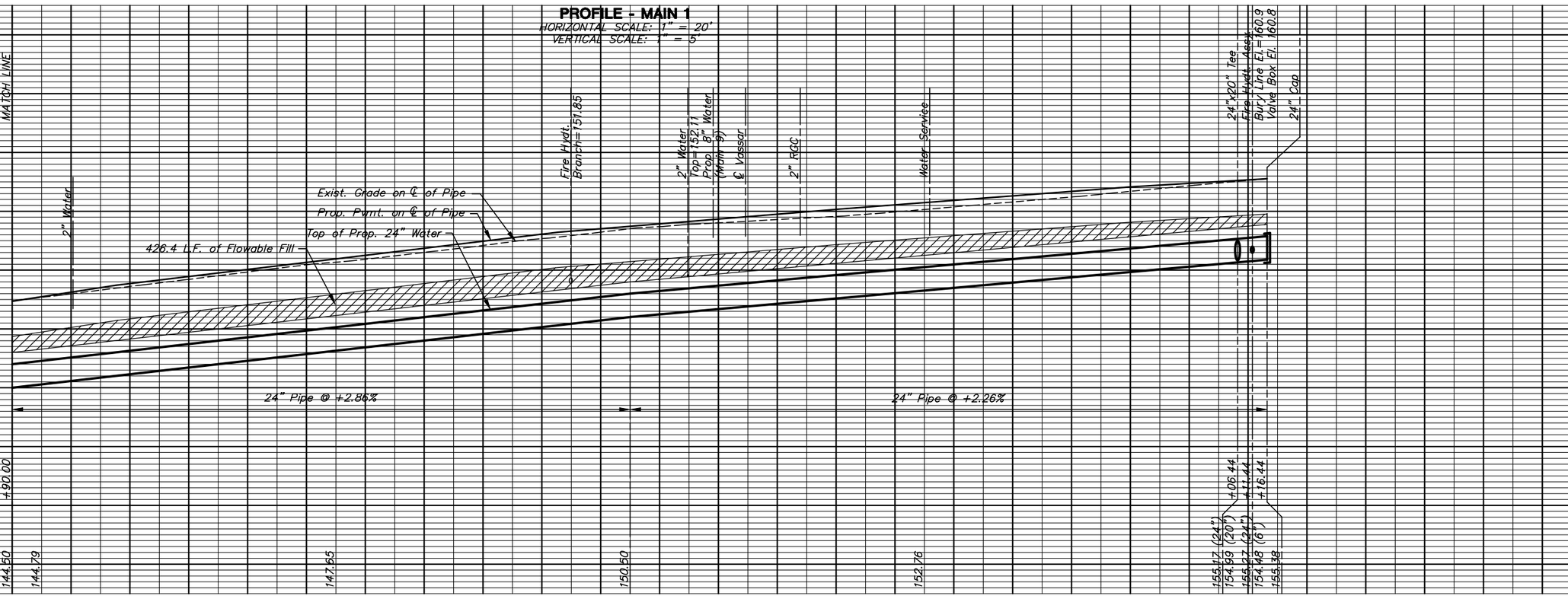
98168_C2

CENTRAL & HILLSIDE WATER MAIN PLANS
MAIN 1



PLAN - MAIN 1
SCALE: 1" = 20'

PROFILE - MAIN 1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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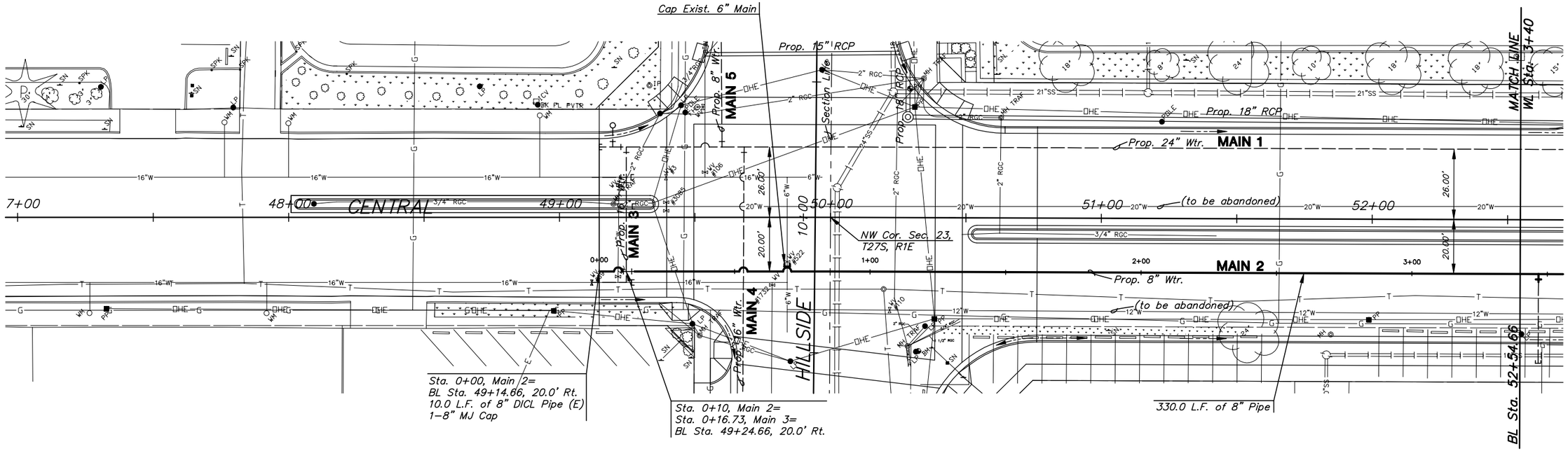
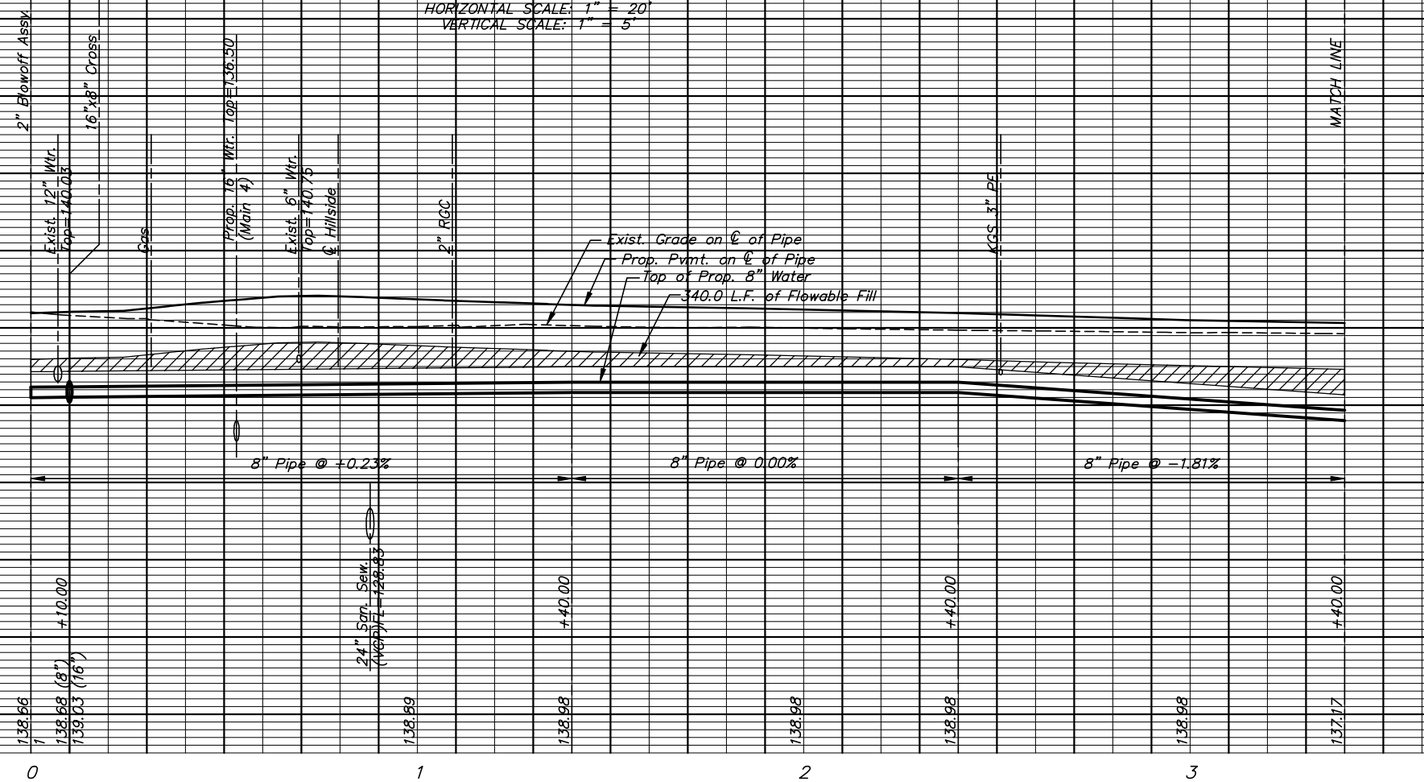
98168_C3

CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 2



PLAN - MAIN 2
SCALE: 1" = 20'

PROFILE - MAIN 2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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98168_C4

CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 2

Notes:
1. No Service Connections to be off the new 24" Main.
2. Caution: SWB conduit

(1) Replace Service & Meter, set with a minimum of 1". New Service to be connected to the New 8" Main in the South side of Central. Setter to be connected to exist. consumer's water service.
2–Long Services to be Bored or Jacked under new Paving North Side.

MATCH LINE WL Sta. 3+40

BL Sta. 52+54.66

Fire Hydt. is to be salvaged, the Branch Capped and the Hydt. returned to the Water Dept. Material Yard at 1701 Sim Park Drive.

Sta. 5+23.44 to Sta. 5+37.13, Main 2=
BL Sta. 54+37.31 to Sta. 54+51.00, 24.0' Rt.
2–8" DICL MJ 22 1/2° Bends
14.82 L.F. of 8" DICL Pipe

Abandon (to be abandoned)

Install 44.0 L.F. of 16" stl. Casing Pipe by Boring

Prop. 24" Wtr.

MAIN 1

CENTRAL AVE.

Prop. 12" Wtr.

MAIN 7

MATCH LINE WL Sta. 8+90

BL Sta. 58+03.06

6.71 L.F. of 8" Pipe

8.84 L.F. of 8" DICL Pipe

73.31 L.F. of 8" DICL Pipe

50.0 L.F. of 8" DICL Pipe

10.0 L.F. of 8" DICL Pipe

45.14 L.F. of 8" Pipe

70.13 L.F. of 8" Pipe

14.00 L.F. of 8" Pipe

Prop. 8" Wtr.

MAIN 2

MAIN 10

MAIN 11

MAIN 12

MAIN 6

113.48 L.F. of 8" Pipe

RUTAN AVE.

110.55 L.F. of 8" Pipe

Note 2

20'x50' Temp. Const. Esmt.

Sta. 3+46.71, Main 2=
BL Sta. 52+61.43, 20.0' Rt.
1–8"x8" DICL MJ Tee (S)
1–8" Anch. Valve Assy. (S)
(MJ Gate Valve)
Valve Box El.=142.94

Sta. 4+16.84 to Sta. 4+27.29, Main 2=
BL Sta. 53+31.50, 20.0' Rt to Sta. 53+41.16, 24.0' Rt.
2–8" DICL MJ 22 1/2° Bends
(Defl. Top Bend Down and Bottom Bend Up 7°15'12")
10.53 L.F. of 8" DICL Pipe

Sta. 4+36.13, Main 2=
BL Sta. 53+50.00, 24.0' Rt.
1–Fire Hydt. Assy.
L=24.0'

Sta. 5+09.44, Main 2=
BL Sta. 54+23.37, 24.0' Rt.
1–8"x8" DICL MJ Tee (S)
1–8" Anch. Valve Assy. (S)
(MJ Gate Valve)
Valve Box El.=142.21

Sta. 6+10.41, Main 2=
BL Sta. 55+24.34, 24.0' Rt.
1–8"x8" DICL MJ Tee (S)
1–8" Anch. Valve Assy.
(MJ Gate Valve)
Valve Box El.=142.96

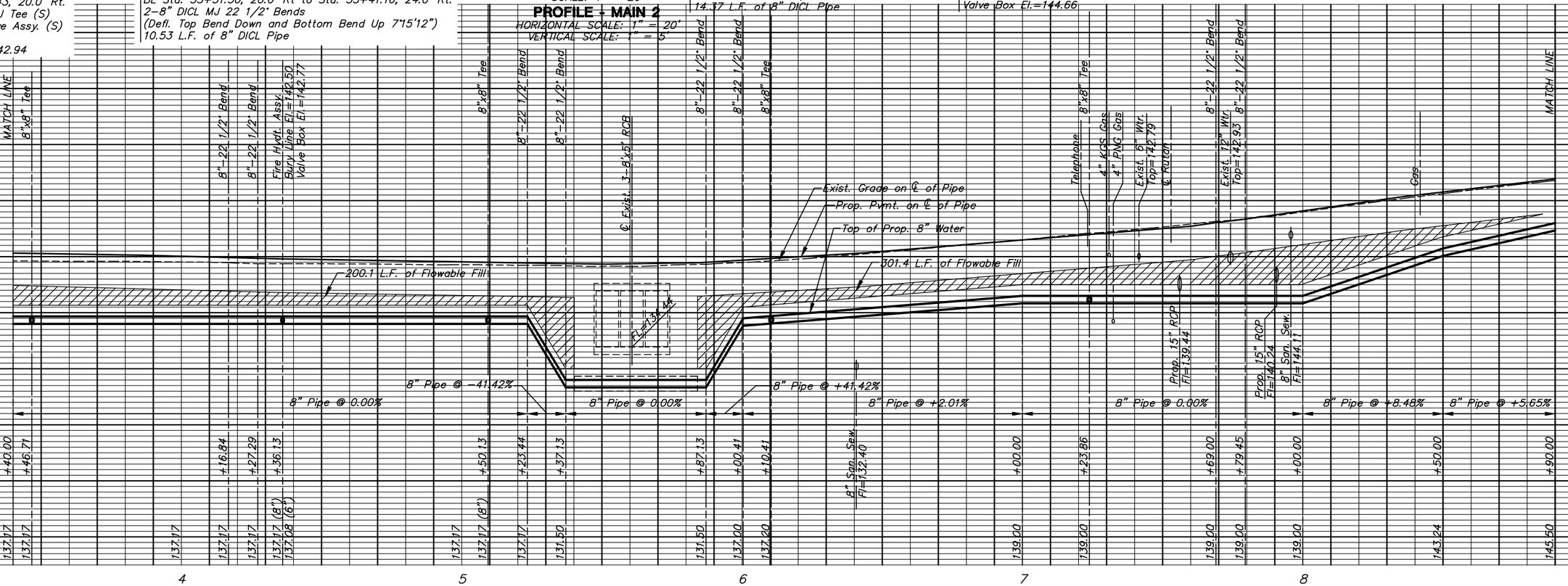
Sta. 5+87.13 to Sta. 6+00.41, Main 2=
BL Sta. 55+01.00 to Sta. 55+14.28, 24.0' Rt.
2–8" DICL MJ 22 1/2° Bends
14.37 L.F. of 8" DICL Pipe

Sta. 7+23.86, Main 2=
BL Sta. 56+37.79, 24.0' Rt.
1–8"x8" DICL MJ Tee (S)
1–8" Valve Assy. (W)
1–8" Anch. Valve Assy. (S)
(MJ Gate Valves)
Valve Box El.=144.66

Sta. 7+69 to Sta. 7+79.45, Main 2=
BL Sta. 56+82.87, 24.0' Rt. to Sta. 56+92.53, 28.0' Rt.
2–8" DICL MJ 22 1/2° Bends
10.45 L.F. of 8" DICL Pipe

PLAN - MAIN 2
SCALE: 1" = 20'

PROFILE - MAIN 2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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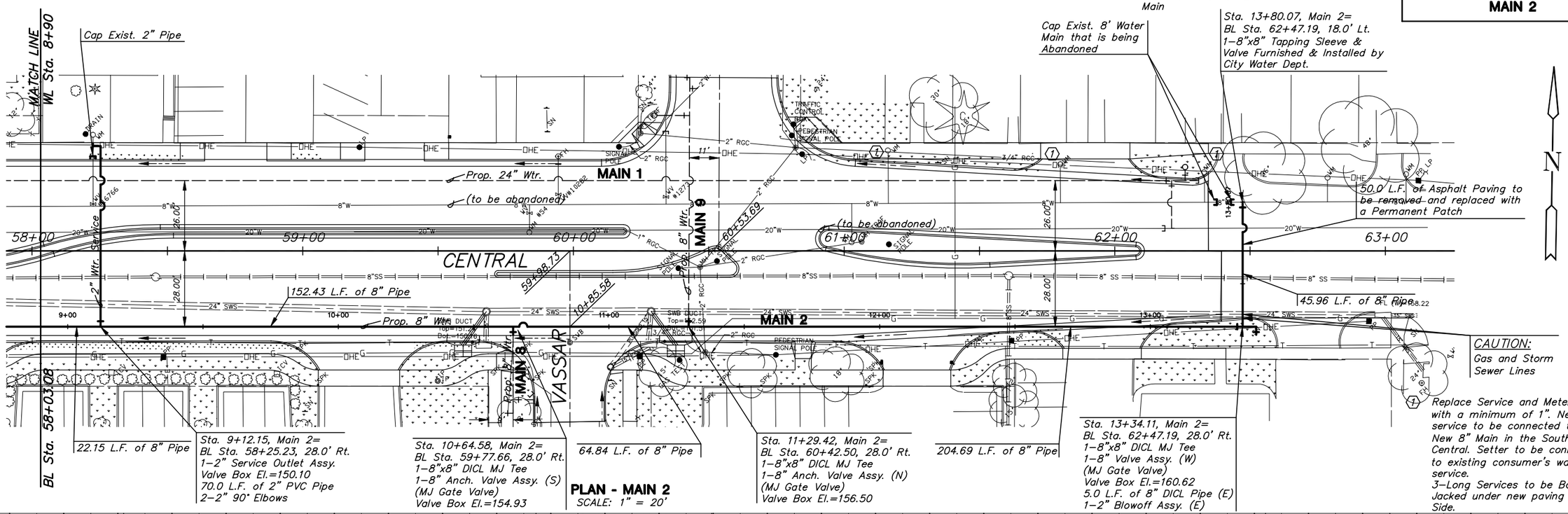
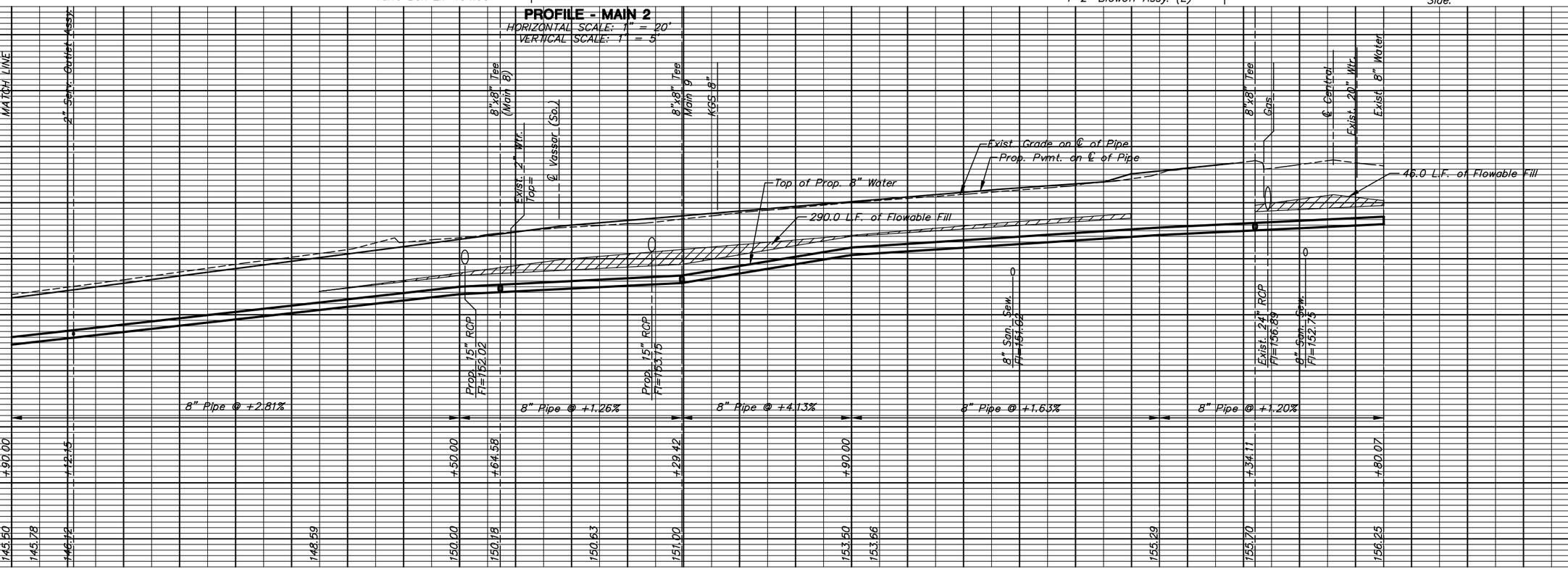
98168_C5

CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 2





CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 4

Sta. 0+08.50, Main 4=
BL Sta. 3+42.00, 18.6' Lt.
1–16"x16" DIMJ Tee (E)
1–16" Anchored Valve Assy. (S)
(MJ Butterfly Valve)
Valve Box El.=137.68
5.0 L.F. of 16" DICL Pipe (S)
1–2" Blowoff Assy.

Cap Exist. 6" Hydt.
Branch being abandoned.

7.0 L.F. of 16" DICL Pipe

Sta. 0+15.50, Main 4=
BL Sta. 3+49.00, 18.6' Lt.
1–16"x6" DIMJ Tee (W)
1–6" Valve Assy. (W)
(MJ Gate Valve)
Valve Box El.=137.67
12.0 L.F. of 6" DICL Pipe
1–6" DICL MJ 45° Bend

CAUTION:
Gas Lines

Sta. 0+53.00, Main 4=
BL Sta. 3+86.50, 18.6' Lt.
1–16"x8" DIMJ Tee (W)
1–8" Anch. Valve Assy. (W)
(MJ Gate Valve)
Valve Box El.=137.73
14.0 L.F. of 8" DICL Pipe
2–8" DICL MJ 90° Bends

Cap Exist. 8" Water Main
that is Being Abandoned

87.61 L.F. of 16" Pipe

Sta. 1+61.61 to Sta. 1+68.81, Main 4=
BL Sta. 4+95.05 to BL Sta. 5+02.25, 21.0' Lt.
2–16" DICL MJ 45° Bends
10.18 L.F. of 16" DICL Pipe

75.0 L.F. of 16" DICL Pipe

Sta. 2+43.81 to Sta. 2+51.01, Main 4=
BL Sta. 5+77.25 to BL Sta. 5+84.45, 21.0' Lt.
2–16" DICL MJ 45° Bends
10.18 L.F. of 16" DICL Pipe

98.99 L.F. of 16" Pipe

MATCH LINE
WL Sta. 3+50

3rd St.

MAIN 4

8.5 L.F. of 16" DICL Pipe

Prop. 16" Wtr.
(to be abandoned)

(abandoned)

21.00 L.F. of 16" Pipe

Prop. 16" Wtr.

MAIN 4

Defl. Pipe to Left
1°30'43"
(to be abandoned)

3+00.03 4+00 5+00 6+00 7+00

Section Line

HILLSIDE

Cap Exist. 16" Water Main
that is Being Abandoned

37.5 L.F. of 16" Pipe

Sta. 1+07.56, Main 4=
BL Sta. 4+41.0
Defl. Pipe to Right 2°37'35"

Prop. 8" Wtr.

MAIN 13

65.0 L.F. of 30" Stl.
Casing Pipe By Boring

Abandon

Sta. 0+00.00, Main 4=
BL Sta. 3+42.00, 10.1' Lt.
1–16" DICL MJ 90° Bend
1–16" Valve Assy. (S)
(MJ Butterfly Valve)
Valve Box El.=137.90

Defl. Pipe to Left
2°37'35"

3rd St.

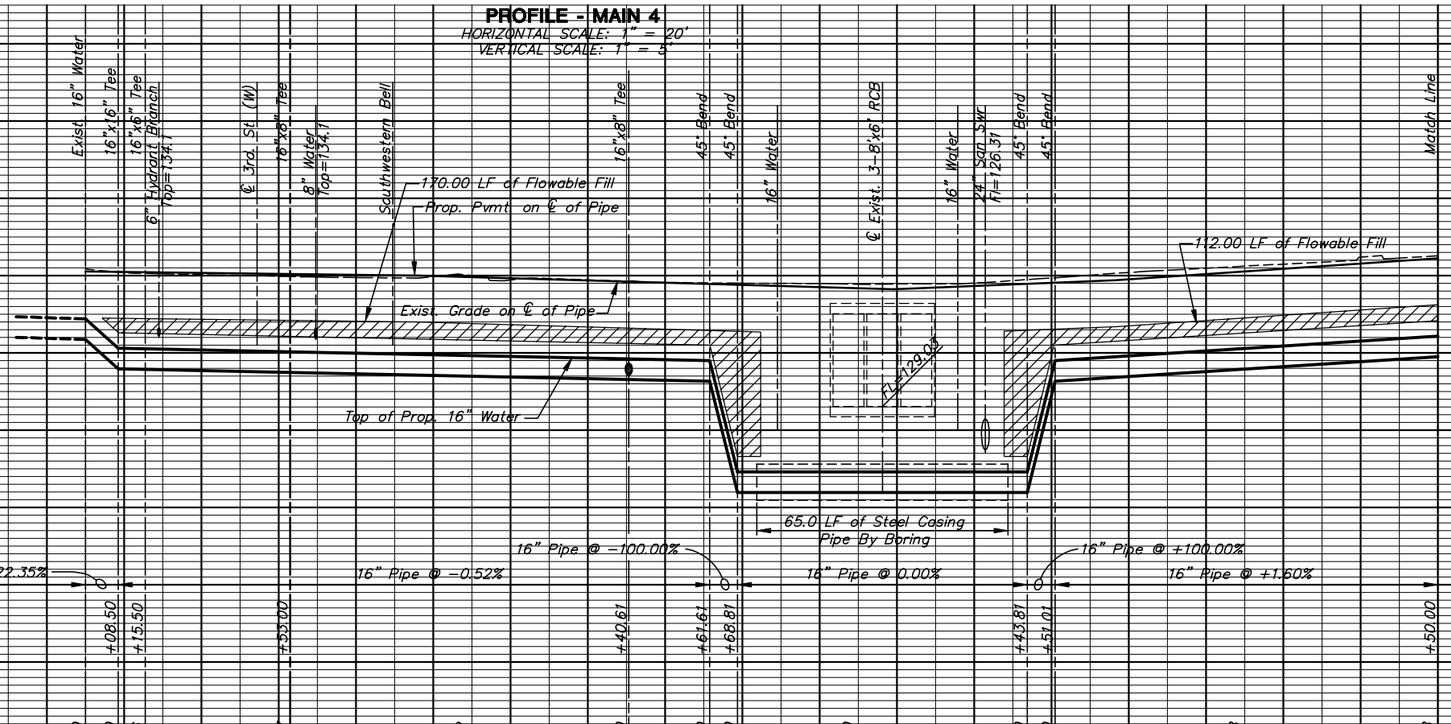
Sta. 1+40.61, Main 4=
BL Sta. 4+73.72, 21.0' Lt.
1–16"x8" DICL MJ Tee (E)
1–8" Anch. Valve Assy. (E)
(MJ Gate Valve)
Valve Box El.=136.94

BL Sta. 6+83.41

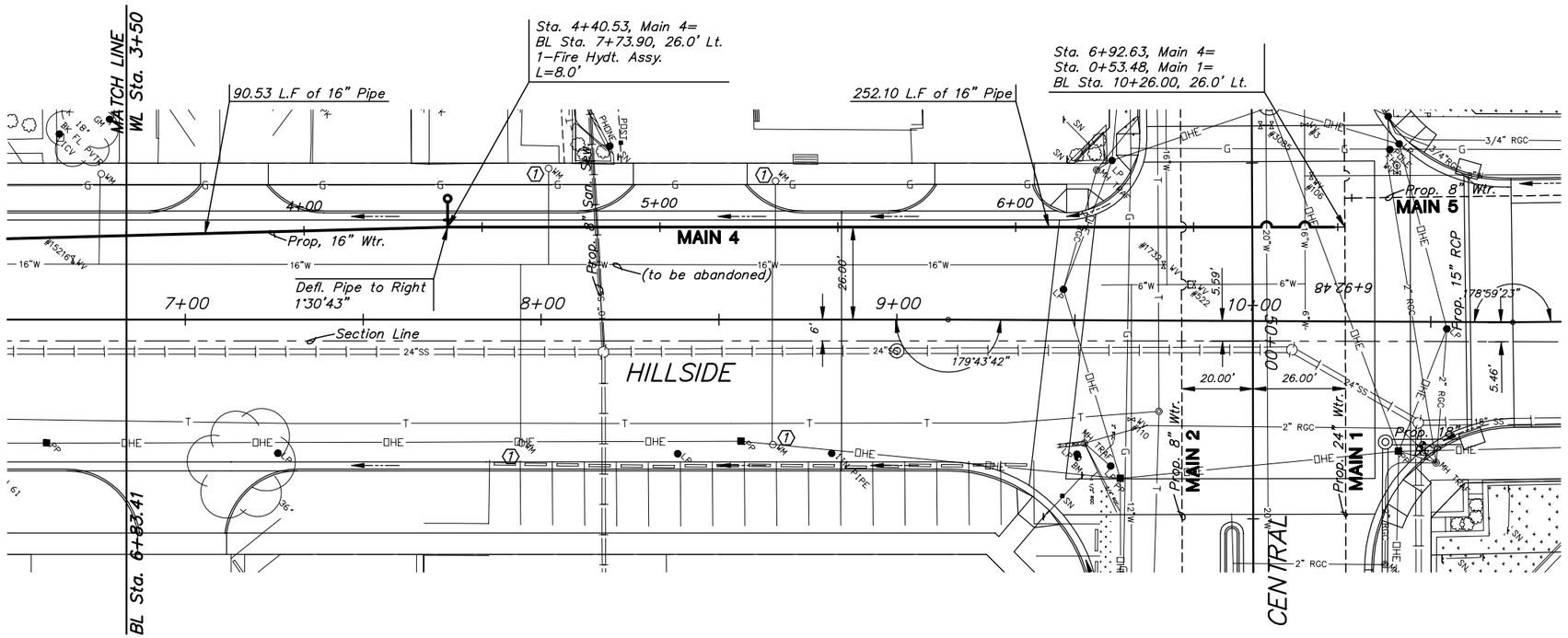
PLAN - MAIN 4
SCALE: 1" = 20'

Ⓘ Replace Service and Meter Set with a minimum of 1". New Service to be connected to the New 16" Main in the West side of Hillside. Setter to be connected to existing consumer's water service.
3–Short Services
1–Long Services

PROFILE - MAIN 4
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

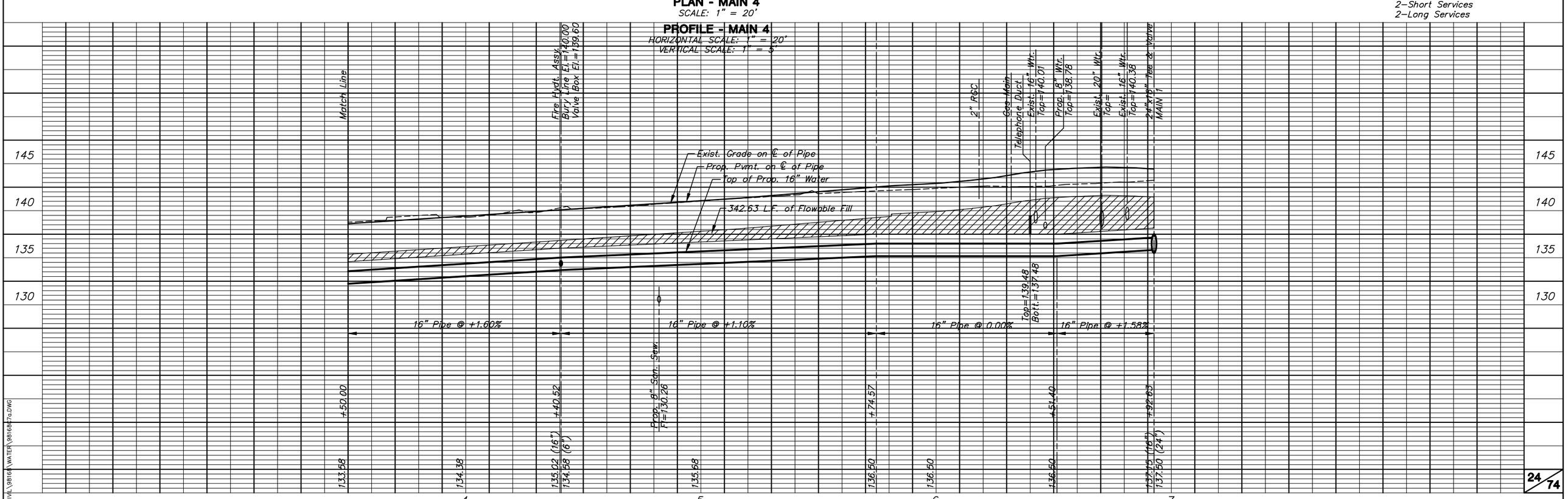


CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 4



PLAN - MAIN 4
SCALE: 1" = 20'

PROFILE - MAIN 4
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



① Replace Service and Meter Set with a minimum of 1". New Service to be connected to the New 16" Main in the West side of Hillside. Setter to be connected to existing consumer's water service.
2-Short Services
2-Long Services

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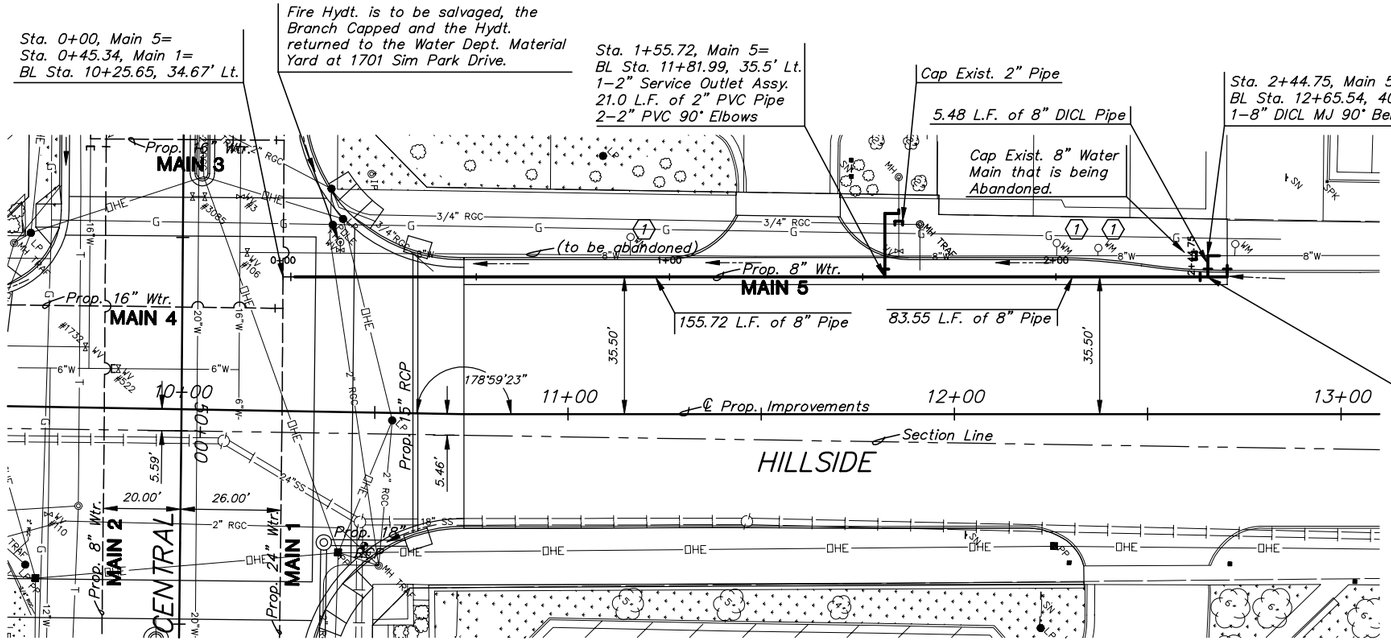
98168C7a

CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 5 & MAIN 13



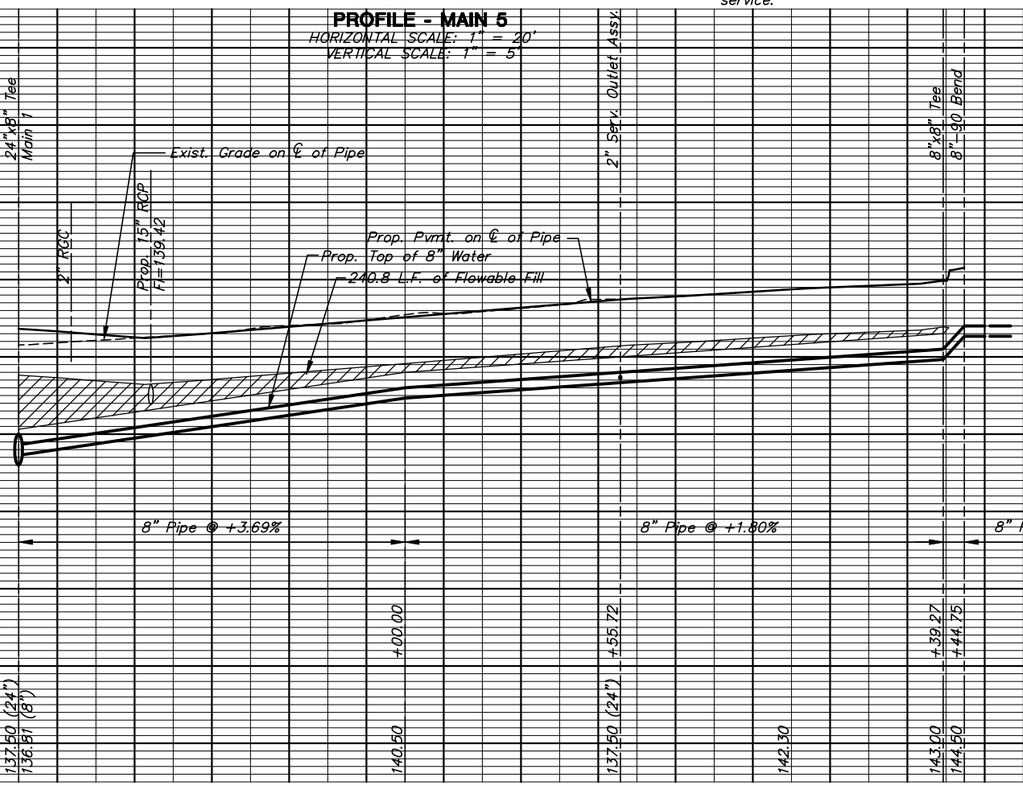
1 Replace Service and Meter Set with a minimum of 1". New service to be connected to the New 8" Main in the West side of Hillside. Setter to be connected to existing consumer's water service.

3 – Short Services

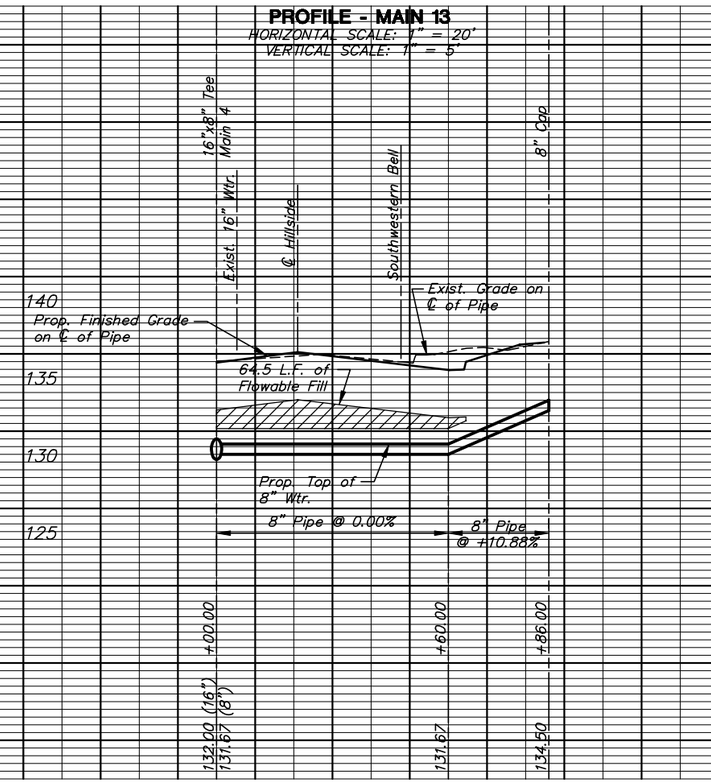
PLAN - MAIN 5
SCALE: 1" = 20'

PLAN - MAIN 13
SCALE: 1" = 20'

PROFILE - MAIN 5
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE - MAIN 13
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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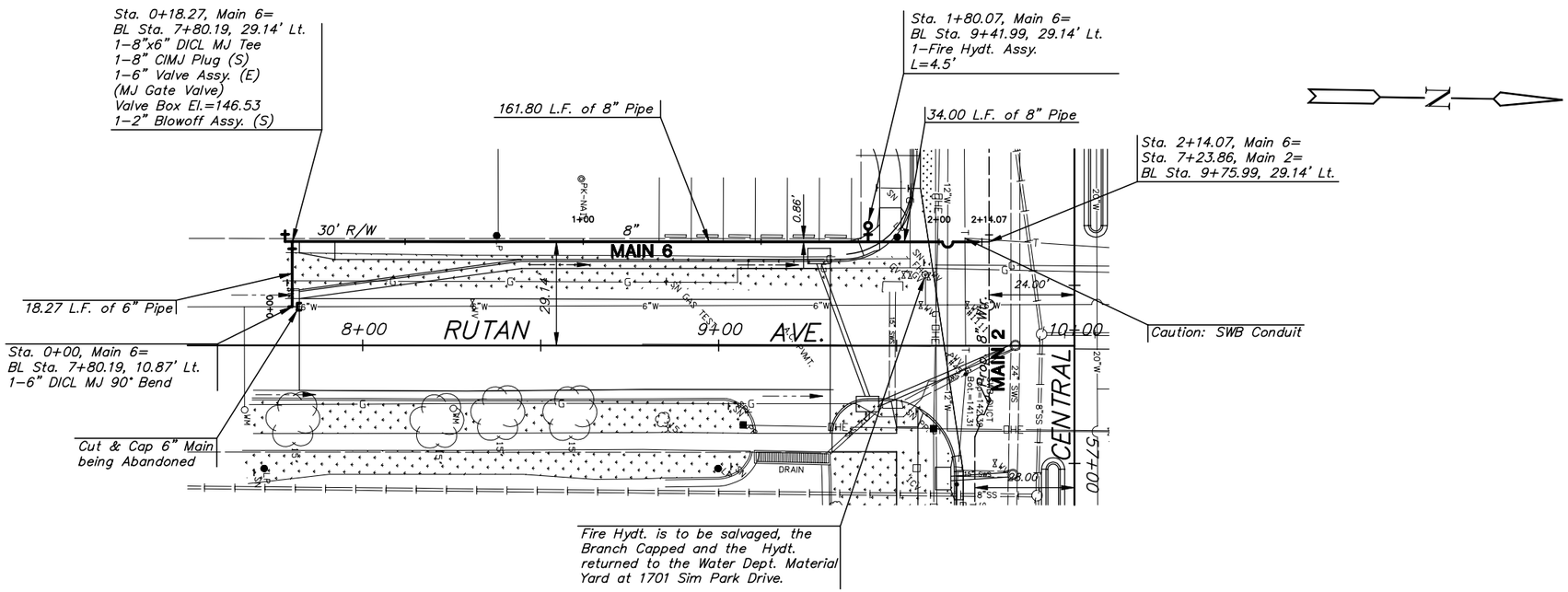
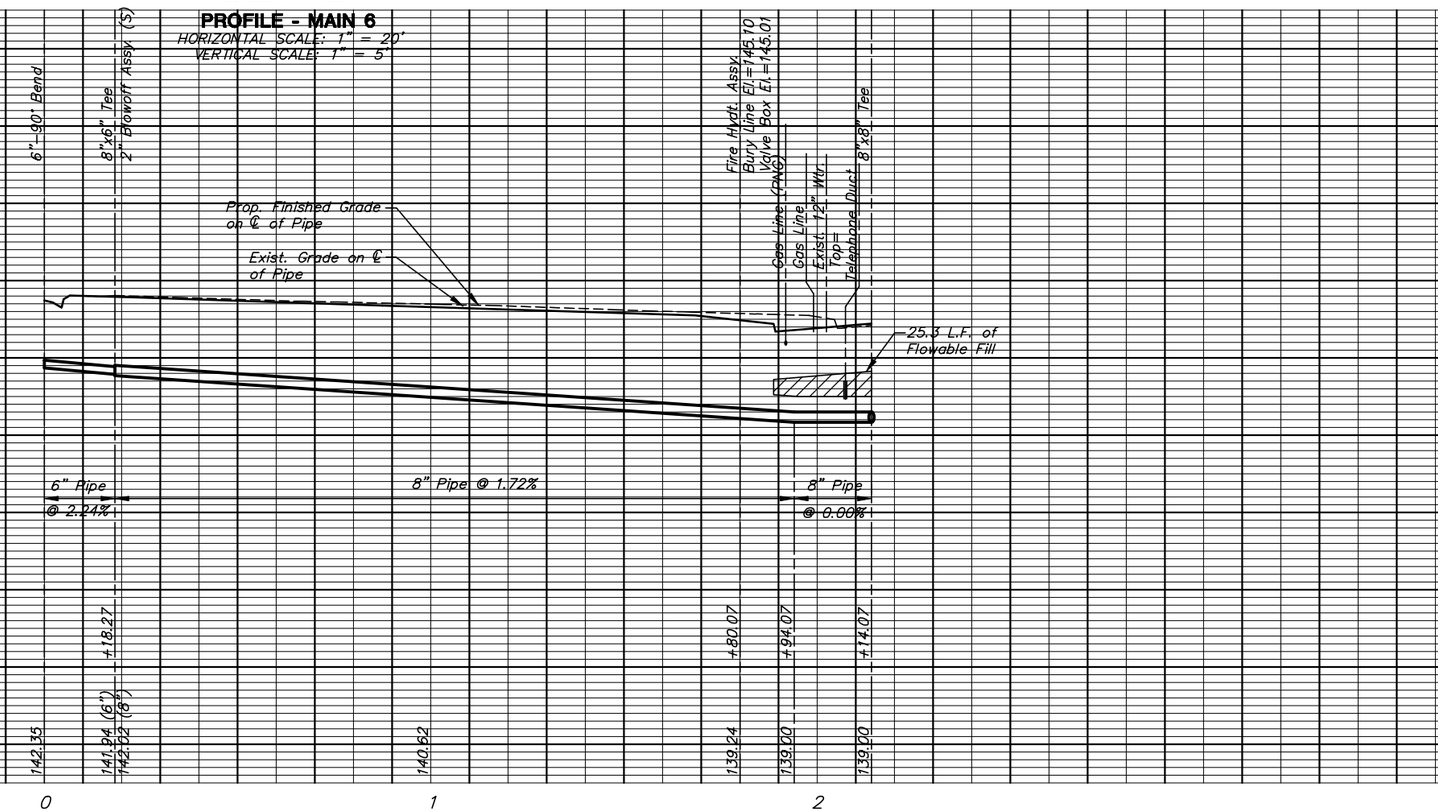
98168_C8

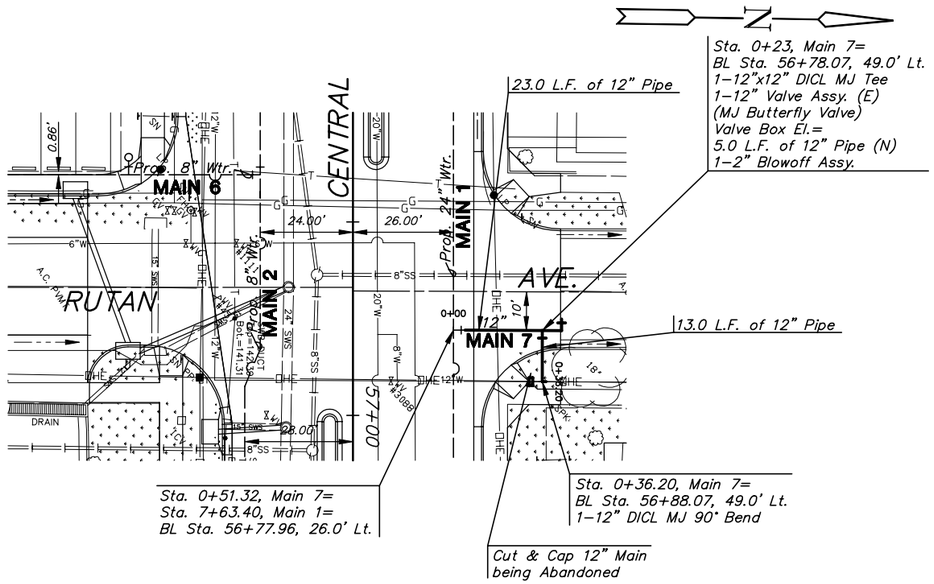


PLAN - MAIN 6
SCALE: 1" = 20'

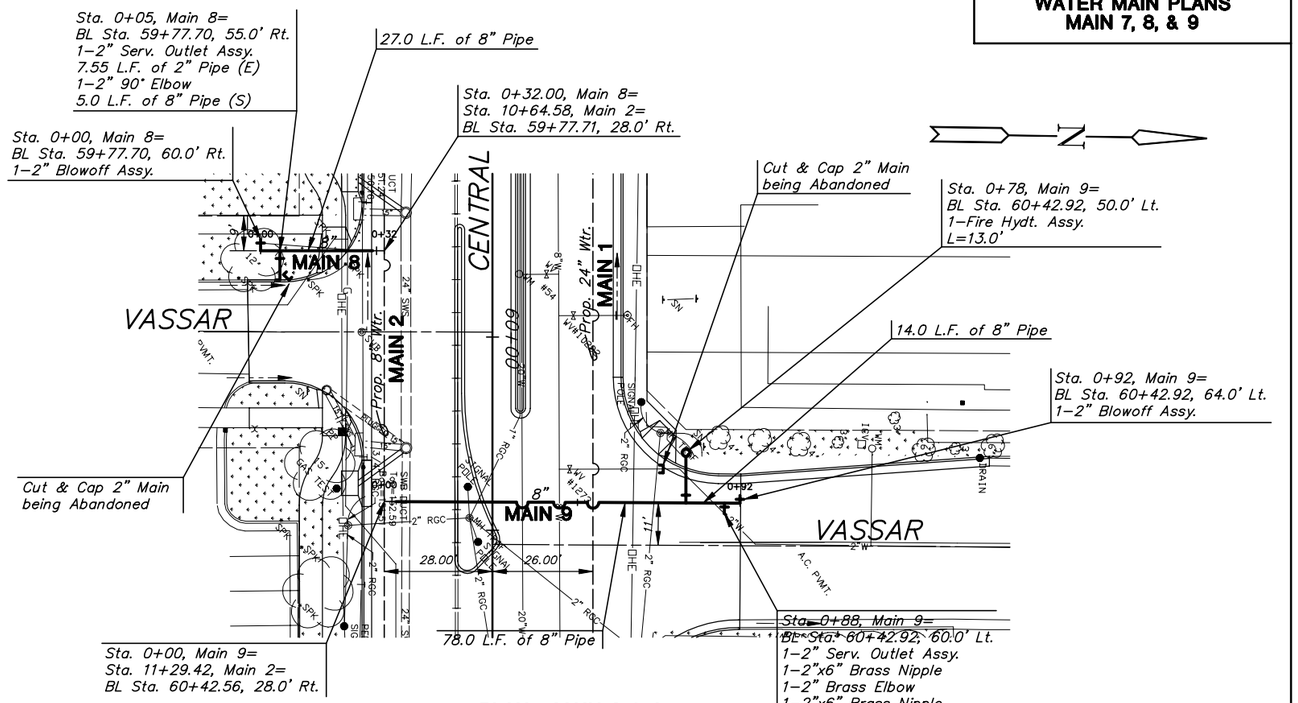
PROFILE - MAIN 6
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



CENTRAL & HILLSIDE WATER MAIN PLANS MAIN 7, 8, & 9

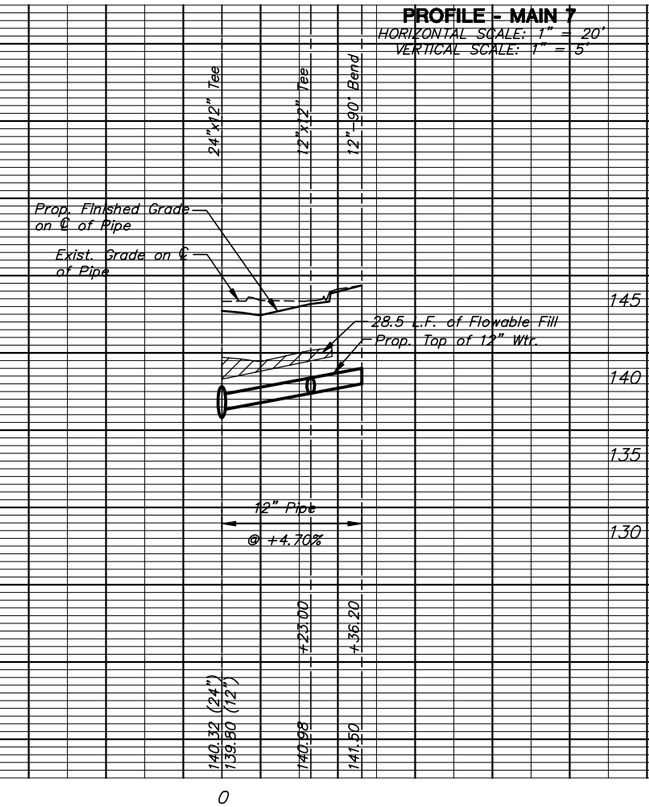


PLAN - MAIN 7
SCALE: 1" = 20'

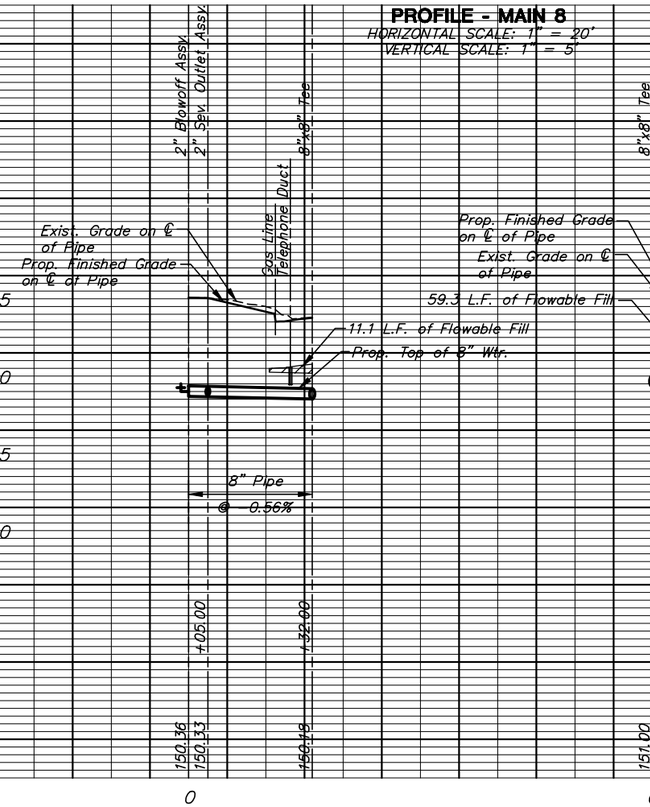


PLAN - MAIN 8 & 9
SCALE: 1" = 20'

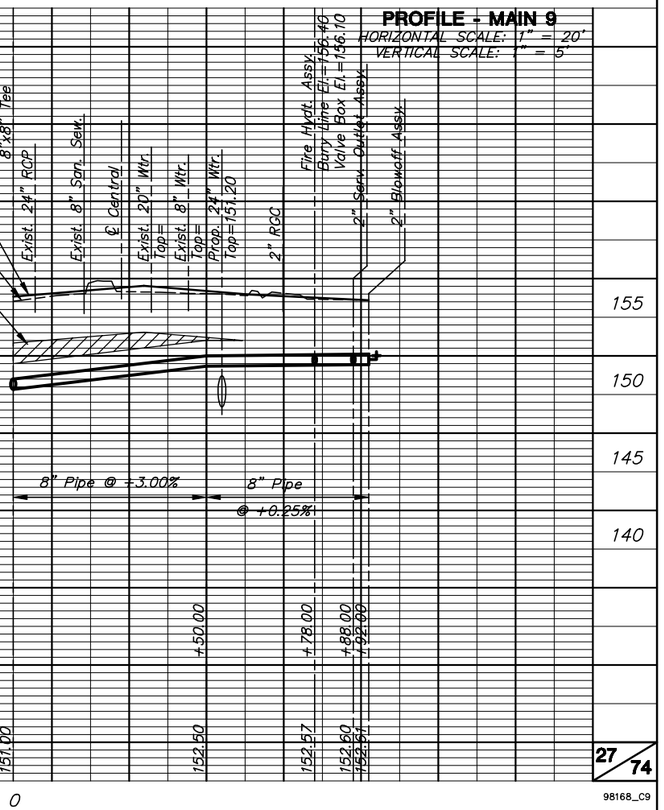
PROFILE - MAIN 7
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE - MAIN 8
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE - MAIN 9
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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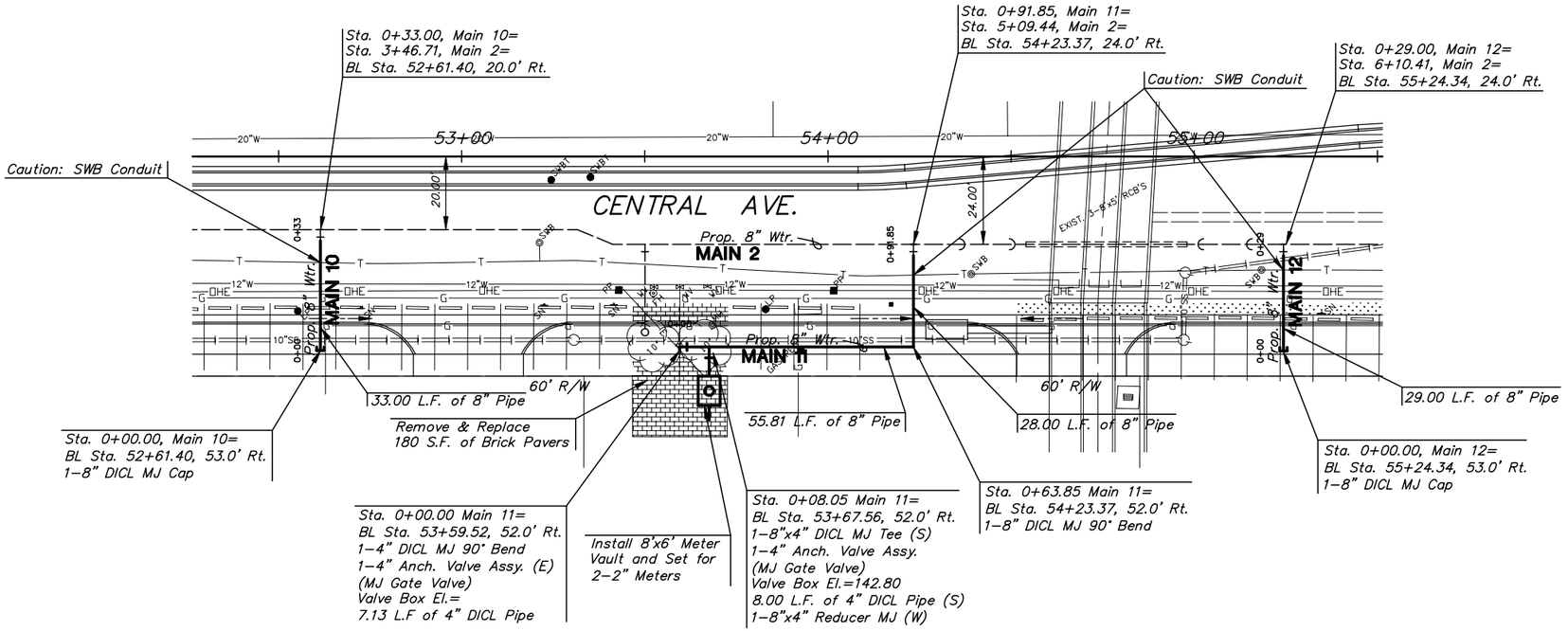
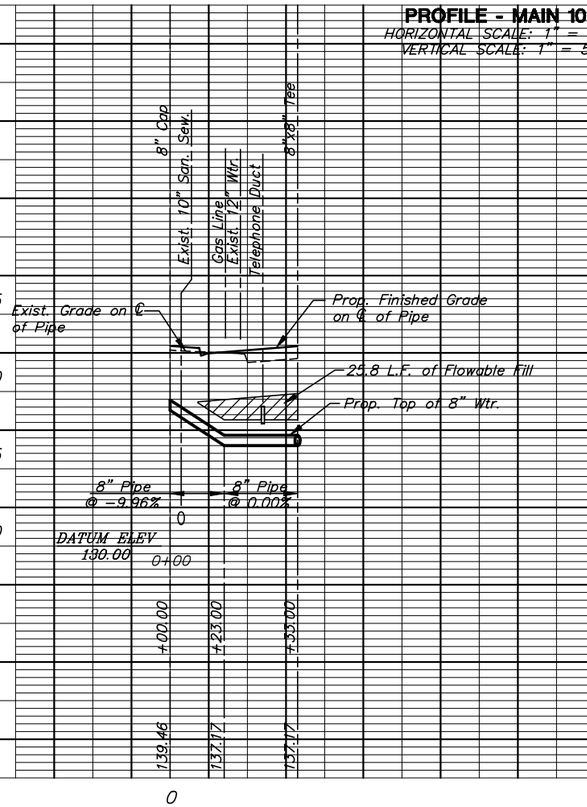
CENTRAL & HILLSIDE
WATER MAIN PLANS
MAIN 10, MAIN 11 and MAIN 12

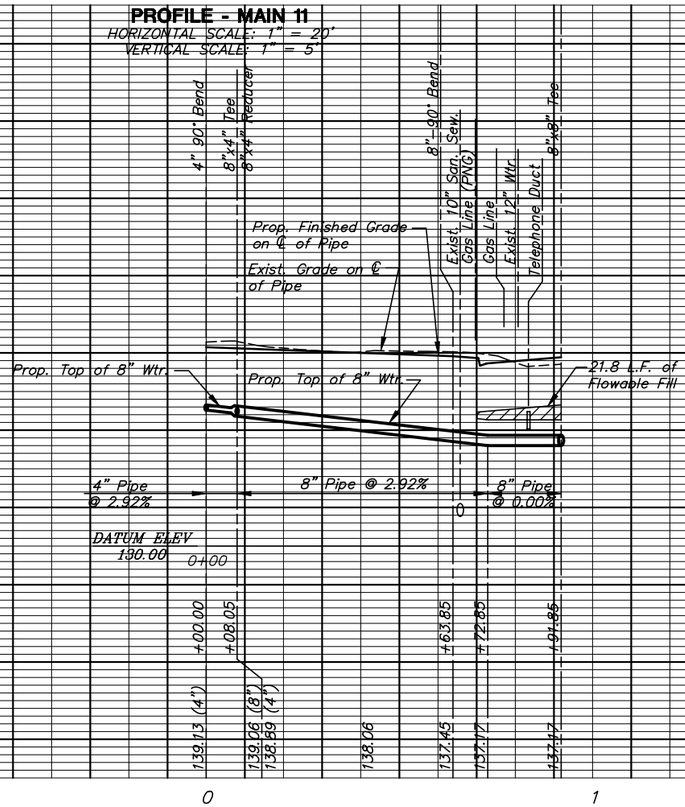


PLAN - MAIN 10, MAIN 11 and MAIN 12
SCALE: 1" = 20'

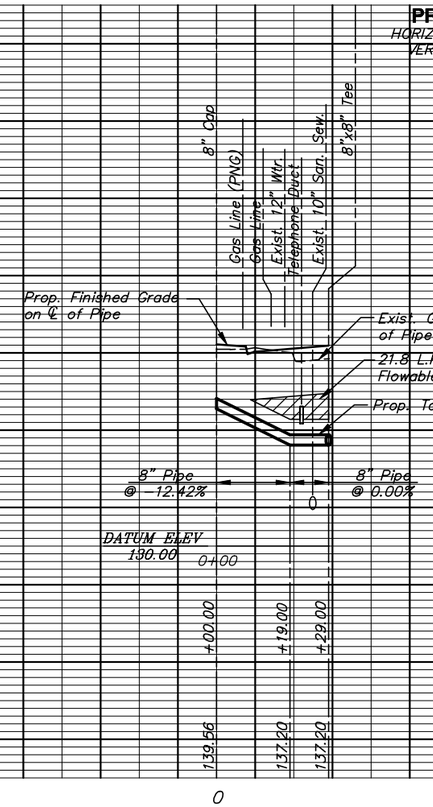
PROFILE - MAIN 10
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE - MAIN 11
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE - MAIN 12
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



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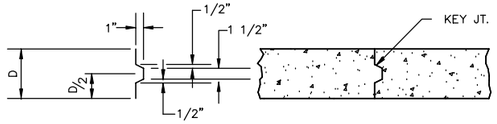
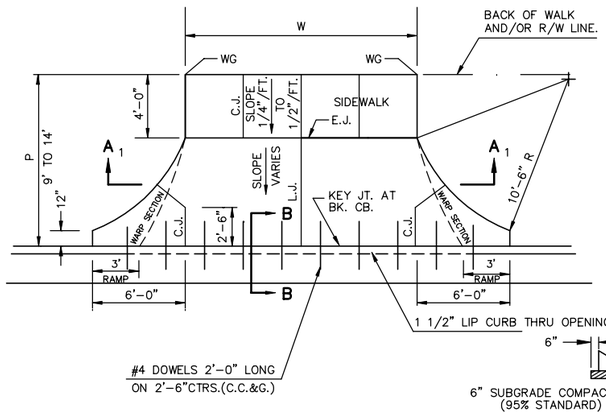
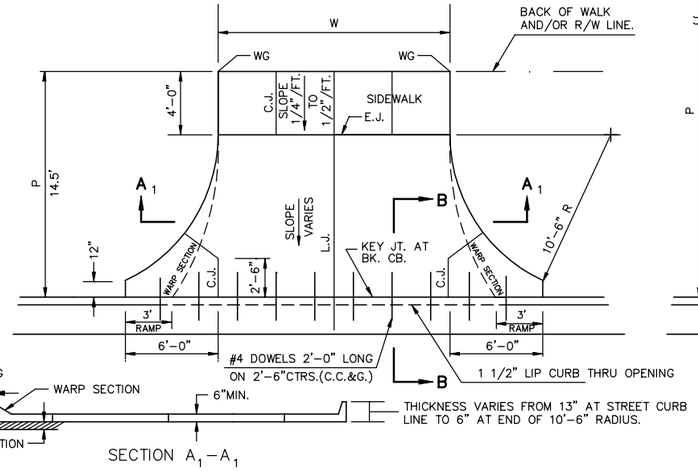
98168_C10

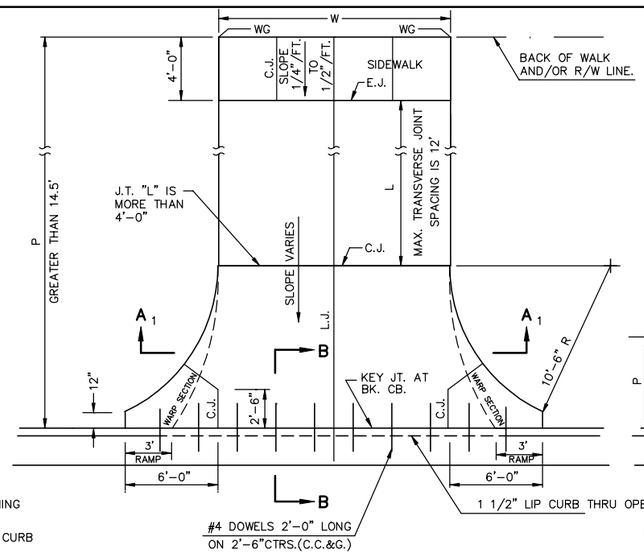


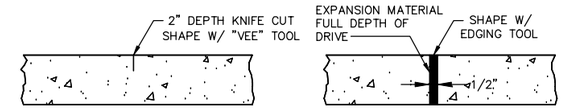
ALT. LONGITUDINAL CONSTRUCTION JOINT





SECTION $A_1 - A_1$

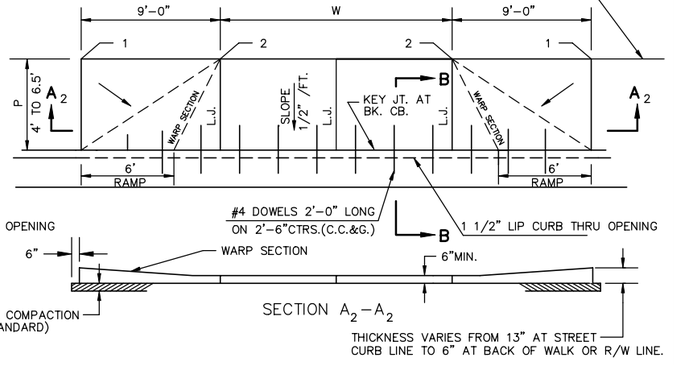




CONTRACTION JOINT (C.J.) OR LONGITUDINAL JOINT (L.J.)

EXPANSION JOINT (E.J.)

NO SAWN JOINTS WILL BE ALLOWED



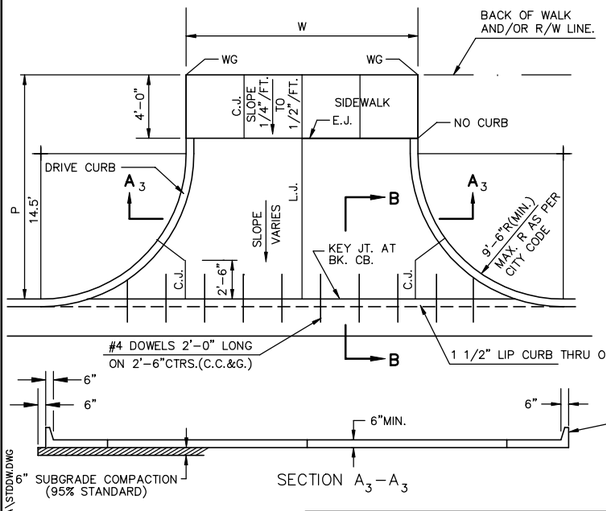
SECTION $A_2 - A_2$

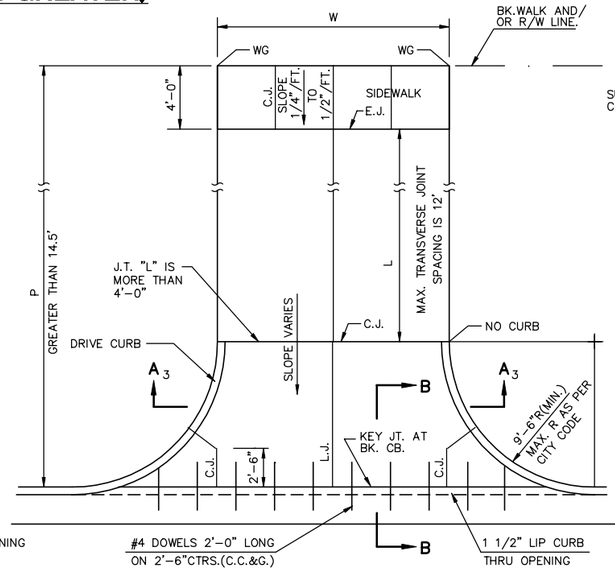
PARKING WIDTH "P"	9'	10'	11'	12'	13'	14.5'	20'	25'	30'	35'	40'	45'	50'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB.	0.35'	0.35'	0.40'	0.45'	0.60	0.80'	1.35'	1.85'	2.35'	2.85'	3.35'	3.85'	4.35'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB.	0.35'	0.35'	0.40'	0.45'	0.60'	0.70'	1.04'	1.30'	1.56'	1.82'	2.08'	2.34'	2.60'
OPTIMUM MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB.	0.19'	0.21'	0.23'	0.25'	0.27'	0.30'	0.42'	0.52'	0.62'	0.72'	0.82'	0.92'	1.02'
ABSOLUTE MIN. DIST. OF PT. "WG" ABOVE OR BELOW TOP OF FULL CURB.	−.19'	−.16'	−.13'	−.10'	−.06'	0.00'	0.00'	0.15'	0.25'	0.35'	0.45'	0.55'	0.65'

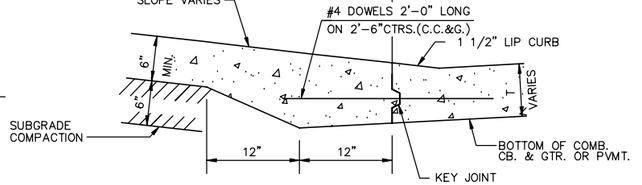
RADIUS RAMP DRIVES (P=9.0' & GREATER)

PARKING WIDTH "P"	4'	4.5'	5'	5.5'	6'	6.5'
DIST. OF PT."1" ABOVE TOP OF FULL CURB.	0.08'	0.09'	0.10'	0.12'	0.13'	0.14'
DIST. OF PT."2" BELOW TOP OF FULL CURB.	−.26'	−.24'	−.22'	−.20'	−.18'	−.16'

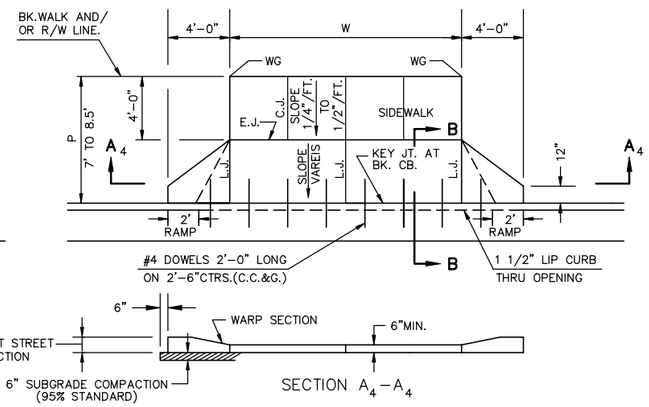
FULL RAMP DRIVE (P=4.0' TO 6.5')







BACK OF CURB DETAIL
SECTION B − B
NO SCALE



SECTION $A_4 - A_4$

PARKING WIDTH "P"	14.5'	20'	25'	30'	35'	40'	45'	50'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE TOP OF FULL CURB.	0.80'	1.35'	1.85'	2.35'	2.85'	3.35'	3.85'	4.35'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE TOP OF FULL CURB.	0.70'	1.04'	1.30'	1.56'	1.82'	2.08'	2.34'	2.60'
OPTIMUM MIN. DIST. OF PT. "WG" BELOW TOP OF FULL CURB.	0.30'	0.42'	0.52'	0.62'	0.72'	0.82'	0.92'	1.02'
ABSOLUTE MIN. DIST. OF PT. "WG" BELOW TOP OF FULL CURB.	0.00'	0.00'	0.15'	0.25'	0.35'	0.45'	0.55'	0.65'

FULL RADIUS DRIVES (P=14.5' & GREATER)

PARKING WIDTH "P"	7'	7.5'	8'	8.5'
ABSOLUTE MAX. DIST. OF PT. "WG" ABOVE TOP OF FULL CURB.	0.00'	0.10'	0.20'	0.30'
OPTIMUM MAX. DIST. OF PT. "WG" ABOVE TOP OF FULL CURB.	0.00'	0.10'	0.20'	0.30'
OPTIMUM MIN. DIST. OF PT. "WG" BELOW TOP OF FULL CURB.	−.15'	−.16'	−.17'	−.17'
ABSOLUTE MIN. DIST. OF PT. "WG" BELOW TOP OF FULL CURB.	−.25'	−.20'	−.20'	−.20'

FULL RAMP DRIVE (P=7.0' TO 8.5')

GENERAL NOTES

1. DRIVEWAY CONSTRUCTION DETAILED ON THIS SHEET IS FOR USE WITH FULL HEIGHT STREET CURBS AND IN AREAS WITHOUT FULL WALK CONSTRUCTION IN THE PARKING. SEE OTHER DETAIL SHEETS FOR DRIVEWAY CONSTRUCTION WITH ROLL CURB AND/OR FULL WALK.
2. ONE LONGITUDINAL JOINT SHALL BE CONSTRUCTED ALONG THE CENTERLINE OF DRIVES HAVING A "W" DIMENSION OF 24' OR LESS. TWO LONGITUDINAL JOINTS SHALL BE CONSTRUCTED WITH EQUAL SPACINGS NOT TO EXCEED 10' FOR DRIVES WITH A "W" DIMENSION GREATER THAN 24'.
3. DRIVEWAY WIDTH DENOTED AS "W" ON THE DETAIL DRAWINGS SHALL BE A MINIMUM OF 10' AND A MAXIMUM OF 30'. THE MAXIMUM OPENING FOR RADIUS TYPE DRIVES WITH CURBS THROUGH THE RADIUS SHALL NOT EXCEED 52' AT THE STREET CURB LINE.
4. CONTRACTION JOINT SPACING IN THE DRIVEWAY WALK SECTION SHALL BE A MINIMUM OF 3' AND A MAXIMUM OF 6' AND ARE TO BE EQUALLY SPACED WITHIN THIS RANGE. WALK SECTION SHALL BE CONSTRUCTED TO THE SAME THICKNESS AS THE DRIVEWAY.
5. DOWEL BARS SHALL BE OMITTED FROM THE KEYED CONSTRUCTION JOINT ALONG THE BACK OF THE STREET CURB LINE WHEN DRIVEWAYS ARE CONSTRUCTED IN CONJUNCTION WITH NEW CONCRETE PAVEMENT CONSTRUCTION.
6. ADDITIONAL THICKNESS OF DRIVE AS INDICATED IN THE DRAWINGS WILL NOT BE PAID FOR DIRECTLY AND THIS COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE DRIVEWAY CONSTRUCTION.
7. ONE HALF INCH EXPANSION JOINTS SHALL BE INSTALLED WHEREVER DRIVE CONSTRUCTION ABUTS SIDEWALK. ONE HALF INCH EXPANSION JOINTS SHALL ALSO BE INSTALLED ALONG THE PROPERTY LINE AND/OR BACK OF WALK LINE WHEN DRIVE CONSTRUCTION ALONG THIS LINE ABUTS CONCRETE PARKING LOTS OR CONCRETE DRIVE EXTENSION.
8. ALL DRIVEWAYS SHALL BE A MINIMUM OF 6" IN THICKNESS AND SHALL BE WITHOUT REINFORCEMENT. DRIVEWAYS MAY BE CONSTRUCTED THICKER THAN 6" AND THEY MAY BE REINFORCED WITH 6"x12" W4−W4 WELDED WIRE FABRIC WHEN PROPERLY AUTHORIZED BY THE PROPERTY OWNER WITH THE ENGINEER'S CONCURRENCE.
9. OPTIMUM DRIVEWAY ELEVATIONS SHOWN IN THE TABLES ARE TO BE USED WHEREVER POSSIBLE. ABSOLUTE MAXIMUM AND MINIMUM ELEVATIONS ARE TO BE USED ONLY WHEN THESE VALUES WILL PERMIT NEW CONSTRUCTION TO MATCH EXISTING DRIVES OR PARKING LOTS. VALUES SHOWN IN THE TABLES ARE BASED ON A FULL CURB HEIGHT ELEVATION OF 0.55' ABOVE THE GUTTER FLOW LINE AND MUST BE ADJUSTED ACCORDINGLY FOR OTHER CURB HEIGHTS. VALUES SHOWN IN THE TABLES WITH MINUS SIGNS INDICATE ELEVATIONS BELOW TOP OF FULL HEIGHT CURB.

REVISED: OCTOBER 1985

STANDARD DRIVE ENTRANCES FULL HEIGHT CURB

CITY OF WICHITA, KANSAS

29/74

Design	Checked by	Checked by	
Drawn by	Date	Date	Job No.

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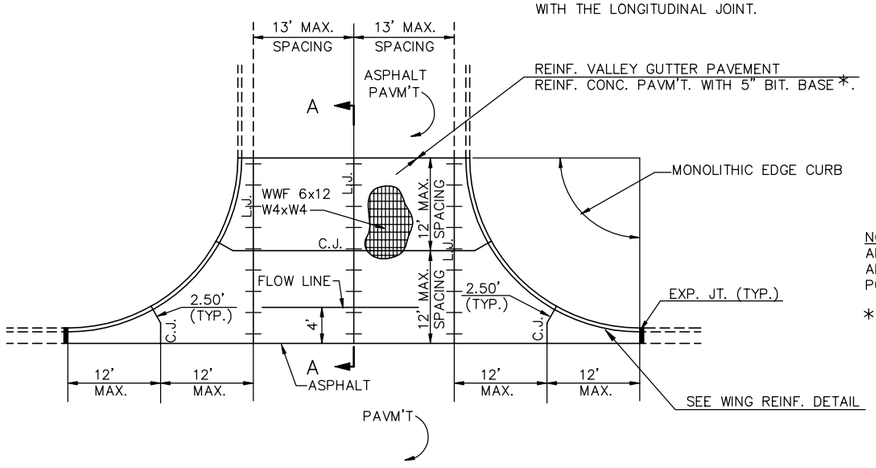
6"x12" W4xW4 WIRE FABRIC REINFORCING SHALL BE PLACED SUCH THAT THE WIRES WITH THE 6" SPACING WILL RUN PARALLEL WITH THE LONGITUDINAL JOINT.

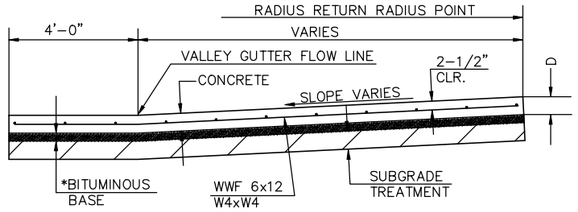


PLAN

REINFORCED VALLEY GUTTER
SCALE: NONE

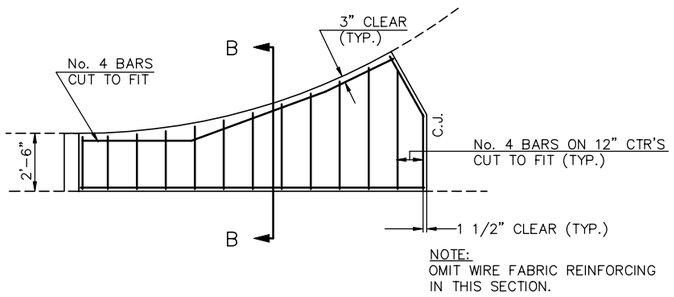
NOTE:
ALL CONCRETE VALLEY GUTTER REINFORCEMENT SHALL BE ADEQUATELY SUPPORTED BY BAR CHAIRS IN THE REQUIRED POSITION UNLESS APPROVED OTHERWISE BY THE ENGINEER.

*NOT TO BE USED WITH CRUSHED ROCK BASE.



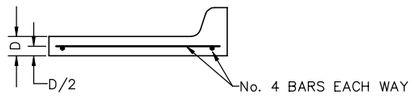
SECTION A-A
SCALE: NONE

*NOT TO BE USED WITH CRUSHED ROCK BASE

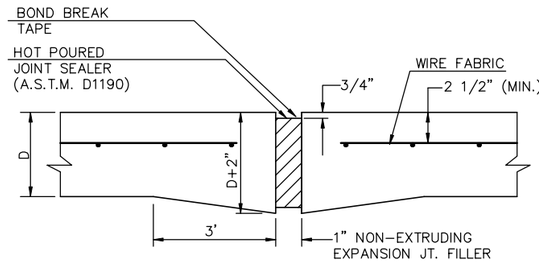


NOTE:
OMIT WIRE FABRIC REINFORCING IN THIS SECTION.

WING REINFORCING DETAIL
SCALE: NONE

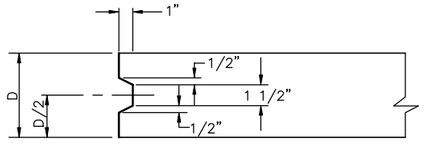


SECTION B-B
SCALE: NONE

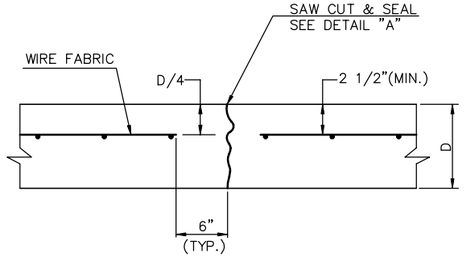


NOTE:
EXTRA THICKNESS TO BE SUBSIDIARY TO PRICE OF SQ. YDS. PAVEMENT.

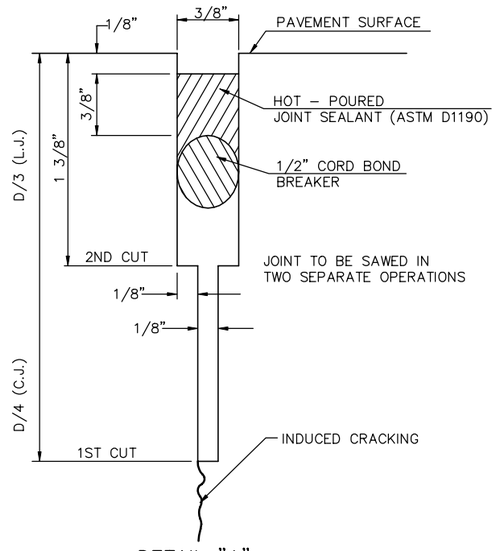
EXPANSION JOINT
SCALE: NONE



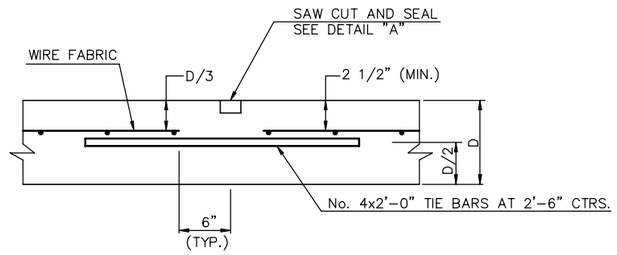
KEYWAY DETAIL
SCALE: NONE



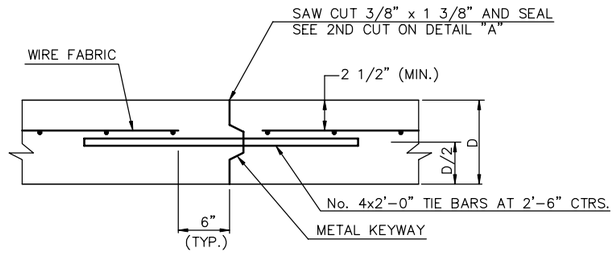
CONTRACTION JOINT DETAIL (C.J.)
SCALE: NONE



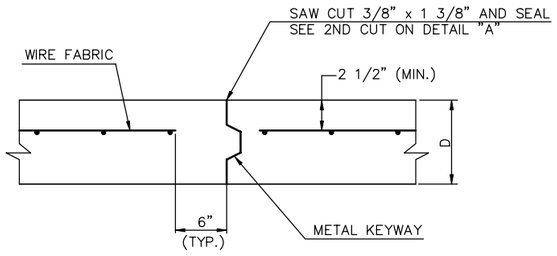
DETAIL "A"
SCALE: NONE



LONGITUDINAL JOINT DETAIL (L.J.)
SCALE: NONE



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT (L.J.)
SCALE: NONE (Alternate L.J.)



OPTIONAL CONTRACTION CONSTRUCTION JOINT (C.J.)
SCALE: NONE (Alternate C.J.)

LEGEND

C.J. IDENTIFIES CONTRACTION JOINT
L.J. IDENTIFIES LONGITUDINAL JOINT

VALLEY GUTTER & MISC. DETAILS
CITY OF WICHITA, KANSAS
PROJECT NUMBER
30/74

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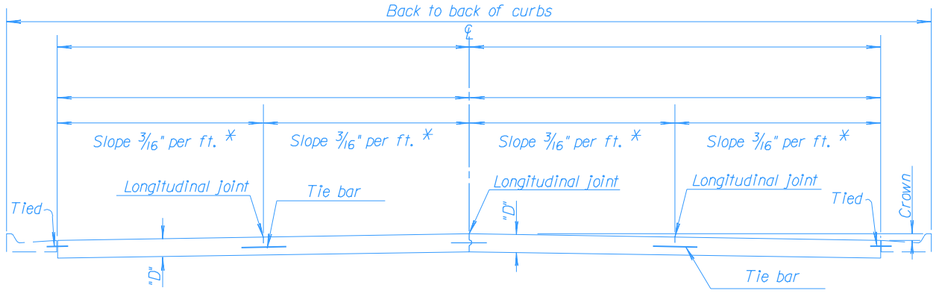
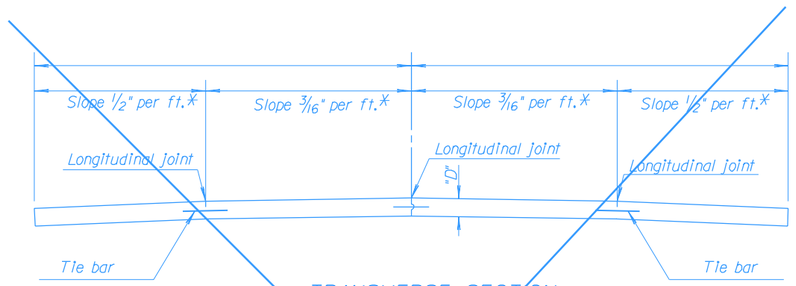
FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS		2002	31	74



For Curb & Gutter details
See Sheet No. 4.

TRANSVERSE SECTION
(4 - LANE WITH CURB & GUTTER)



TRANSVERSE SECTION
(2 - LANE WITH SHOULDERS)

* Normal cross slopes. See Typical Section or Cross Sections for variations.

GENERAL NOTE

All deformed tie bars shall be epoxy coated.

Deformed tie bars which require bending shall be billet steel reinforcing bars, Grade 40, and may be epoxy coated.

Pressure relief joints (without load transfer devices) shall be placed at the end of the bridge approach pavement slab. For details of pressure relief joint, see Concrete Bridge Approach Standard.

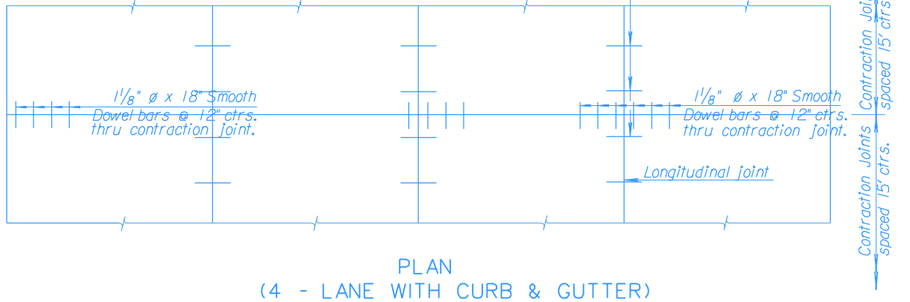
Unless otherwise noted, load transfer devices as shown in detail shall be used at all contraction joints on mainline pavement. No dowels will be on shoulder contraction joints.

All joints on this project shall be sawed and filled with sealant. See special provision for type of sealant.

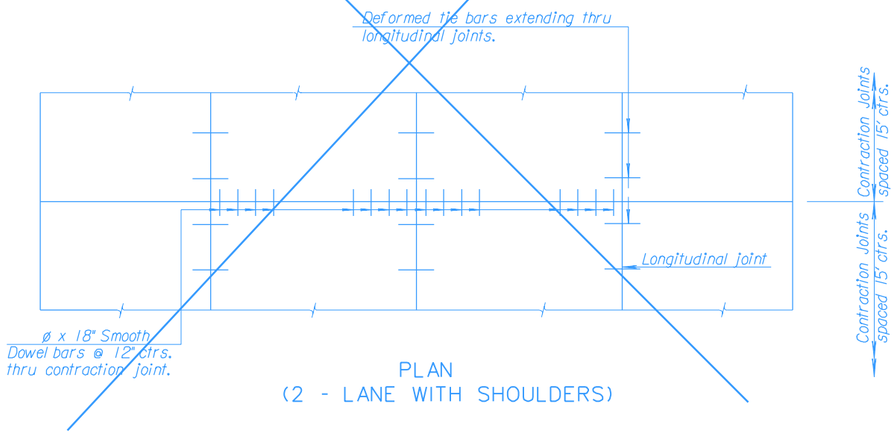
Shape of all keyed joints shall be similar to section of recessed form leg as shown on this sheet.

See Standard Drawing RD722 for concrete shoulder details and corrugation details.

All longitudinal joints shall be tied.



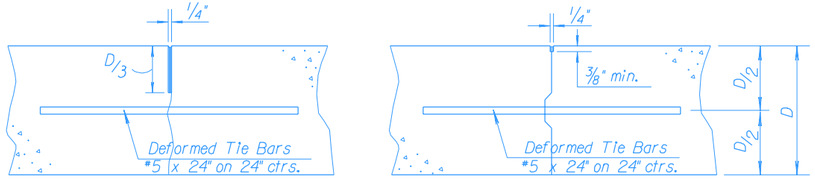
PLAN
(4 - LANE WITH CURB & GUTTER)



PLAN
(2 - LANE WITH SHOULDERS)

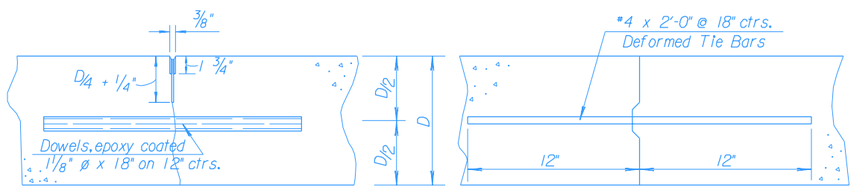
DOWEL SIZE	
D (in.)	Diameter
8	1"
9	1 1/8"
10	1 1/4"
11	1 3/8"
12	1 1/2"

PAVEMENT DEPTH
D= 9"



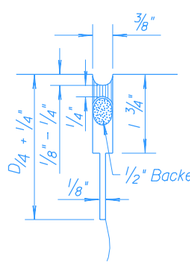
LONGITUDINAL JOINTS

Note: All sealant is 1/8" -1/4" below surface and is a minimum of 1/4" thick. A backer rod may be used to limit the amount of sealant needed to fill reservior.



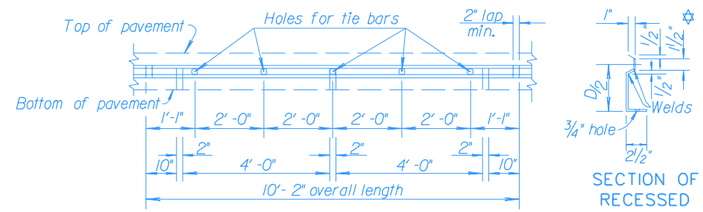
Note: Contraction joints will be constructed at the planned location or as directed by the Engineer.
When necessary to interrupt continuous placement for a substantial length of time or at the end of a day's pour, the Contractor has the option of ending placement at a contraction joint or with a construction joint located a minimum of five (5) feet from a contraction joint. Either joint type may be constructed by placing a header at the end of the pour or by paving past the joint location, sawing the joint after the concrete has hardened, and drilling holes for the tie bars or dowels.

TRANSVERSE JOINTS



The 1/8" saw cut (D/4 + 1/4" depth) shall be done initially; the 3/8" saw cut shall be accomplished in a separate operation after concrete has gained sufficient strength to avoid spalling as determined by the Engineer.

At longitudinal construction joints where the adjacent slabs are at different elevations the depth of saw cut for the sealant reservoir should be measured from the top of the lower slab. This is to ensure that sufficient sealant is used in the joint.



METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT

To be used only against forms. Shall not extend through contraction joints.

✡ Snap-in leg or other approved designs may be used in lieu of welded leg.

SECTION OF RECESSED FORM LEG

NO.	DATE	REVISIONS	BY	APP'D
6	1-29-97	Revised Contraction Joint	RJS	JOB
5	9-26-96	Rev. Tied Non-Keyed Long. Jt. depth	RJS	JOB
4	9-20-95	Revised Metal Strip detail dimensions	RJS	JOB
3	7-20-94	Revised joints, added table	RJS	JOB

KANSAS DEPARTMENT OF TRANSPORTATION

CONCRETE PAVEMENT DOWEL JOINTED NON-REINFORCED

~~RD708~~

FHWA APPROVAL	2-18-97	APP'D James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Note: Designer shall add applicable dowel sizes.

Drawn By: MKEC [Plotted: 02/05/02
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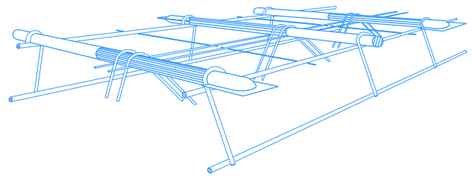
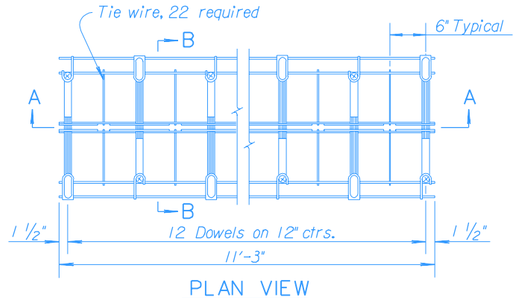
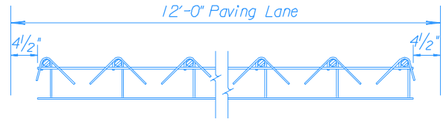
FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS		2002	32	74



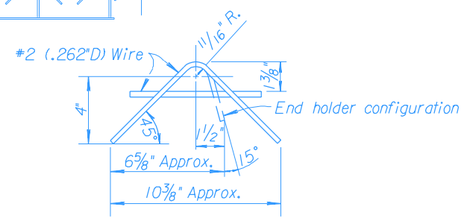
PERSPECTIVE VIEW

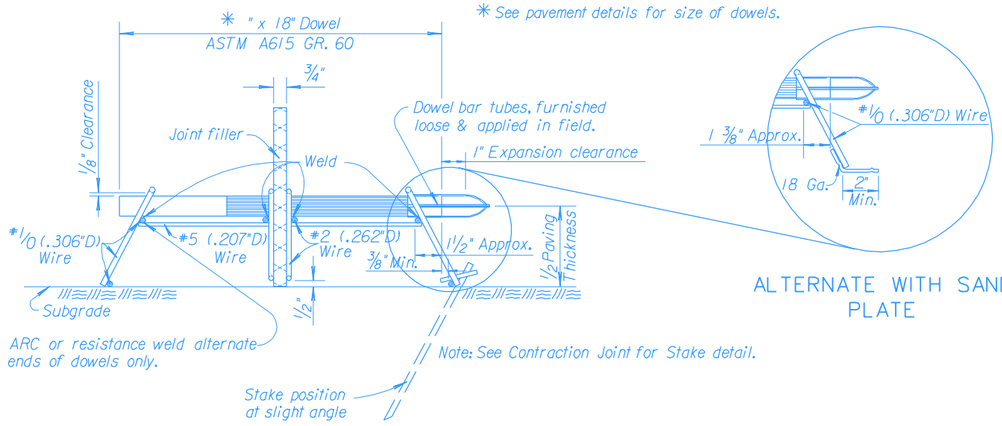


PLAN VIEW



SEC. A-A

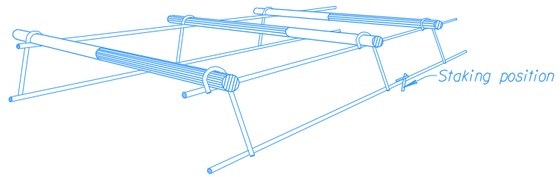




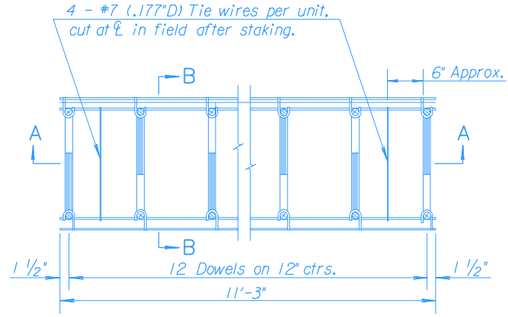
SEC. B-B

EXPANSION JOINT

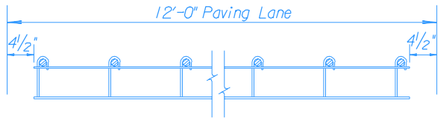
Note: Wire sizes shown are minimum required.
Sides held together with tie wire, allowing quick separation of sides & insertion of expansion material, provided in field.
One length of Preformed Expansion Joint filler (Type B), or other approved material, cut to fit crown and subgrade shall be used for each lane of pavement as expansion joint filler.
A string line shall be stretched between the pavement forms along the center line of the joint.
Each dowel bar shall be coated with an epoxy coating with the average film thickness of not less than 10 mils on any bar, with individual determinations within a tolerance of ± 3 mils of the average. The coating need not be applied to the end faces of the bars and will not be required within 2 inches of the end which will be fixed in the supporting basket by welding. The coating material shall be a powdered epoxy resin approved by the Engineer of Materials and shall be uniformly applied according to accepted practices and the resin manufacturer's recommendations.
In order to identify the location of the bond breaker application, the working end of dowel and the supporting leg shall receive a light application of red paint at the place of fabrication. The bond breaker to be applied in the field prior to concrete placement shall consist of coating approximately three-fifths of the length of each dowel bar with hard grease at the working end identified by the red paint.
The cutting to length of the dowel bars shall be done in such a manner to result in no appreciable deformation of the ends.
The entire joint assembly shall be carefully leveled up so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Any grease scraped off the dowels in assembling the joint shall be replaced. Any excess grease on the dowel holders shall be removed.
After the complete expansion joint is assembled, it shall be checked to be certain that the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab. The dowels shall be checked to be certain that they are level and will remain in a position parallel with the finished surface of the slab.
Concrete shall be placed over and adjacent to the joint in accordance with the requirements of the Specifications.
To finish the joint after completion of machine finishing, floating and straight edging of the surface, the concrete over the filler shall be carefully removed and the joint edged with an edger of the proper size.
Expansion Joint material is to be installed in the field.
Other approved designs may be used in lieu of the type shown.



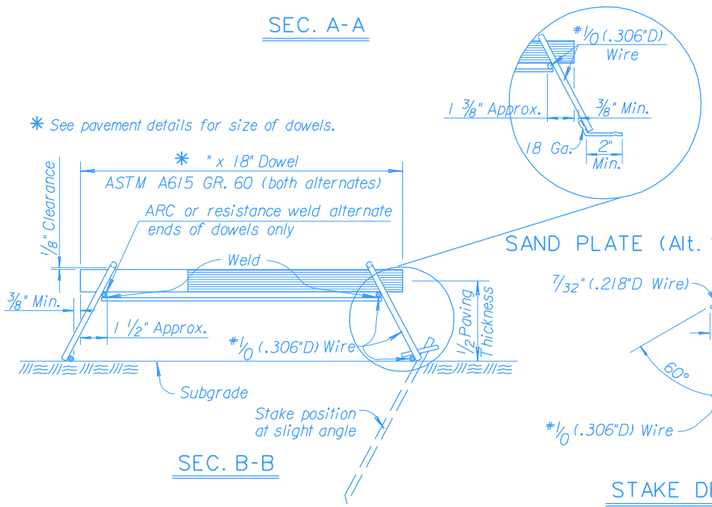
PERSPECTIVE VIEW



PLAN VIEW

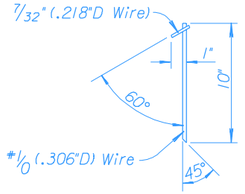


SEC. A-A



SEC. B-B

CONTRACTION JOINT



STAKE DETAIL

(6 Pieces minimum required)

GENERAL NOTE

Dowel bar insertion may be by mechanical dowel placers regardless of the joint spacing.
Each dowel bar shall be coated with an epoxy coating with the average film thickness of not less than 10 mils on any bar exclusive of end faces, with individual determinations within a tolerance of ± 3 mils of the average. The coating material shall be a powdered epoxy resin approved by the Chief, Bureau of Materials and Research and shall be uniformly applied according to accepted practices and the resin manufacturer's recommendations. For Alt. 1 the coating need not be applied to the end faces of the bars and will not be required within 2 inches of the end which will be fixed in the supporting basket by welding.
The cutting to length of the dowel bars shall be done in such a manner to result in no appreciable deformation of the ends.

Alt. 1 (Baskets)

Wire sizes shown are minimum required.
Basket to be staked to sub-grade, as shown. Ramset or similar type fastener with clip to be used when subgrade condition requires it.
A string line shall be stretched between the pavement forms along the center line of the joint. The position of the joint shall be carefully marked so that the saw cut will coincide with the center line of the joint.
In order to identify the location of the bond breaker application, the working end of dowel and the supporting leg shall receive a light application of red paint at the place of fabrication. The bond breaker to be applied in the field prior to concrete placement shall consist of coating approximately three-fifths of the length of each dowel bar with hard grease at the working end identified by the red paint.
The entire joint assembly shall be carefully leveled so that the dowels are parallel to the slab surface and free to slide in the dowel holders. Any coating scraped off the dowels in assembling the joint shall be replaced.
After the complete contraction joint is assembled, it shall be checked to be certain that the vertical plane of the joint will be perpendicular to the finished surface of the slab and at a right angle with the center line of the slab unless shown otherwise on the plans. The dowels shall be checked to be certain that they are level and will remain in a position parallel with the finished surface of the slab.
Concrete shall be placed over and adjacent to the joint in accordance with the requirements of the Specifications.
Other approved designs may be used in lieu of the type shown.

Alt. 2 (Mechanical placement)

Joint spacing shall be normal to centerline.
The pavement shall be placed and consolidated to full depth prior to insertion of the dowel bars.
The dowel bars shall be coated with a bond breaking agent prior to insertion into the plastic concrete.
The dowel bars shall be inserted into the plastic concrete ahead of the finishing beam or screed.
The installing device shall consolidate the concrete around the dowel bars such that no voids exist, without the supplemental use of hand held vibrators.
The dowel bars shall be located within one inch of the planned transverse location and within the range of depth of D/2 ± 0.1 D measured from mid depth and mid length of the bar where D represents the pavement thickness.
The dowel bars shall be located within two inches of the planned longitudinal location.
The dowel bars shall be parallel to the pavement surface and centerline within a tolerance of one half inch in 18 inches in both the vertical and horizontal direction.
The forward movement of the finishing beam or screed shall not be interrupted by the inserting of the dowel bars.
A positive method of marking the locations of the transverse joints shall be provided.

NO.	DATE	REVISIONS	BY	APP'D
5	4-24-90	Revised notes, added Alt. 1&2 Cont.Jt.	R.J.S.	J.O.B.
4	7-30-87	Added dowel size note	W.L.H.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

CONTRACTION & EXPANSION JT. DOWEL ASSEMBLIES

~~RD735~~

FHWA APPROVAL	5-30-90	APP'D. James O. Brewer	
DESIGNED	DETAILED Bowser	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK. Hecht	QUAN.CK.	TRACE CK. Hecht

Drawn By : MKEC Plotted : 02/05/02
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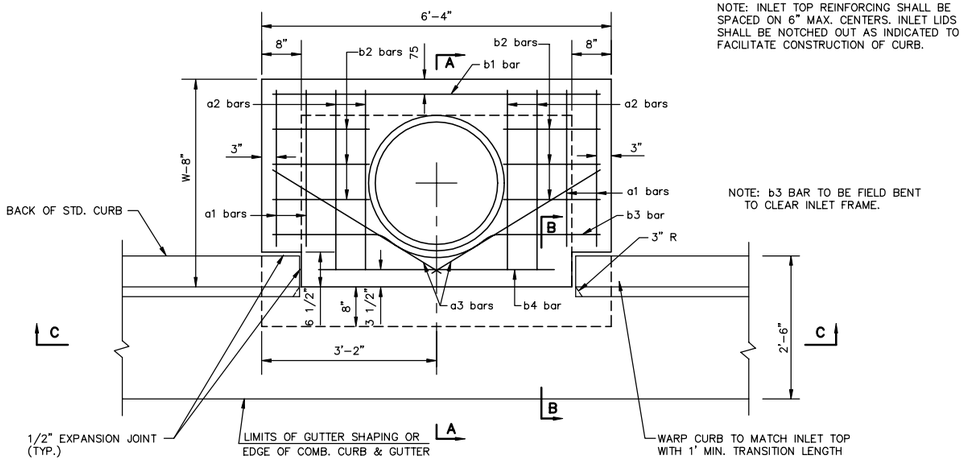
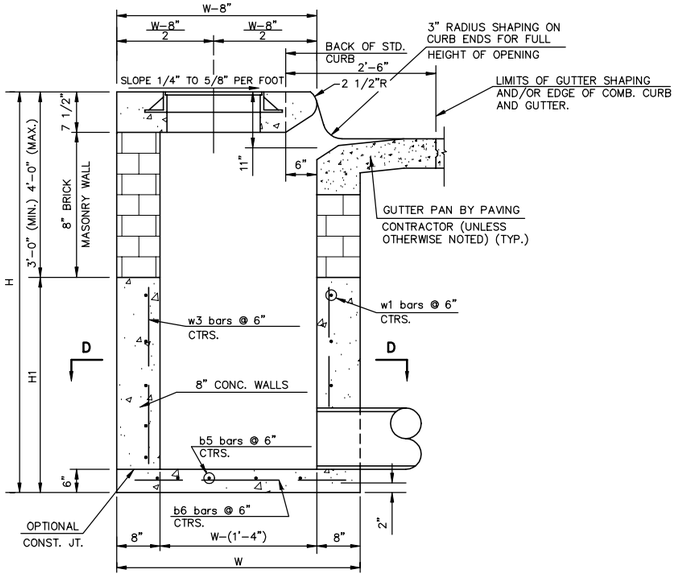


NOTE: INLET TOP REINFORCING SHALL BE SPACED ON 6" MAX. CENTERS. INLET LIDS SHALL BE NOTCHED OUT AS INDICATED TO FACILITATE CONSTRUCTION OF CURB.

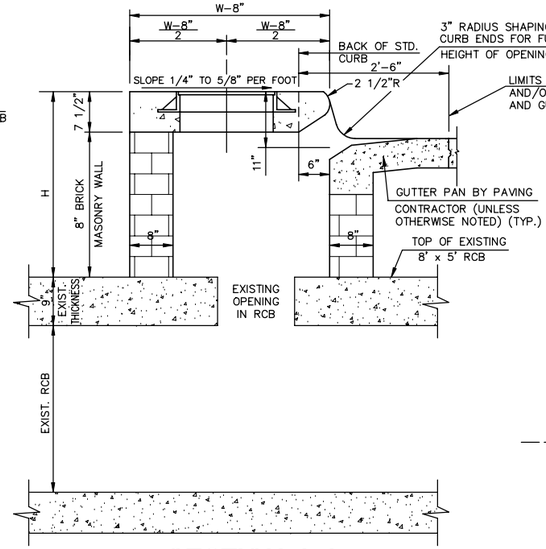
NOTE: b3 BAR TO BE FIELD BENT TO CLEAR INLET FRAME.

PLAN

NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX.

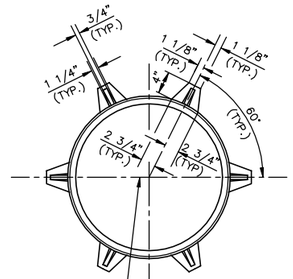


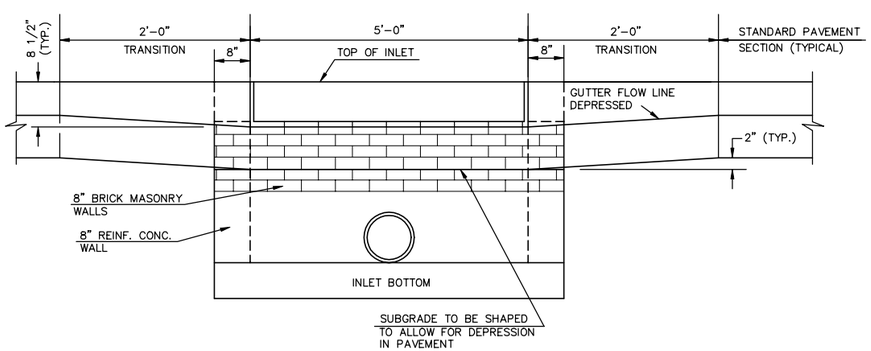
SECTION A-A



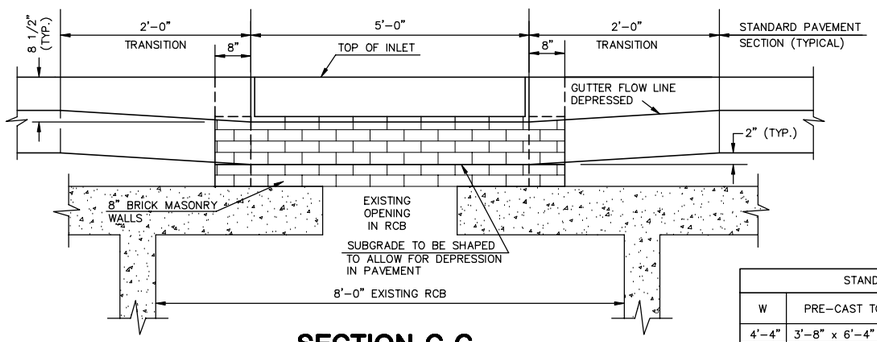
SECTION A-A

OVER EXISTING RCB



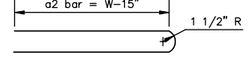


SECTION C-C

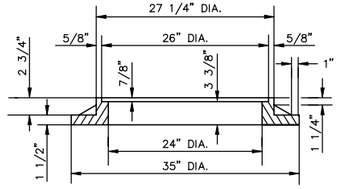


SECTION C-C

OVER EXISTING RCB



BENDING DIAGRAM



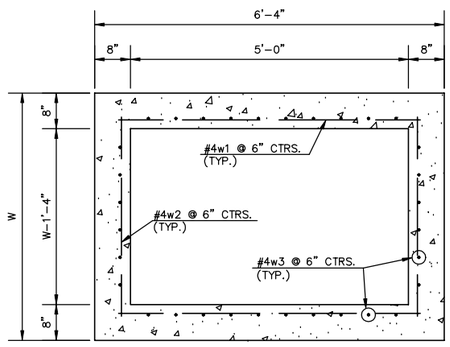
INLET FRAME

WT.=180 LBS

SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.

COVERS SHALL HAVE THE LETTERING "CITY OF WICHITA STORM WATER".

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8" x 6'-4" x 7 1/2"	21" & SMALLER	± 0.38
5'-4"	4'-8" x 6'-4" x 7 1/2"	24" & 30"	± 0.51
6'-4"	5'-8" x 6'-4" x 7 1/2"	36" & 42"	± 0.64
7'-4"	6'-8" x 6'-4" x 7 1/2"	48" & 54"	± 0.77
8'-4"	7'-8" x 6'-4" x 7 1/2"	60" & 66"	± 0.90



SECTION D-D

STEEL SCHEDULE

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
a1	#4	4	5'-7"	4	7'-7"	4	9'-7"	4	11'-7"	4	13'-7"
a2	#4	4	6'-7"	4	8'-7"	4	10'-7"	4	12'-7"	4	14'-7"
a3	#4	2	4'-0"	2	5'-0"	2	6'-0"	2	7'-0"	2	8'-0"
b1	#4	1	6'-1"	3	6'-1"	5	6'-1"	7	6'-1"	9	6'-1"
b2	#4	6	1'-9"	6	1'-9"	6	1'-9"	6	1'-9"	6	1'-9"
b3	#4	1	6'-2"	1	6'-2"	1	6'-2"	1	6'-2"	1	6'-2"
b4	#6	1	4'-8"	1	4'-8"	1	4'-8"	1	4'-8"	1	4'-8"
b5	#4	7	5'-4"	9	5'-4"	11	5'-4"	13	5'-4"	15	5'-4"
b6	#4	11	3'-4"	11	4'-4"	11	5'-4"	11	6'-4"	11	7'-4"

STEEL SCHEDULE

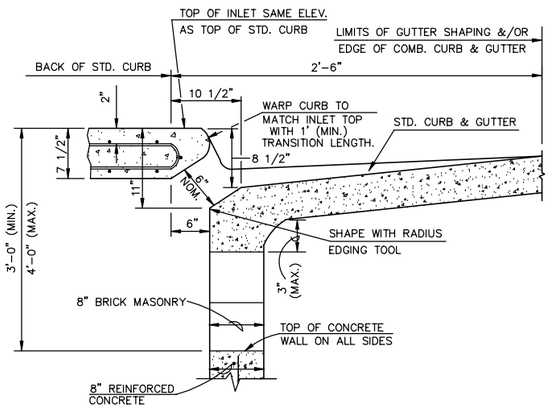
		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	5'-4"	①	5'-4"	①	5'-4"	①	5'-4"	①	5'-4"
w2	#4	①	3'-4"	①	4'-4"	①	5'-4"	①	6'-4"	①	7'-4"
w3	#4	②	③	②	③	②	③	②	③	②	③

NOTE: a3 BARS TO BE PLACED APPROX. 2" BELOW TOP OF INLET COVER.

① $2\left(\frac{(H1-8")}{6"}+1\right)$

② $22+2\left(\frac{(W-1'-4")}{6"}+1\right)$

③ (H1-9")



SECTION B-B

GENERAL NOTES

1. CONCRETE SHALL BE C.O.W. STANDARD PAVING MIX. ALL EXPOSED EDGES SHALL BE FINISHED WITH AN EDGING TOOL. REINFORCING BARS SHALL BE FIELD BENT OR CUT TO CLEAR PIPES. ALL BARS ARE #4 BARS AT 6" SPACING AND SHALL HAVE A MINIMUM CLEARANCE OF 1 1/2" UNLESS OTHERWISE NOTED. FLOORS OF INLET SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTFALL PIPE(S). THE CONTRACTOR SHALL HAVE THE OPTION TO CONSTRUCT 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP ON THIS INLET WHEN H=7'-0" OR LESS AND W=6'-4" OR LESS.

2. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.

3. SECTION D-D NOT APPLICABLE TO INLETS OVER THE EXISTING RCB.

REVISED: 12-21-1984

STANDARD TYPE 1 CURB INLET

INLET OPENING=6" x 5'-0"

OCTOBER, 1984

CITY OF WICHITA, KANSAS

33/74

Design BER KJS MWB	Checked by	Checked by	
Drawn by	Date	Date FEB. 2002	Job No.

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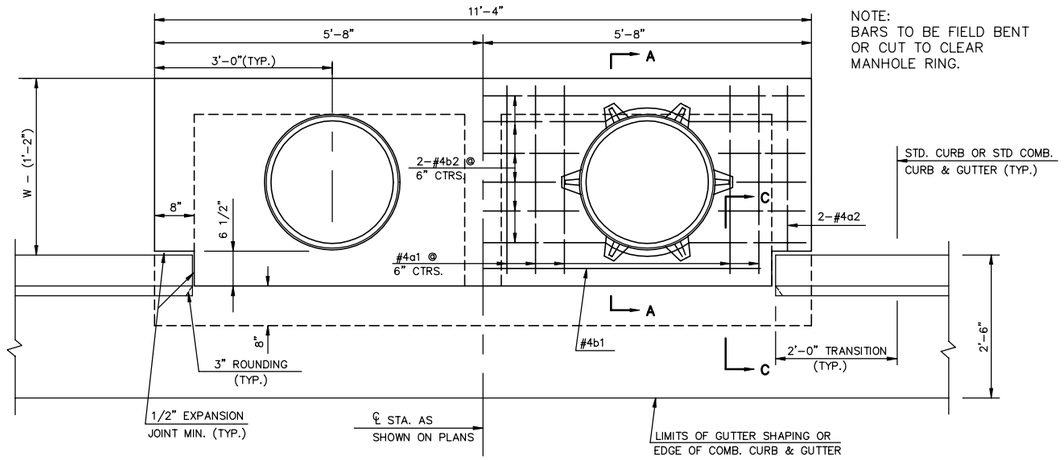
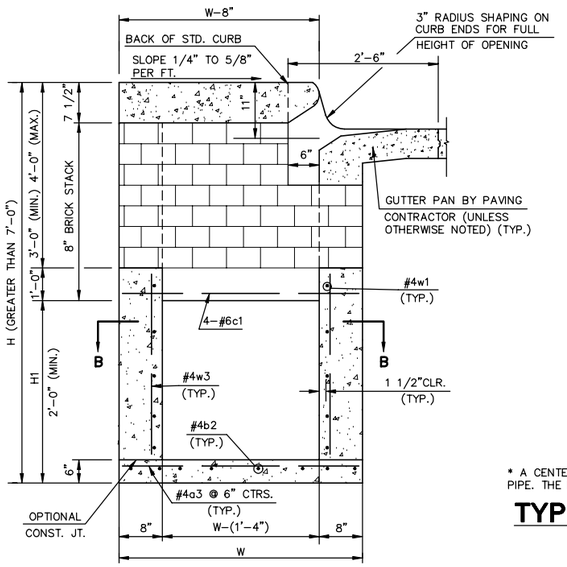
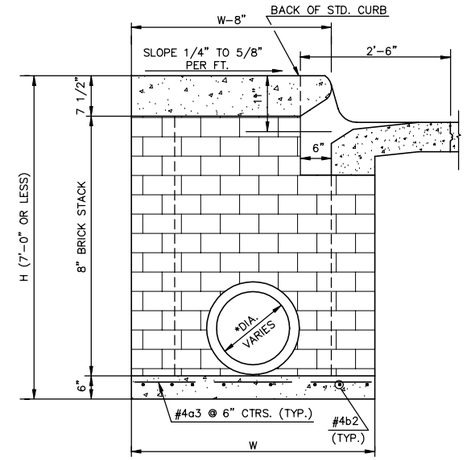


NOTE:
BARS TO BE FIELD BENT OR CUT TO CLEAR MANHOLE RING.

SLAB REINFORCING NOT SHOWN — SHOWING SLAB REINFORCING

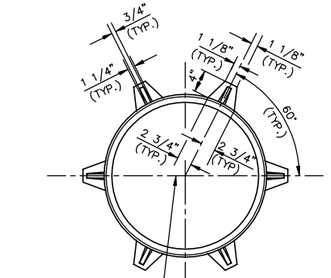
PLAN





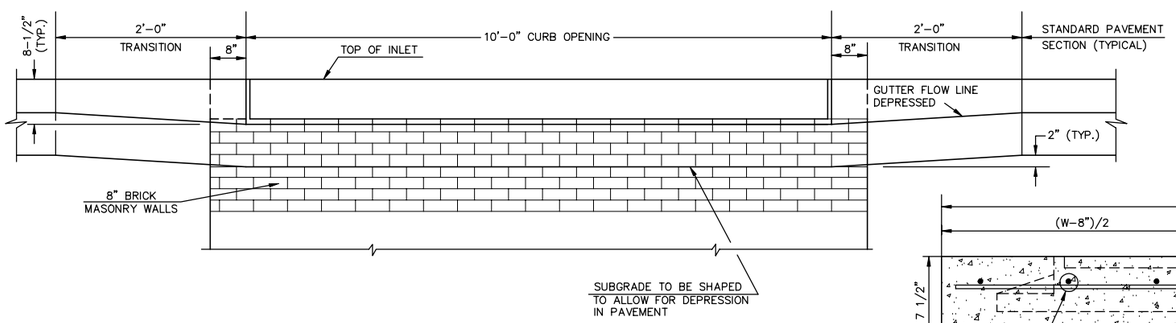
* A CENTER WALL OPENING SHALL BE PROVIDED BY MEANS OF A SECTION OF REINFORCED CONCRETE PIPE. THE MINIMUM DIAMETER USED SHALL BE THAT OF THE OUTLET PIPE.

TYPICAL INLET SECTION AT CENTER WALL
(MASONRY WALLS)

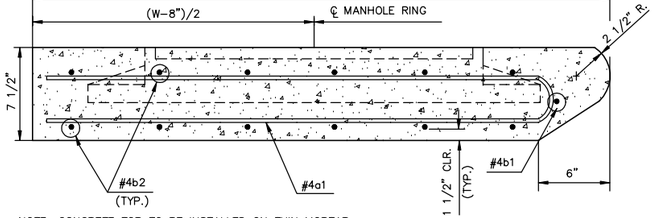


POSITION RING SUCH THAT THIS LINE IS PARALLEL WITH ℄ OF PAVEMENT

TYPICAL INLET SECTION AT CENTER WALL
(REINFORCED CONCRETE WALLS)

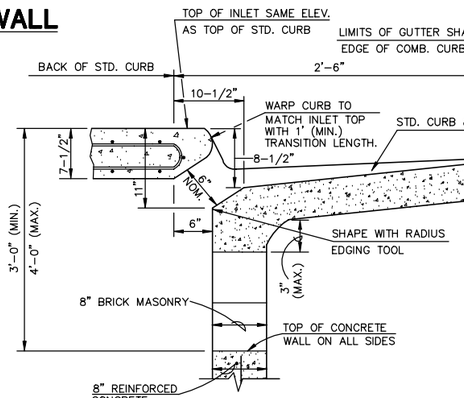


ELEVATION

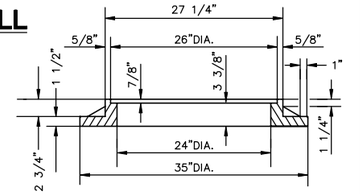


NOTE: CONCRETE TOP TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG WALLS.

SECTION A-A

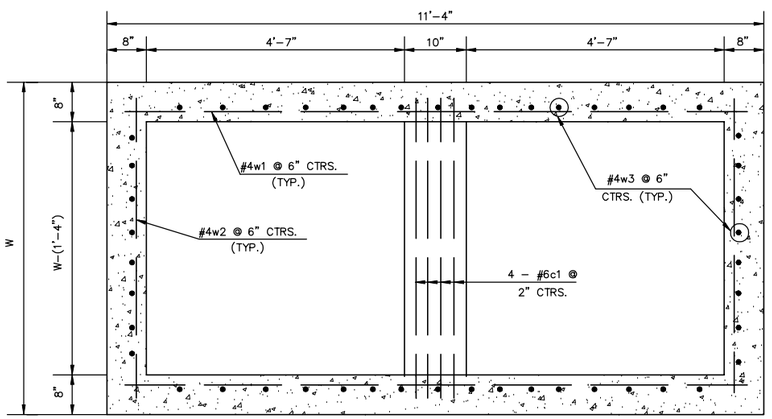


SECTION C-C



INLET FRAME
WT.=180 LBS.

SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.



SECTION B-B

SLAB AND FLOOR REINFORCING

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
a1	#4	13	6'-7 1/4"	13	8'-7 1/4"	13	10'-7 1/4"	13	12'-7 1/4"	13	14'-7 1/4"
a2	#4	2	6'-0"	2	8'-0"	2	10'-0"	2	12'-0"	2	14'-0"
a3	#4	20	4'-1"	20	5'-1"	20	6'-1"	20	7'-1"	20	8'-1"
b1	#4	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"	1	9'-8"
**b2	#4	18	11'-1"	24	11'-1"	30	11'-1"	36	11'-1"	42	11'-1"

WALL REINFORCING

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
c1	#6	4	6'-1"	4	7'-1"	4	8'-1"	4	9'-1"	4	10'-1"
w1	#4	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"	①	11'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	②	③	②	③	②	③	②	③	②	③

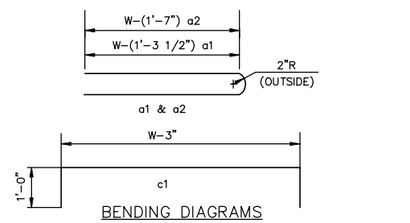
** FIELD BEND OR CUT REINFORCING AS REQUIRED FOR CLEARANCE
① 4(H1-6")
② 40+4(W-1)
③ H1-(9")

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8"x11'-4"x7 1/2"	21" & SMALLER	± 0.83
5'-4"	4'-8"x11'-4"x7 1/2"	24" & 30"	± 1.09
6'-4"	5'-8"x11'-4"x7 1/2"	36" & 42"	± 1.35
7'-4"	6'-8"x11'-4"x7 1/2"	48" & 54"	± 1.61
8'-4"	7'-8"x11'-4"x7 1/2"	60" & 66"	± 1.87

GENERAL NOTES

1. CONCRETE SHALL BE C.O.W. STANDARD PAVING MIX. ALL EXPOSED EDGES SHALL BE FINISHED WITH AN EDGING TOOL. REINFORCING BARS SHALL BE FIELD BENT OR CUT TO CLEAR PIPES. ALL BARS ARE #4 BARS AT 6" SPACING AND SHALL HAVE A MINIMUM CLEARANCE OF 1-1/2" UNLESS OTHERWISE NOTED. FLOORS OF INLET SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELLF CLEANING BETWEEN ALL INLET AND/OR OUTFALL PIPE(S). THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP ON THIS INLET WHEN H= 7'-0" OR LESS AND W= 6'-4" OR LESS.

2. THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.



BENDING DIAGRAMS

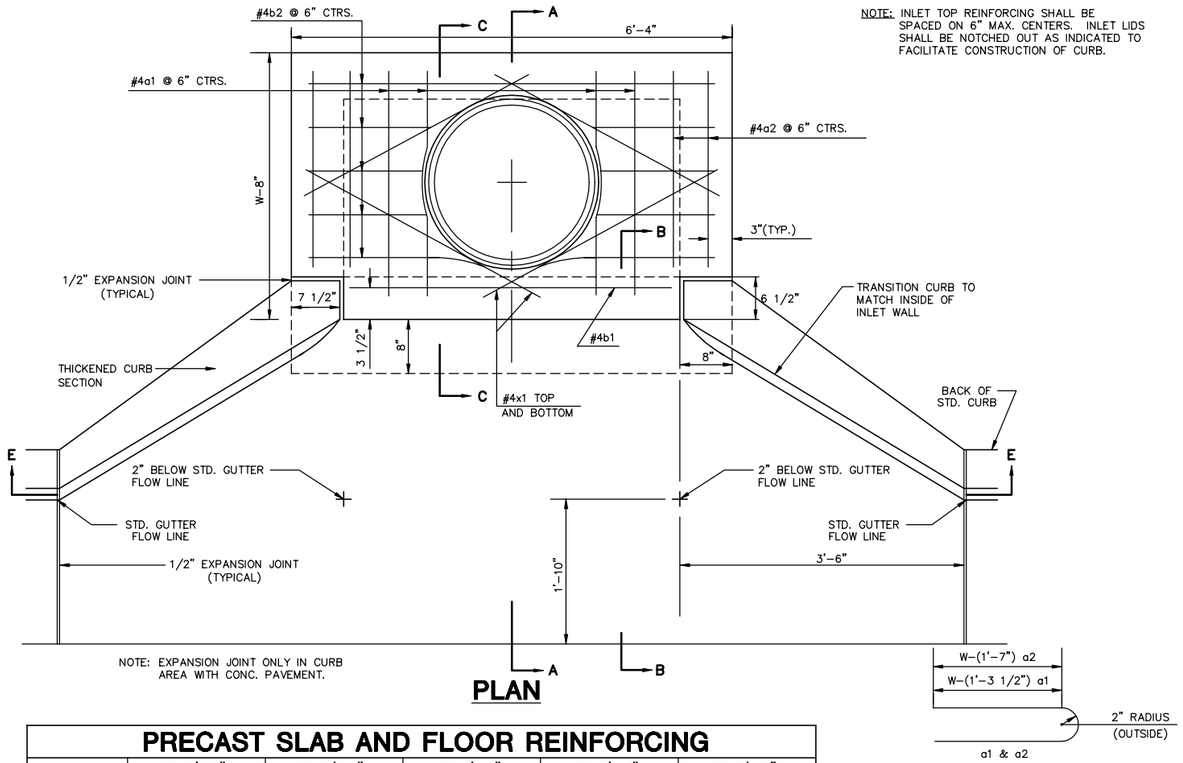
STANDARD TYPE 1 CURB INLET
INLET OPENING=6" x 10'-0"

OCTOBER, 1984

CITY OF WICHITA, KANSAS

34/74

Design BER KJS MWB	Checked by	Checked by	
Drawn by	Date	Date FEB. 2002	Job No.



NOTE: EXPANSION JOINT ONLY IN CURB AREA WITH CONC. PAVEMENT.

PLAN

NOTE: INLET TOP REINFORCING SHALL BE SPACED ON 6" MAX. CENTERS. INLET LIDS SHALL BE NOTCHED OUT AS INDICATED TO FACILITATE CONSTRUCTION OF CURB.

BENDING DIAGRAM

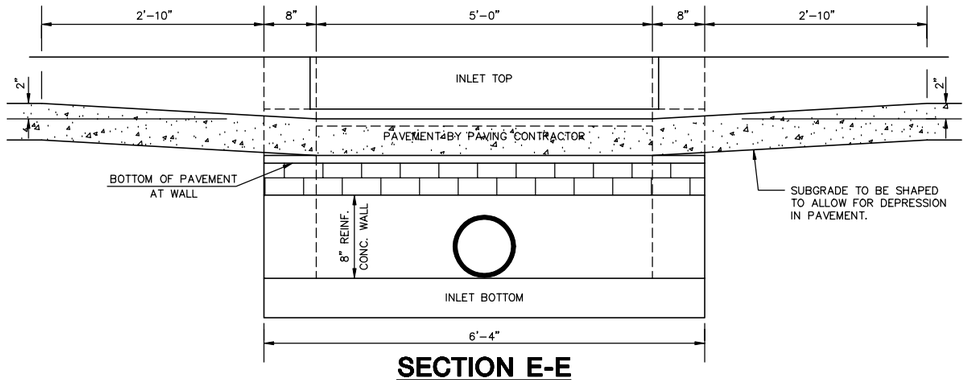
PRECAST SLAB AND FLOOR REINFORCING

		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
*a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1"	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
*b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"

WALL REINFORCING

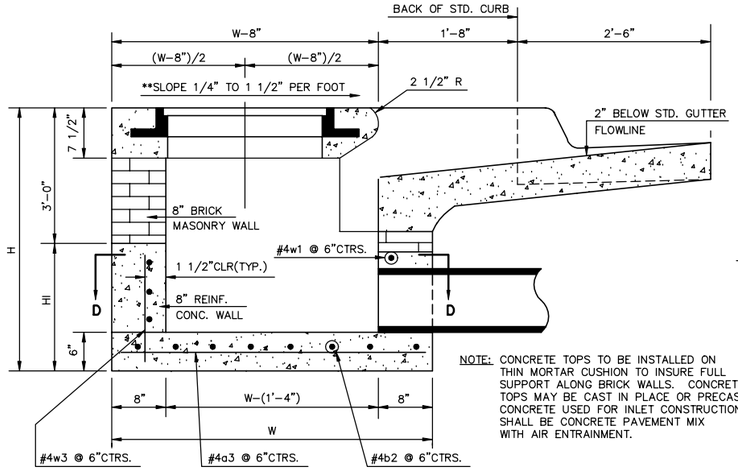
		W=4'-4"		W=5'-4"		W=6'-4"		W=7'-4"		W=8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

* FIELD BEND OR CUT REINFORCING AS REQUIRED FOR CLEARANCE
① 4(HI-12"); (HI-12") ROUND DOWN TO NEAREST 0.5'
② HI-3"



SECTION E-E

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8"x6'-4"x7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8"x6'-4"x7 1/2"	24" & 30"	.51±
6'-4"	5'-8"x6'-4"x7 1/2"	36" & 42"	.64±
7'-4"	6'-8"x6'-4"x7 1/2"	48" & 54"	.77±
8'-4"	7'-8"x6'-4"x7 1/2"	60" & 66"	.90±



NOTE: CONCRETE TOPS TO BE INSTALLED ON THIN MORTAR CUSHION TO INSURE FULL SUPPORT ALONG BRICK WALLS. CONCRETE TOPS MAY BE CAST IN PLACE OR PRECAST. CONCRETE USED FOR INLET CONSTRUCTION SHALL BE CONCRETE PAVEMENT MIX WITH AIR ENTRAINMENT.

SECTION A-A

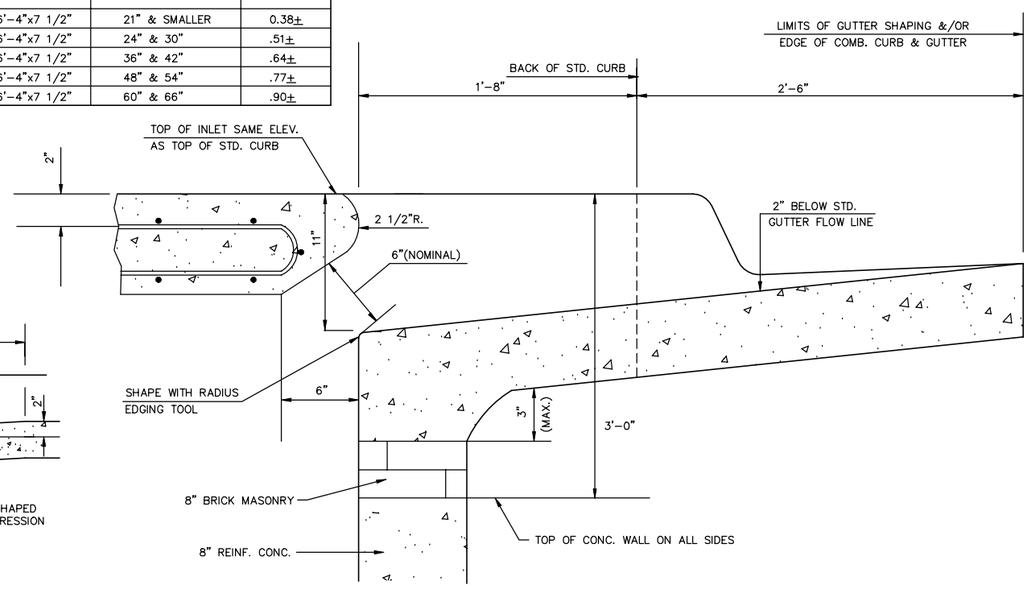
NOTE: CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING 8" BRICK MASONRY WALLS BETWEEN THE CONCRETE INLET BASE AND TOP ON THIS INLET WHEN W=6'-4" AND H=7'-0" OR LESS.

ADDITIONAL CURB AND GUTTER CONSTRUCTION NECESSARY TO CONNECT SET-BACK INLET TO PAVEMENT WILL BE PAID FOR AT THE UNIT PRICE BID FOR EACH INLET HOOKUP.

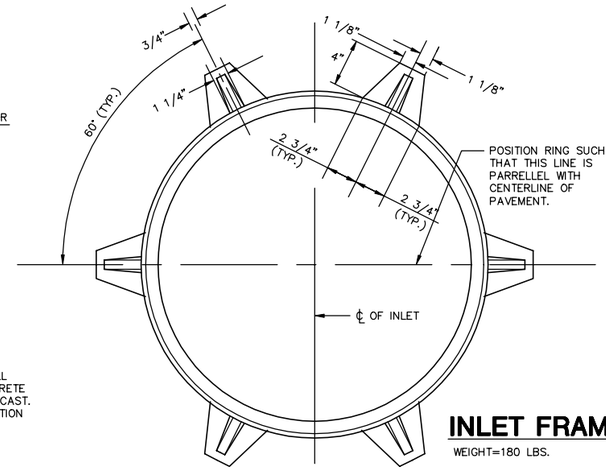
INLET INVERT SHALL BE SHAPED WITH 8 SACK SAND MIX CONCRETE TO CREATE FLOW CHANNELS AND TO INCREASE HYDRAULIC EFFICIENCY SUCH THAT THE INLET WILL BE SELF CLEANING BETWEEN ALL INLET AND/OR OUTLET PIPES.

THE ENDS OF ALL PIPES INSTALLED IN INLETS SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF THE INLET WALL.

**NOTE: SLOPE OF INLET TOPS TO MATCH SIDEWALK OR PARKING SLOPES WITHIN LIMITS INDICATED.

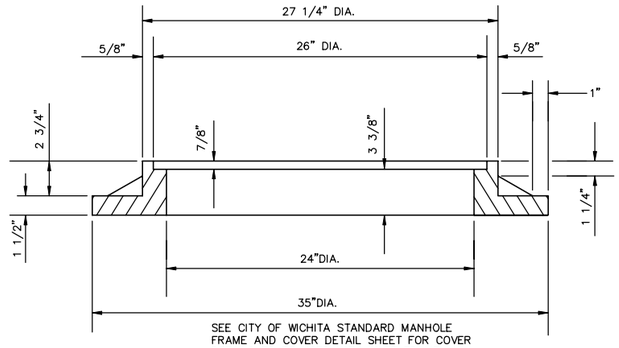


SECTION B-B

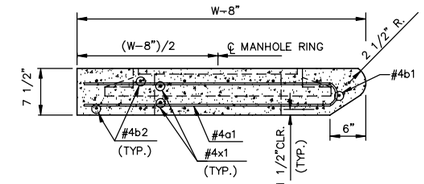


INLET FRAME

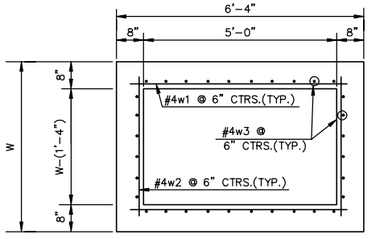
WEIGHT=180 LBS.



SEE CITY OF WICHITA STANDARD MANHOLE FRAME AND COVER DETAIL SHEET FOR COVER DETAILS TO BE USED WITH INLET FRAME.



SECTION C-C



SECTION D-D

REVISED: 2-16-89 C.O.W.

STANDARD TYPE 1A CURB INLET

INLET OPENING=6"x5'-0"

JUNE 1984

CITY OF WICHITA, KANSAS

35/74

Design C.O.W.	Checked by	Checked by	
Drawn by	Date	Date FEB. 2002	Job No.

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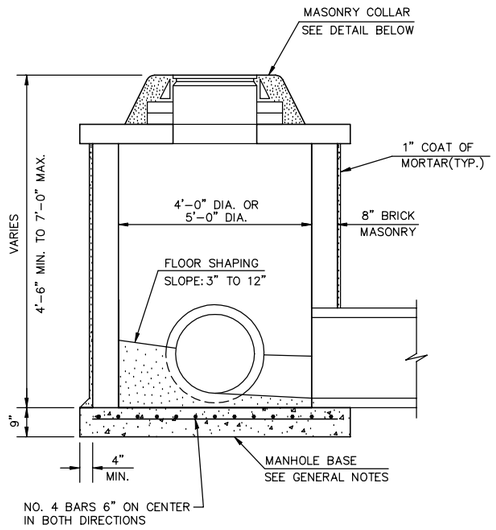
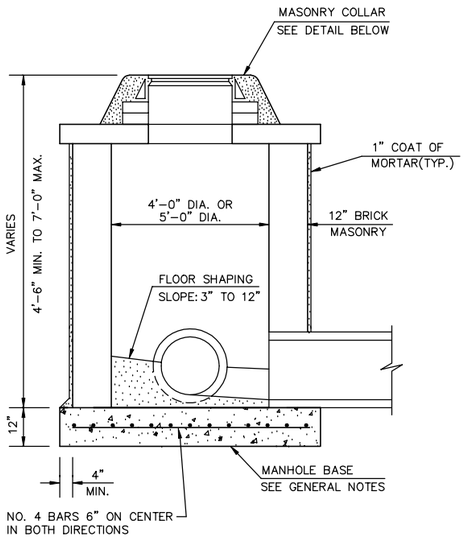
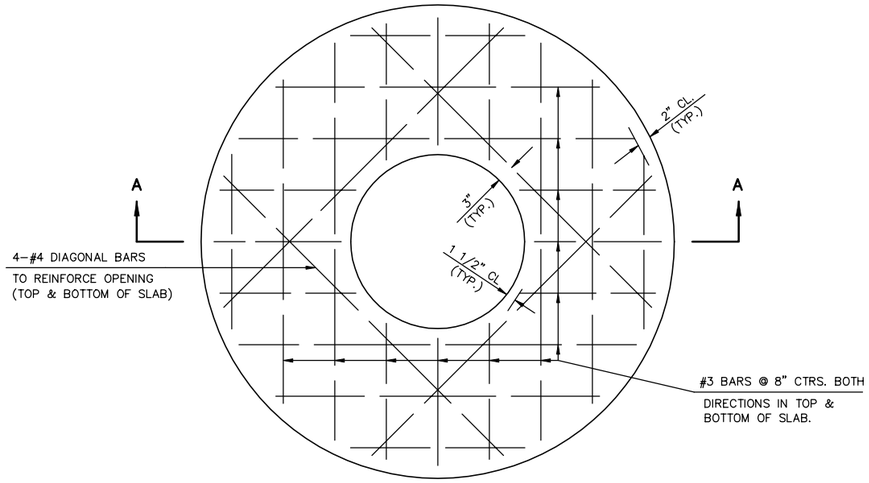


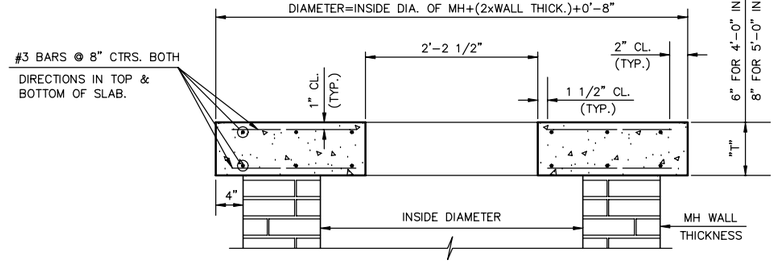
SHALLOW TYPE "A" MANHOLE



SHALLOW TYPE "B" MANHOLE



PLAN

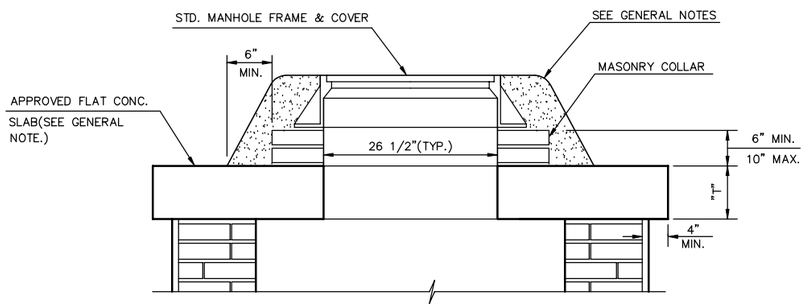


SECTION A-A

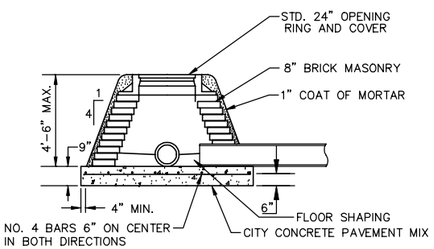
FLAT CONCRETE SLAB DETAILS

GENERAL NOTES

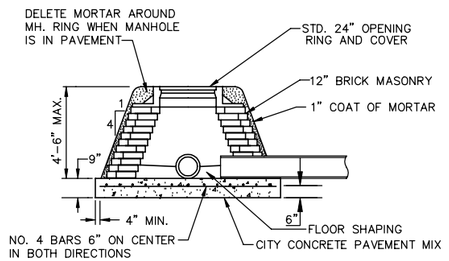
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE RE-QUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE CEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. TYPE "A" SHALLOW MANHOLES CAN BE USED ON SEWERS WHEN THE MANHOLE IS NOT LOCATED WITHIN PUBLIC STREET PAVEMENT. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LAR-GER SHALL HAVE AN INSIDE DIAMETER OF 5'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
3. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
4. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
5. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWINGS.
6. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
7. STANDARD SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE AND DIAMETER INDICATED. STANDARD SPECIAL SHALLOW MANHOLES TYPE "A" AND "B" SHALL BE PAID FOR AT THE UNIT PRICE BID PER EACH FOR THE TYPE INDICATED. ALL STANDARD SHALLOW MAN-HOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.



MASONRY COLLAR DETAIL



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

STANDARD SHALLOW MANHOLES TYPE "A" AND TYPE "B"

CITY OF WICHITA, KANSAS

36/74

Design C.O.W.	Checked by	Checked by	
Drawn by	Date	Date FEB. 2002	Job No.

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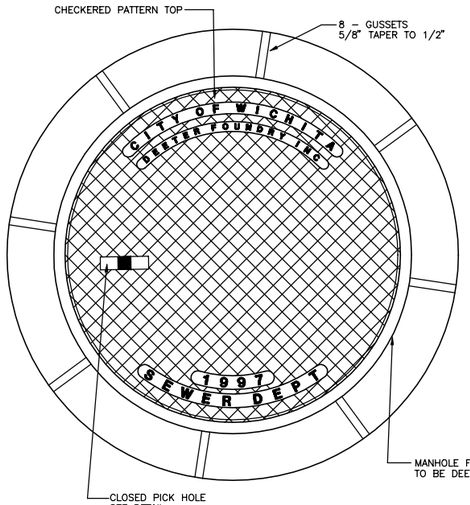
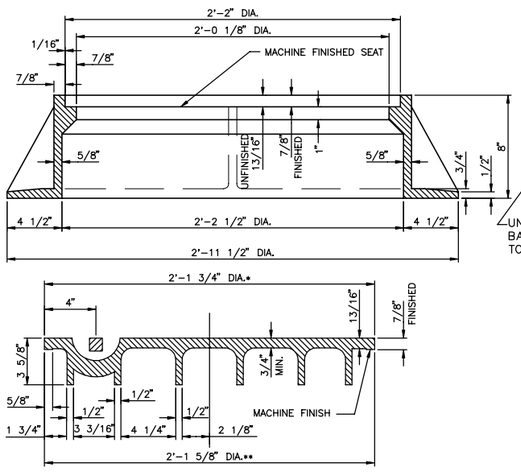
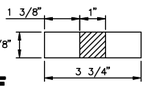
SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA



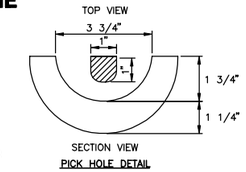


*OUTSIDE DIA. TOP OF COVER
**OUTSIDE DIA. BOTTOM OF COVER



MANHOLE FRAME AND COVER

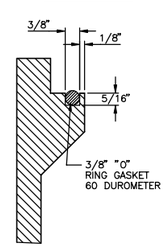
(TOTAL WEIGHT = 430 LBS.)



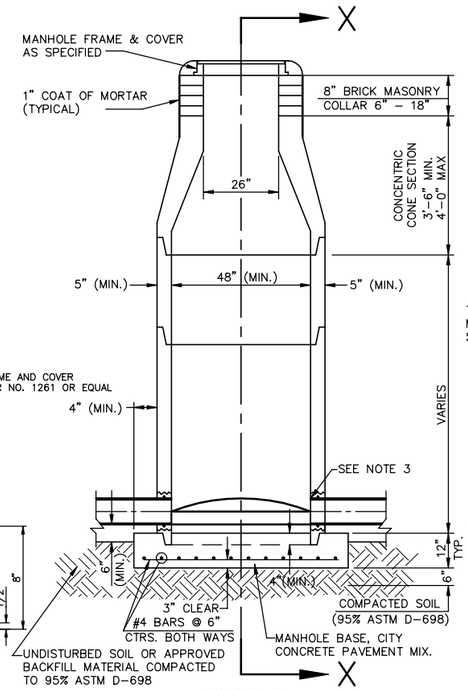
MANHOLE FRAME AND COVER NOTES

1. CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 30, OR BETTER.
2. THE FRAMES AND COVERS SHALL BE OF A NONROCKING TYPE OR WITH MACHINED BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
3. MANHOLE CASTINGS SHALL BE DEETER FOUNDRY INC. NO. 1261 OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT.–430 LBS.) ALL MANHOLE CASTINGS, REGARDLESS OF TYPE, SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
4. GRIND ALL BURRS SMOOTH, CLEAN THOROUGHLY, THEN APPLY SHOP COAT OF ASPHALT BASE PAINT.
5. THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
6. WHERE SELF-SEALING MANHOLE FRAMES ARE SPECIFIED ON THE PLANS, THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL NOT BE INSTALLED IN THE MANHOLE FRAME UNTIL AFTER FINAL INSPECTION AND ACCEPTANCE OF THE PROJECT BY THE ENGINEER. THE CONTRACTOR SHALL SUPPLY TO THE OWNER ONE (1) REPLACEMENT "O" RING GASKET FOR EACH SELF-SEALING MANHOLE SPECIFIED.

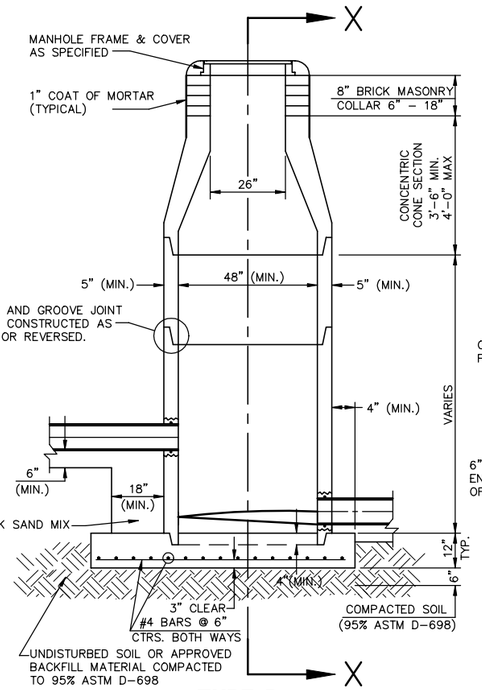
PICK HOLE DETAIL



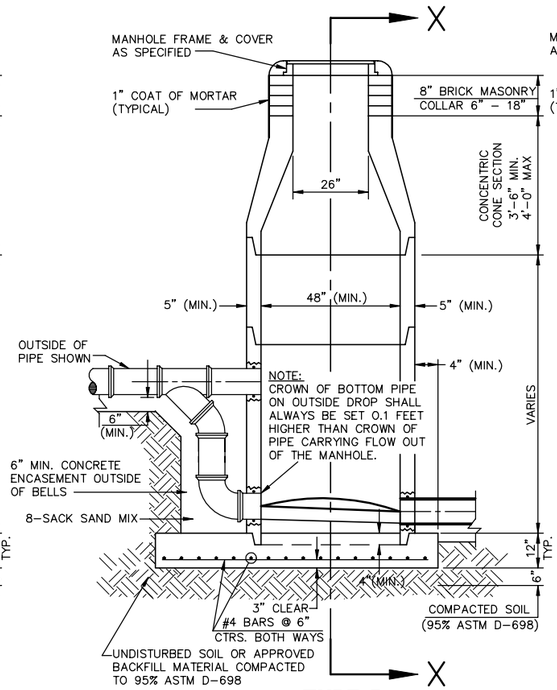
FRAME GROOVING DETAIL
(FOR SELF-SEALING MHS ONLY)



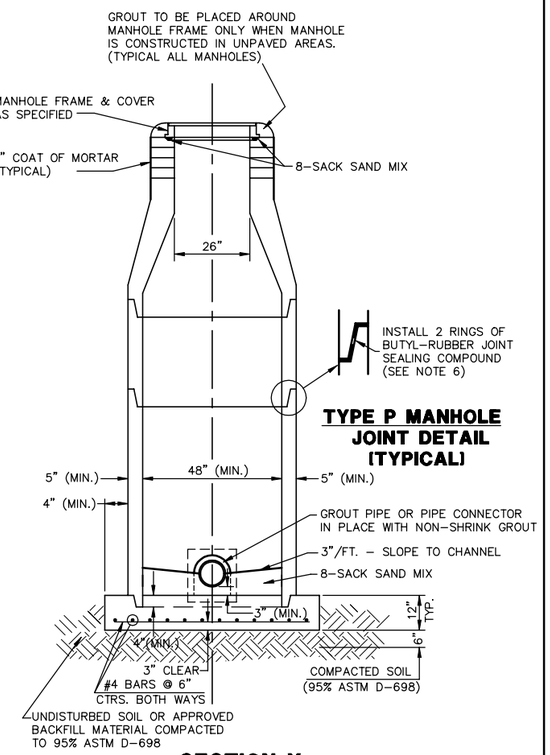
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



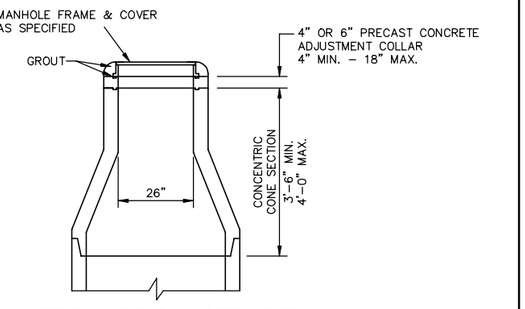
TYPE P
OUTSIDE DROP MANHOLE



SECTION X
(TYPICAL)

GENERAL NOTES - PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON–SHRINK GROUT SHALL BE NON–METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON–SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEMEC SERIES 66 HI–BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON–SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.



ALTERNATE CONSTRUCTION IN UNPAVED AREAS

37/74

REVISED: 6-12-86

MANHOLE DETAILS

CITY OF WICHITA, KANSAS

Design C.O.W.	Checked by	Checked by	
Drawn by	Date	Date FEB. 2002	Job No. MHDTLS–2

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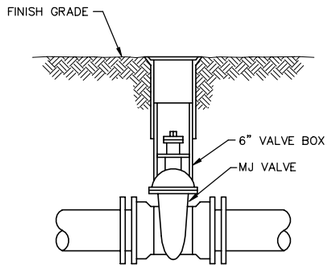
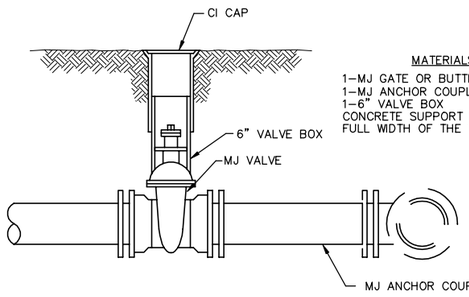


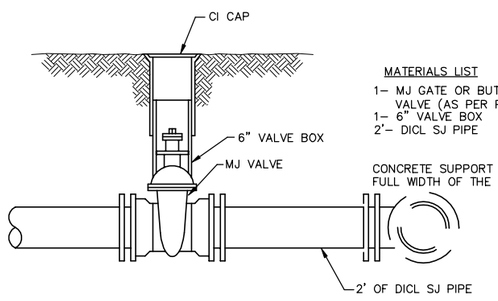
MATERIALS LIST
1–MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1–6" VALVE BOX
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

LINE VALVE ASSEMBLY



MATERIALS LIST
1–MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1–MJ ANCHOR COUPLING (12" OR SMALLER)
1–6" VALVE BOX
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

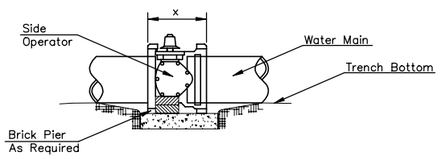
ANCHORED VALVE ASSEMBLY



MATERIALS LIST
1– MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1– 6" VALVE BOX
2'– DICL SJ PIPE

CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

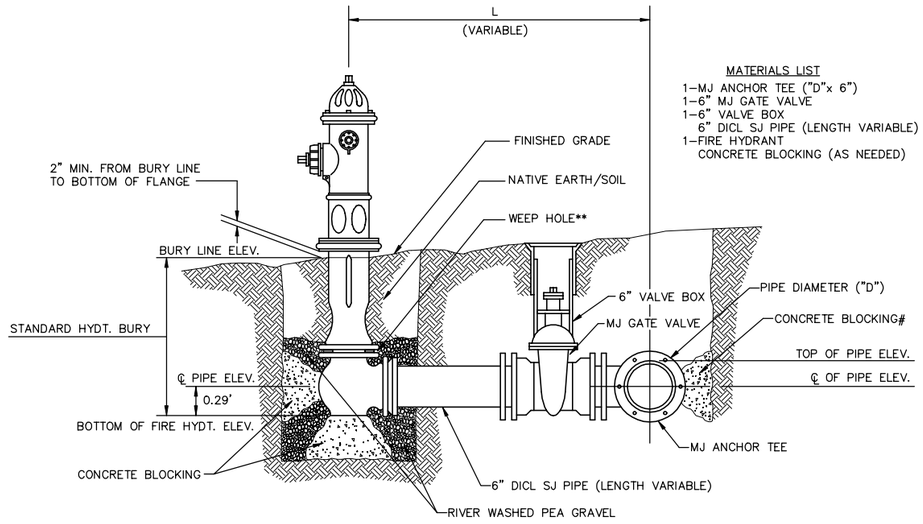
VALVE ASSEMBLY



NOTES

1. This detail covers Butterfly Valve installation, inclusive, regard–less of type of pipe or joint used. Larger lines to be detailed on plans.
2. 6" Valve Box and Cover required per City of Wichita Std. Specifications.
3. Conc. Support Block to be full width of trench.

CONCRETE SUPPORT BLOCKING FOR BUTTERFLY VALVE INSTALLATION



MATERIALS LIST
1–MJ ANCHOR TEE ("D"x 6")
1–6" MJ GATE VALVE
1–6" VALVE BOX
6" DICL SJ PIPE (LENGTH VARIABLE)
1–FIRE HYDRANT
CONCRETE BLOCKING (AS NEEDED)

** CAUTION! WEEP HOLES TO BE KEPT CLEAR DURING CONSTRUCTION AND BACKFILL. CONCRETE FOR THRUST BLOCKING SHALL NOT OBSTRUCT WEEP HOLES.

CONCRETE THRUST BLOCKING SHALL BE KEPT CLEAR OF BOLTS, NUTS, AND MJ ACCESSORIES.

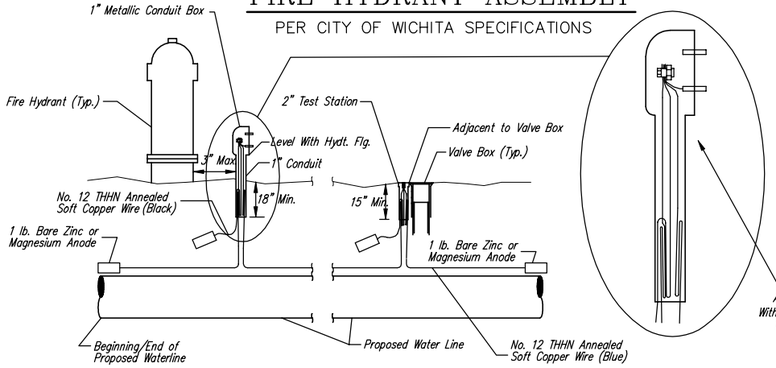
* IF HYDRANT BURY IS IN EXCESS OF 5', CONTRACTOR SHALL USE STANDARD 5' HYDRANT BURY AND HYDRANT BARREL EXTENSIONS AS NECESSARY.

FIRE HYDRANTS REQUIRED

LINE NUMBER	STATION	BURY LINE ELEVATION	TOP OF PIPE ELEVATION	FIRE HYDRANT BURY REQUIRED*
1	0+05	144.30	139.67	6.0'
1	13+11.44	160.90	155.27	7.0'
2	4+36.13	142.50	137.17	6.0'
4	4+40.53	140.00	135.02	6.0'
6	1+80.07	145.10	139.24	7.0'
9	0+78	156.40	152.57	4.5'

FIRE HYDRANT ASSEMBLY

PER CITY OF WICHITA SPECIFICATIONS



TRACER WIRE

Conductive type pipe locator/tracer wire shall be installed to locate all waterline pipe regardless of pipe material. The wire shall extend the entire length of the proposed pipe. The wire shall be taped to the waterline and pulled with the pipe. Split–bolt connectors shall be used at splice locations. Electrical tape shall cover all splices so no bare wire is exposed. Test stations shall be installed adjacent to all fire hydrants along the waterline and at blowoffs or valves near the ends of the waterlines. Any exceptions to the location of test stations shall be approved by the engineer. At each test station, the tracer wire shall be connected to a 1 lb. Zinc or magnesium anode. Anodes shall also be attached to the tracer wire at both the beginning and the end of the proposed waterline. A typical layout of the tracer wire and test station is provided in the above figure.

WIRE

The tracer wire shall be Blue No. 12 THHN annealed soft copper wire with thermal plastic insulation. The insulation shall be heat, oil, and gasoline resistant as manufactured by Temple Electric or approved equal. To allow for grade adjustment, a minimum of 12" of excess wire shall be coiled at the bottom of the test station for all wires. The insulation sheathing shall be removed such that 1" bare copper wire is exposed at all points of connection. Contractor shall attach wire being installed with proposed water main to any tracer wire installed with adjacent waterline projects.

TEST STATIONS

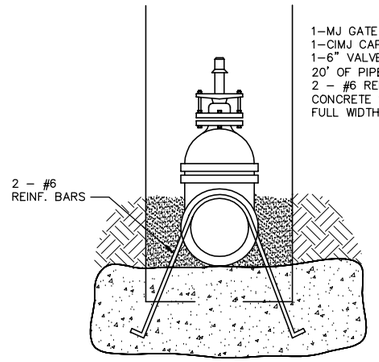
The test station for fire hydrant applications shall be a 1 inch galvanized conduit style test station as manufactured by AGRA Industries with a removable solid cover having two leads extending from the face or approved equal. The test station for valve applications shall be 2 inch flush style test station T2PS3B as manufactured by HANDLEY Industries or approved equal. The conduit style shall be attached to a 1 inch rigid galvanized conduit with a minimum length of 36" and plastic end bushing. The flush style shall have the word "WATER" stamped or molded into the lid. All test stations shall be manufactured using molded blue tops or sufficiently coated with blue enamel paint. The tracer wire and the anode wire shall be installed to allow 10 inches of wire within the test station. In concrete environments such as sidewalks or in the downtown area the contractor shall use the flush style test station. The location of all test stations shall be approved by the engineer, recorded, and shown in the as–built drawings.

ANODES

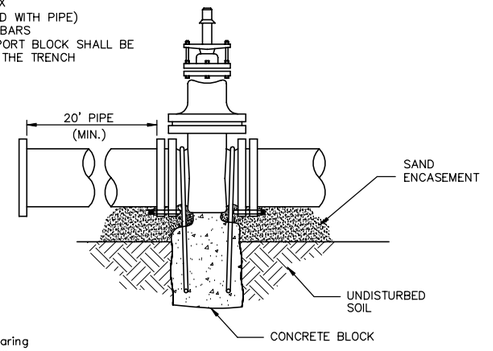
The anodes shall be 1 lb. bare zinc or magnesium. The anodes shall be buried at the same elevation as the waterline at each test station. The anodes shall be connected to Black No. 12 THHN annealed soft copper wire which shall be extended to the test station.

TRACER WIRE DETAIL

COST IS SUBSIDIARY TO PIPE INSTALLATION



MATERIALS LIST
1–MJ GATE OR BUTTERFLY VALVE (AS PER PLAN)
1–CIMJ CAP WHEN NECESSARY
1–6" VALVE BOX
20' OF PIPE (BID WITH PIPE)
2 – #6 REINF. BARS
CONCRETE SUPPORT BLOCK SHALL BE FULL WIDTH OF THE TRENCH

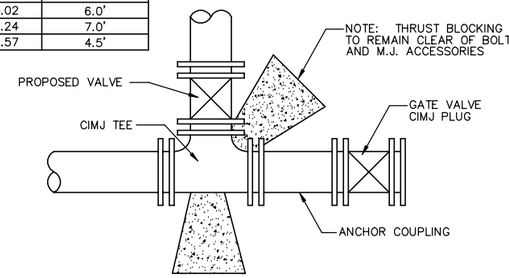


Notes:
1. Concrete Block at Valve to have sufficient bearing in undisturbed soil to prevent thrust movement as shown in table at right. Field Engineer to determine thrust loading of undisturbed soil and final size of thrust block.
2. The thrust block shall be constructed such that bolts, nuts, and other MJ accessories are kept clear of concrete.
3. All valves at dead ends and at other locations as called out on the plans shall be blocked as shown here.

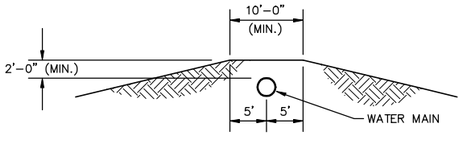
THRUST AT VALVES

VALVE	THRUST AT 150 #/in²
4"	1809 lbs.
6"	4245 lbs.
8"	7540 lbs.
12"	16965 lbs.

ANCHORED VALVE ASSEMBLY, SPECIAL

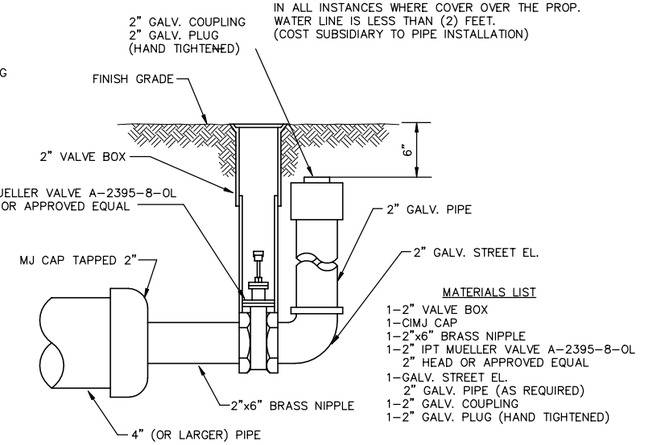


KEY BLOCK DETAIL



PROTECTIVE FILL DETAIL

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE COVER OVER THE PROP. WATER LINE IS LESS THAN (2) FEET. (COST SUBSIDIARY TO PIPE INSTALLATION)



MATERIALS LIST
1–2" VALVE BOX
1–CIMJ CAP
1–2"x6" BRASS NIPPLE
1–2" IPT MUELLER VALVE A–2395–8–OL
2" HEAD OR APPROVED EQUAL
1–GALV. STREET EL.
2" GALV. PIPE (AS REQUIRED)
1–2" GALV. COUPLING
1–2" GALV. PLUG (HAND TIGHTENED)

2" BLOWOFF ASSEMBLY

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THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268–4501
(316) 268–4114 FAX

STANDARD WATER ASSEMBLY DETAILS

M. E. LINDEBAK P.E. – CITY ENGINEER

PROJECT NUMBER	INDEX CODE
448–89341	706705
DATE: FEB. 02	SHEET 38 OF 74

Revised: 11–13–00, MCG
Revised: 6–7–00, MCG

Notes For All Services - 2" thru 12":

1. When the standard vault dimensions are not applicable, such as when additional space is required for special pipe, fittings, additional meters, etc. the design engineer shall design a vault with the required dimensions for Water & Sewer Dept. approval and Public Works approval.

2. The vault shall be poured concrete, cement blocks (voids to be completely filled with 2500 P.S.I. concrete), or approved precast structure (such as Clutter Inc. vaults approved 8/1/2000). The intent of these details shall not be limited by drawings or standards of precast structures.

3. Vault location to be determined by Wichita Water & Sewer prior to construction and approved by Department's field supervisor prior to installation. A final inspection will be required for acceptance. Vault location standards include but not limited to: not to be located where subjected to vehicular loads, not to be located in any right-of-way or utility easement, and must be located on the property being served.

4. The manhole ring and lid shall be Neenah R-6034 Frame with Type "C" Solid Lid and Drop Down Handle or US Foundry APS-30x30 (Aluminum). Where applicable the standard 10" Wichita Water & Sewer pattern meter reading lid and ring shall be located directly above water meter register. All meter registers shall have an approved lid directly vertical above. All joints of concrete to concrete or metal to concrete in the construction of the vault shall have an appoved water tight mastic joint seal.

5. Any fittings or appurtenances required to achieve proper elevation of pipe through the vault shall be provided by the contractor and appropriately noted on as-builts submitted by the inspecting engineer. Such fittings shall be a minimum of 2' from the exterior wall of vault.

6. For all services larger than 2" the contractor shall provide an outlet flange connection as shown 12-inches from the inside wall. Inlet and outlet wall sleeves shall be provided and installed by the contractor and shall be in alignment with one another. The inlet and outlet pipe shall be ductile iron pipe, cement lined, Class 150 per Standard Specifications and shall be continuous through vault wall and joint no less than two(2) feet from the exterior wall of vault. Flanges of inlet and outlet pipes shall be in proper alignment and bolt pattern shall be rotated in such a way that valves and other fittings shall be in their proper vertical alignment when installed.

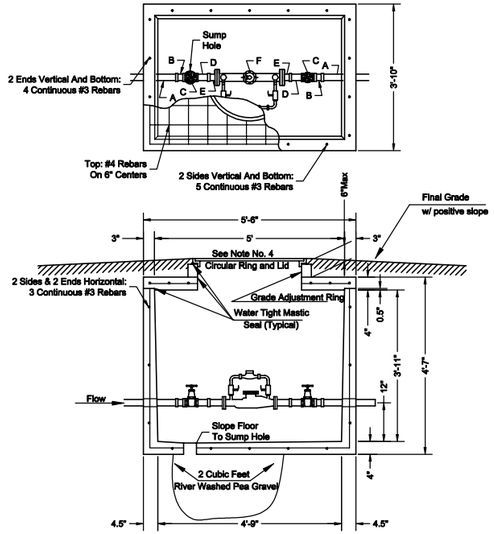
7. For all services 4" and larger the contractor shall install a mega lug, restrained joint, or approved equal on the exterior walls of the vault, which shall be manufactured of ductile iron conforming to ASTM A 536-80, heat treated to a minimum hardness of 370 BHN and have a working pressure of at least 250 P.S.I. For all services smaller than 4" the contractor shall Install an approved vault clamp on the exterior walls of the vault.

8. All valves, meters, assemblies, and fittings shall be provided with sufficient concrete or other approved supports to the vault floor.

9. The "Confined Space Warning" sign shall be fastened to the top of all vaults. If necessary for lanscaping or site considerations, the sign may be fastened to the vault lid if it does not impede access to the handle. Acceptable materials: Aluminum 73415HH, Plastic 73439HH, or S.A. Vinyl 73463HH.

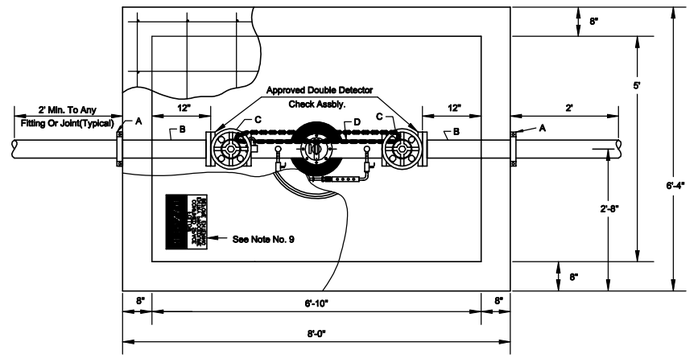
10. All meters shall have an electronic read register compatible with the current City of Wichita meter reading system. All detector meters shall be an 5/8 cubic foot Badger meter with ERT register or approved equal. Gallon meters shall not be accepted.

11. Additional Notes For Fire Services:
    - A. A post indicator valve (PIV) is an option for the outlet valve and may be requested by the architect or owner. The PIV is not required by City of Wichita ordinance.
    - B. When Siamese connections are required by the Wichita Fire Department, refer to the current City Code Section 15.
    - C. If due to any reason the completed vault retains ground or drainage water in excess of 4" in depth from the floor of the vault, the property owner shall be responsible for providing and installing an appropriate automatic sump pump or approved equal, as well as any other appurtenances required to make such system function as intended.
    - D. The property owner is responsible for completing an "Application for Private Fire Protection" prior to final acceptance of the project.

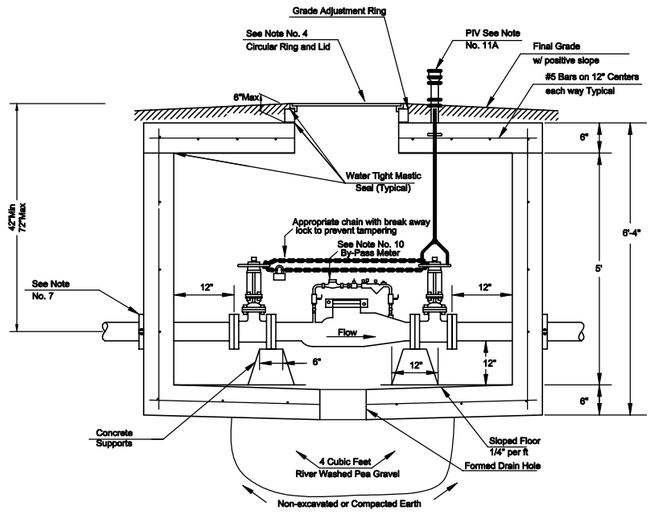


A - 2" PVC or Copper
B - 2" F PVC to M Iron or 2" F Copper to M Iron
C - 2" Bronze IPT Gate Valve, Wheel Operated
D - 2" x 4" or 2" x 6" Brass Nipple
E - Lok-Pak Meter Couplings
F - 2" Febco Model 406 Detector Check or approved equal with metered bypass assembly

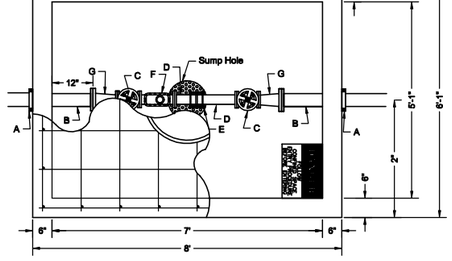
2" Fire Service

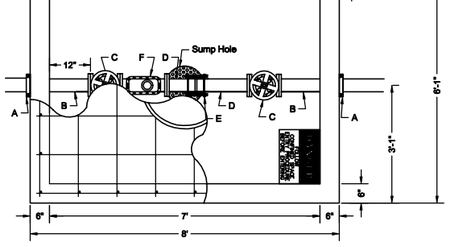


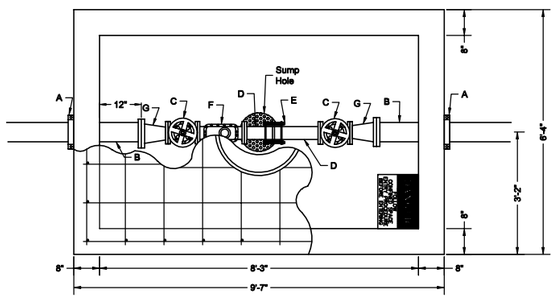
A - Mega Lug (See Note 7)
B - Min. 3'-8" Piece of FL x PE DICL Pipe
C - Flange Gate Valve, Wheel Operated
D - Ames Model 3001SS or approved equal with metered(cubic foot) by-pass assembly

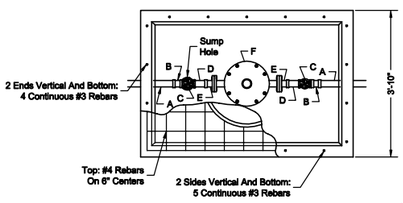


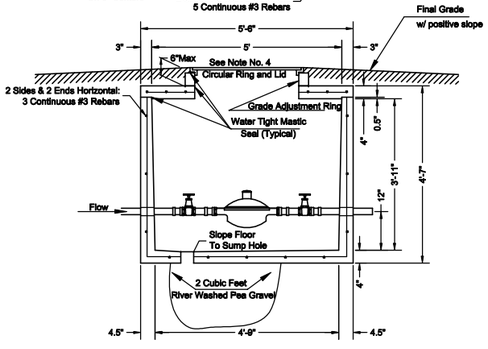
4" thru 8" Fire Service







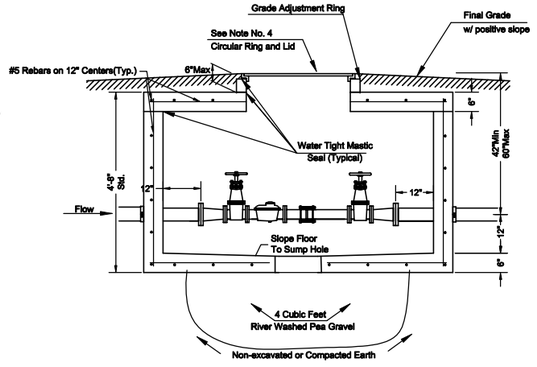




A - 2" PVC or Copper (to be extended completely through vault to ensure proper alignment)*
B - 2" F PVC to M Iron or 2" F Copper to M Iron**
C - 2" Bronze IPT Gate Valve, Wheel Operated**
D - 2" x 4" or 2" x 6" Brass Nipple**
E - Lok-Pak Meter Couplings**
F - 2" Meter**

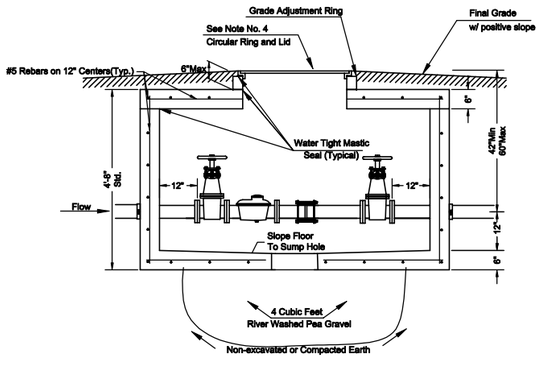
* = Contractor Installed
** = Installed By Wichita Water & Sewer

2"DS



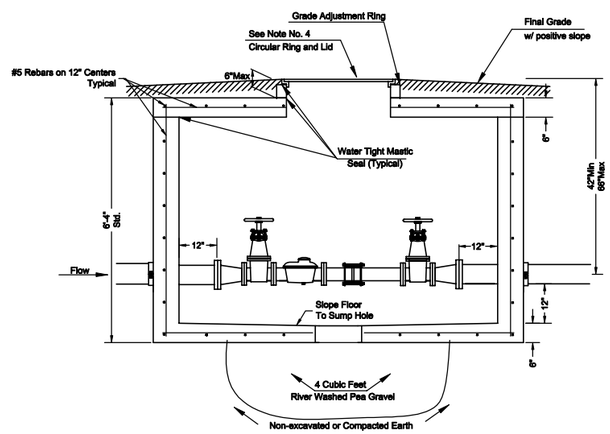
A - 4" Vault Clamp
B - Min. 3' Piece of 4" FL x PE DICL Pipe
C - 3" Flange Non-rising Stem Gate Wheel Valve
D - 3" FL x PE Pipe
E - 3" Flex Coupling
F - 3" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-350DR Cubic Foot Meter with AMR Register.
G - 3" x 4" FL Reducer

3"DS



A - 4" Vault Clamp
B - Min. 3' Piece of 4" FL x PE DICL Pipe
C - 4" Flange Non-rising Stem Gate Wheel Valve
D - 4" FL x PE Pipe
E - 4" Flex Coupling
F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.

4"DS



A - 6" Mega Lug (See Note 7)
B - Min. 3' Piece of 6" FL x PE DICL Pipe
C - 4" Flange Non-rising Stem Gate Wheel Valve
D - 4" FL x PE Pipe
E - 4" Flex Coupling
F - 4" Badger Recordall II Turbo Cubic Foot Meter with ERT Register or Sensus W-1000DR Cubic Foot Meter with AMR Register.
G - 6" x 4" Flange Reducer

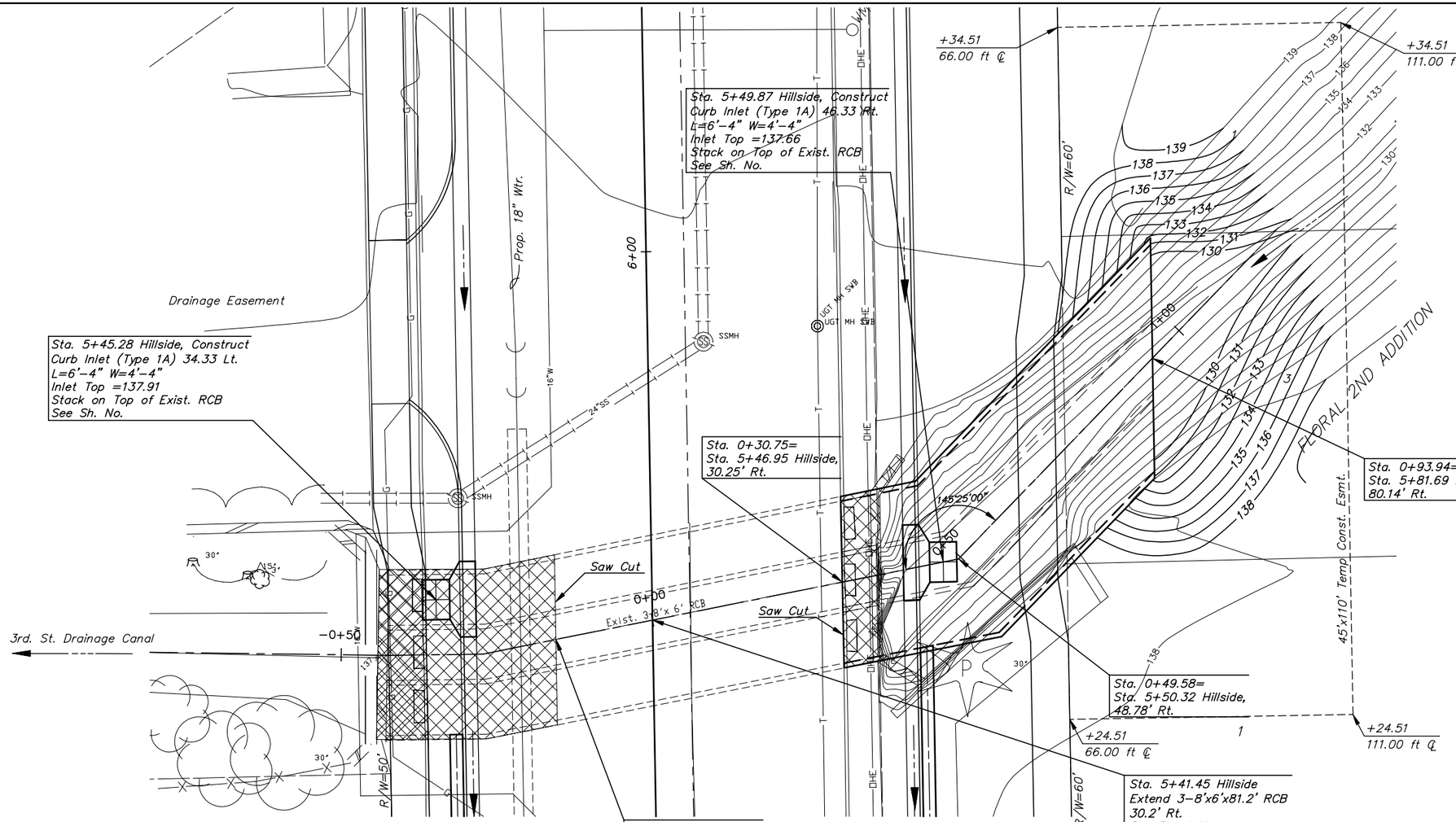
6" DS w/ 4" meter

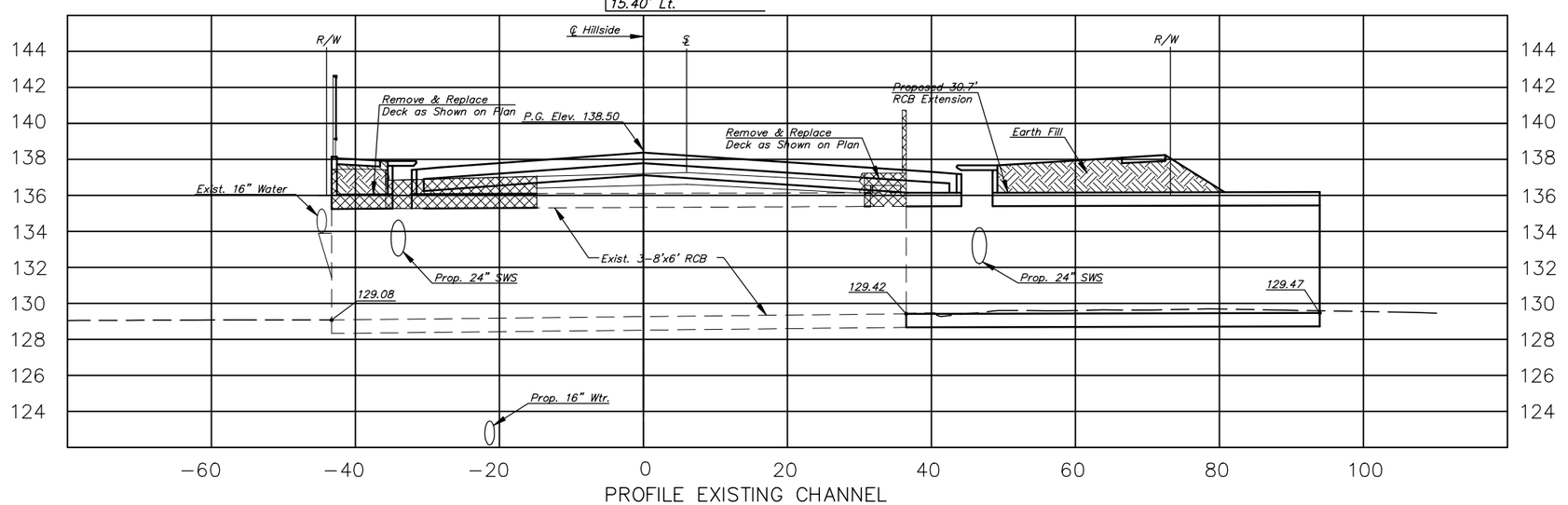
THE CITY OF WICHITA
WATER & SEWER DEPT.
CITY HALL — EIGHTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4691
(316) 268-4514 FAX

STANDARD VAULT DETAILS AND METER ASSEMBLIES

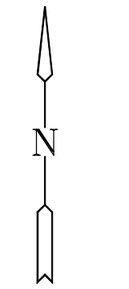
D. R. WARREN — DIRECTOR

PROJECT NUMBER 448-89341
INDEX CODE 706705
DATE FEB. 2002
SHEET 39 OF 74



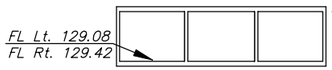


PROFILE EXISTING CHANNEL



SCALE: 1"=10'

0 10 20



Total Waterway = 144.0 Sq. Ft.

EXISTING BRIDGE OPENING

3- 8'x6'x81.2' RCB
66.0' Roadway with 6' Walkway Lt. & Rt.

UTILITIES:

City of Wichita Water/Sewer Dept.	(316) 268-4940
K.G.E.	(316) 383-8600
Southwestern Bell Telephone Co.	1-800-734-7590
Cox Communications	(316) 262-4270
Kansas Gas Service	(316) 383-8600
City of Wichita Storm Water Utility	(316) 208-4071

LEGEND

Deck Removal

Fill

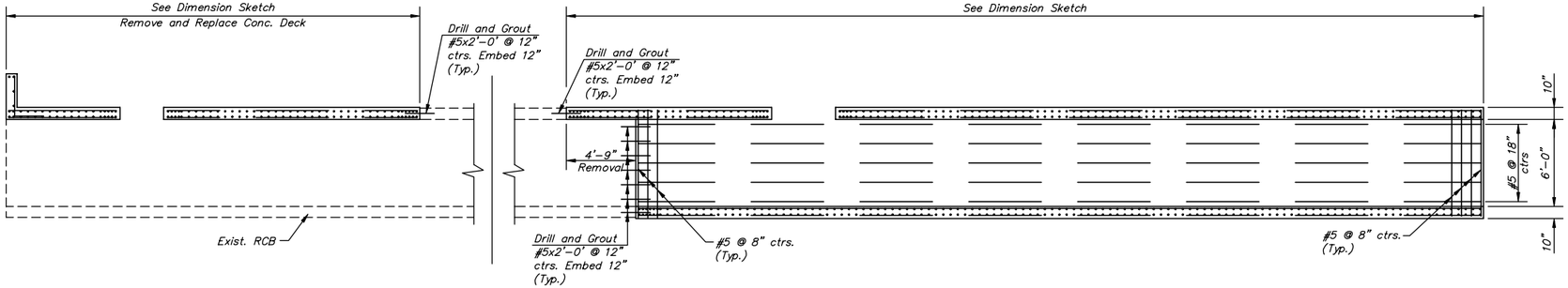
H:\CIVIL\98168\PAV\98168CON.DWG

MID-KANSAS ENGINEERING
CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

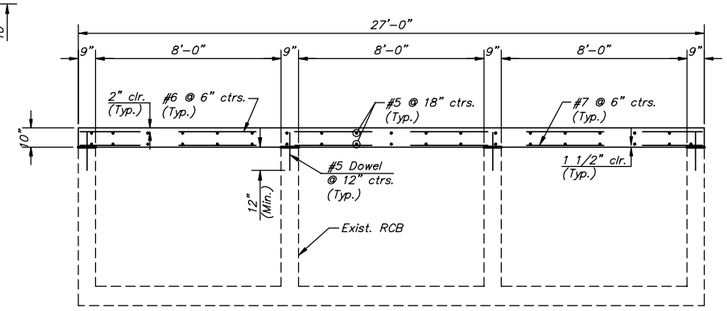
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CONTOUR MAP
SHEET TITLE

PAF	DAG	DCH
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168CON	40 / 74
DATE	JOB NO.	SHEET/OF



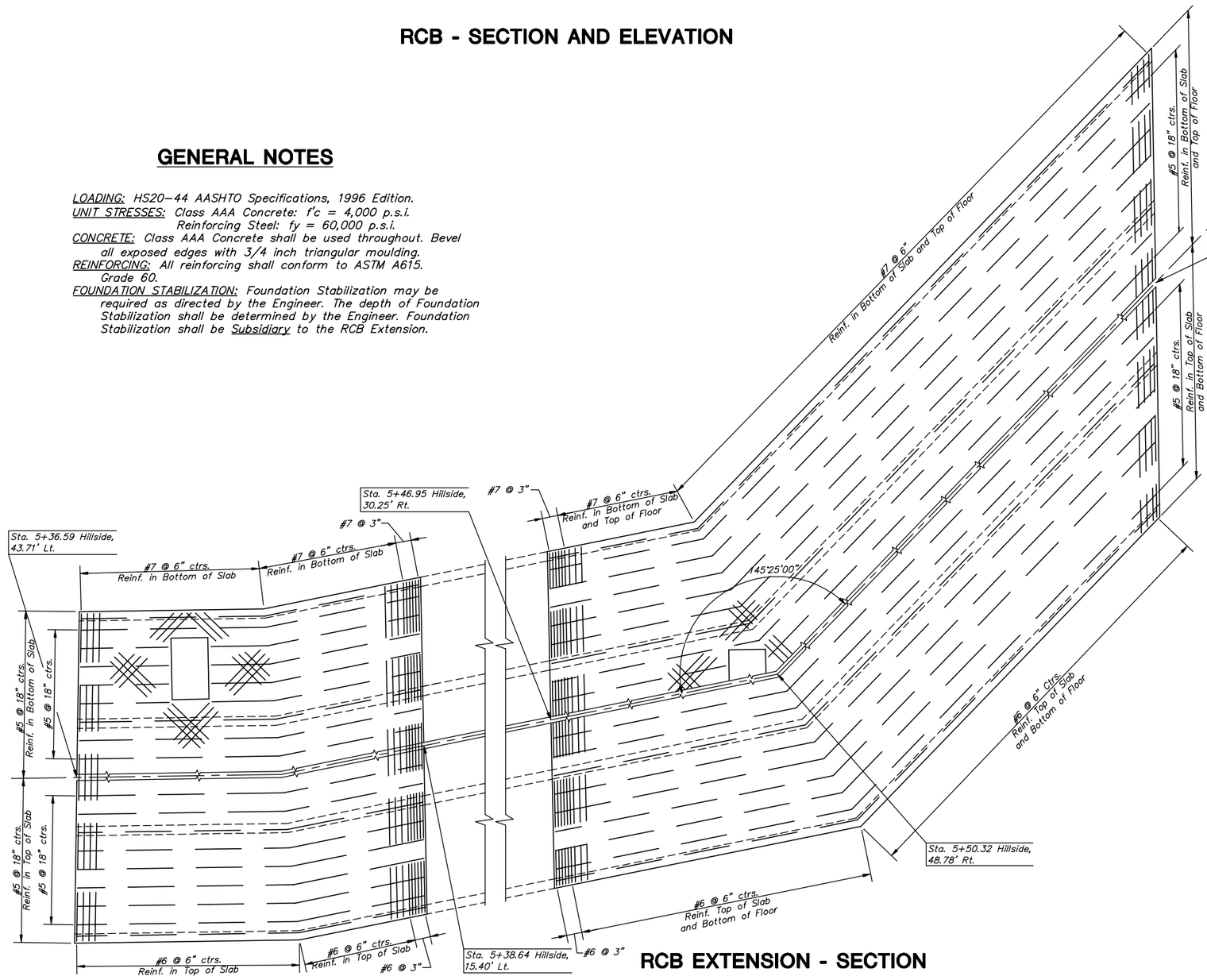
RCB - SECTION AND ELEVATION



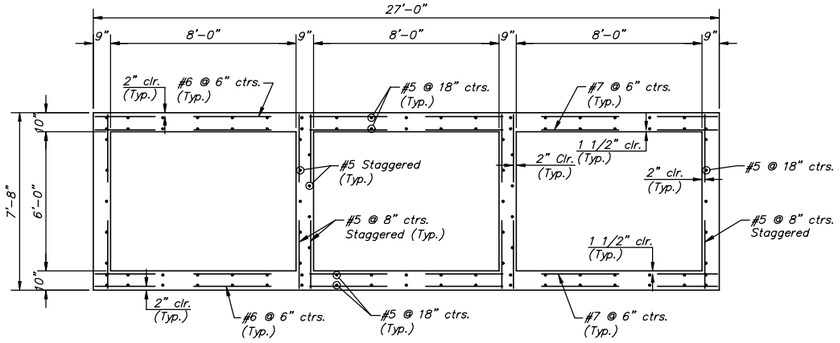
3-8' x 6' RCB TYPICAL SECTION (REPLACE DECK)

GENERAL NOTES

LOADING: HS20-44 AASHTO Specifications, 1996 Edition.
UNIT STRESSES: Class AAA Concrete: f'c = 4,000 p.s.i.
Reinforcing Steel: fy = 60,000 p.s.i.
CONCRETE: Class AAA Concrete shall be used throughout. Bevel all exposed edges with 3/4 inch triangular moulding.
REINFORCING: All reinforcing shall conform to ASTM A615. Grade 60.
FOUNDATION STABILIZATION: Foundation Stabilization may be required as directed by the Engineer. The depth of Foundation Stabilization shall be determined by the Engineer. Foundation Stabilization shall be Subsidiary to the RCB Extension.



RCB EXTENSION - SECTION



3-8' x 6' RCB TYPICAL SECTION (EXTENSION)

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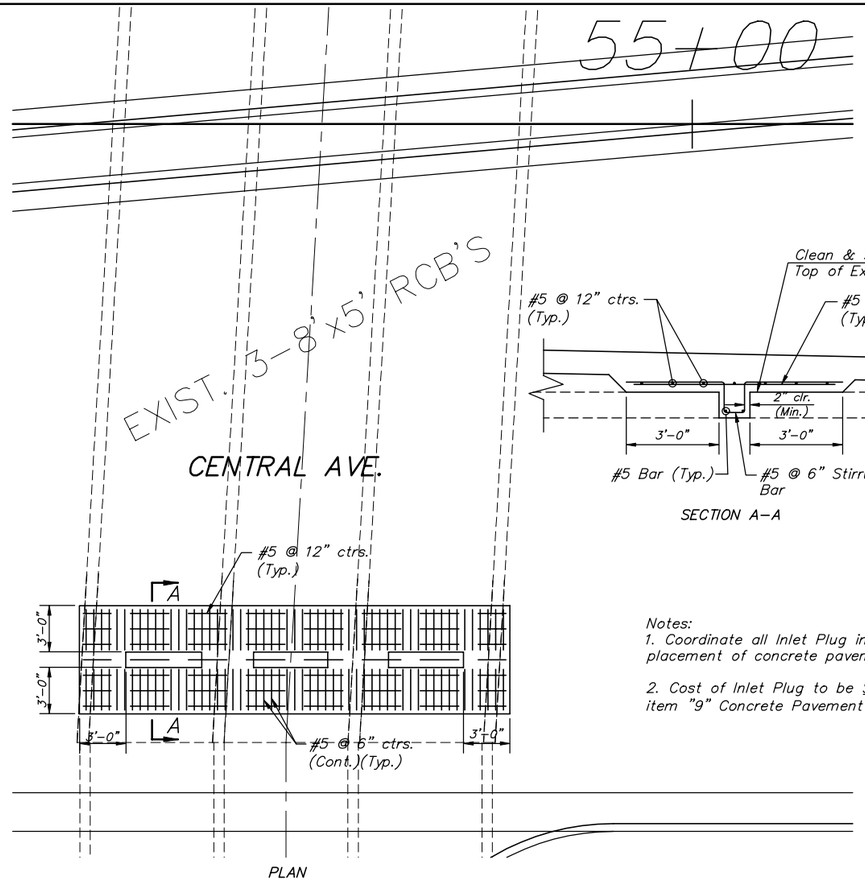
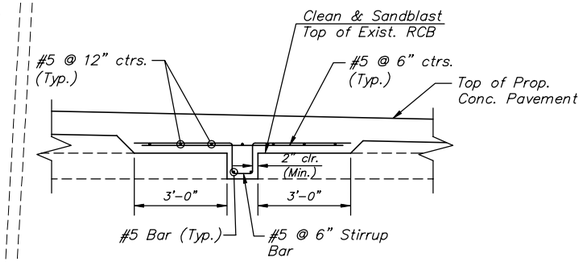
MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

RCB DETAILS
SHEET TITLE

PAF	WNJ	ASH
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	RCBDTLS	41 / 74
DATE	JOB NO.	SHEET/OF





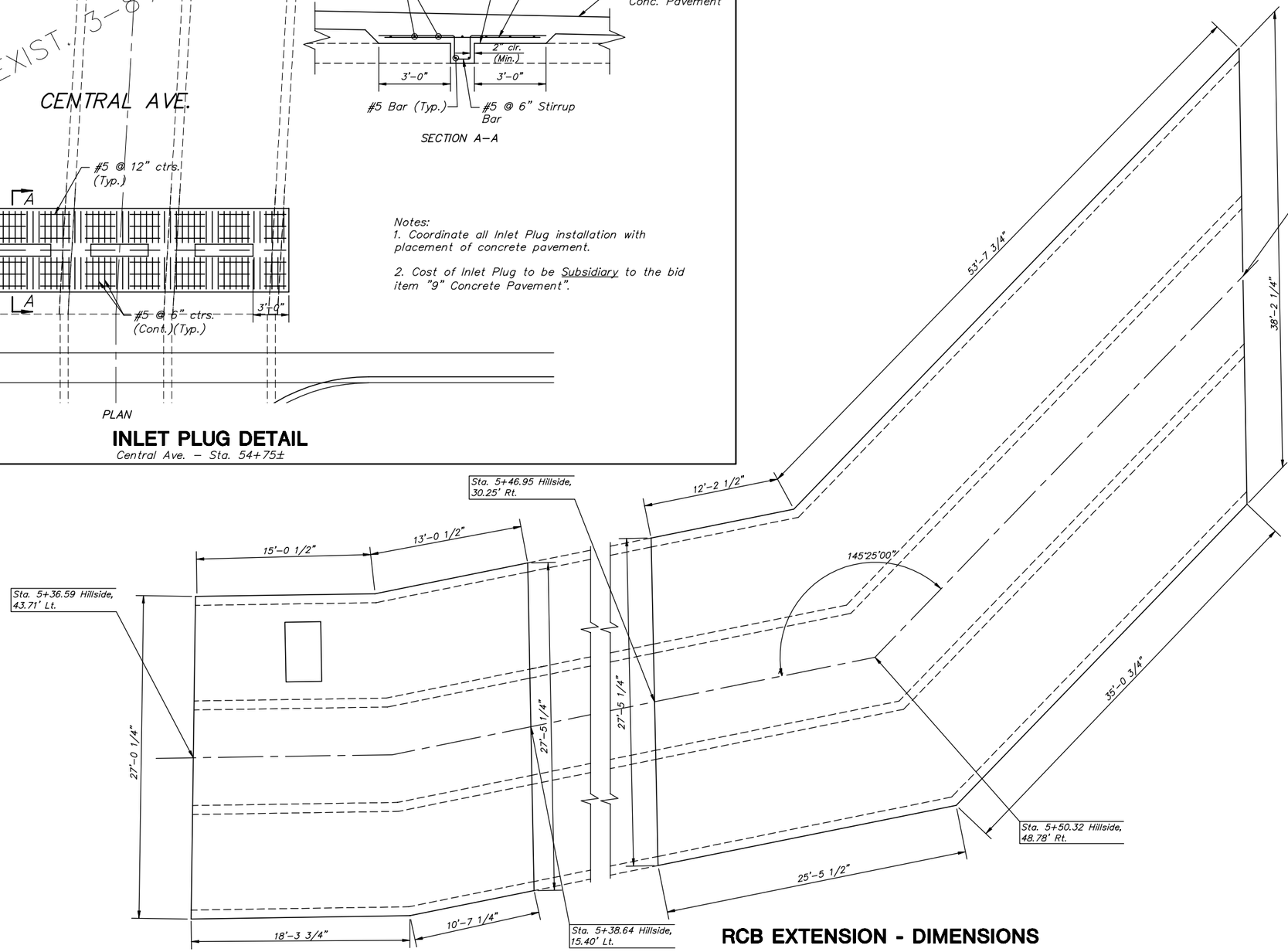
SECTION A-A

Notes:
1. Coordinate all Inlet Plug installation with placement of concrete pavement.

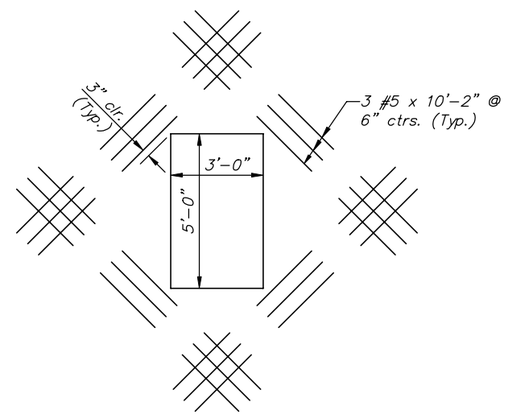
2. Cost of Inlet Plug to be Subsidiary to the bid item "9" Concrete Pavement".

INLET PLUG DETAIL

Central Ave. – Sta. 54+75±



RCB EXTENSION - DIMENSIONS



REINFORCING AT INLET OPENING

Sta. 5+45.28, 34.33' Lt., Hillside
Sta. 5+49.87, 46.33' Rt., Hillside

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MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

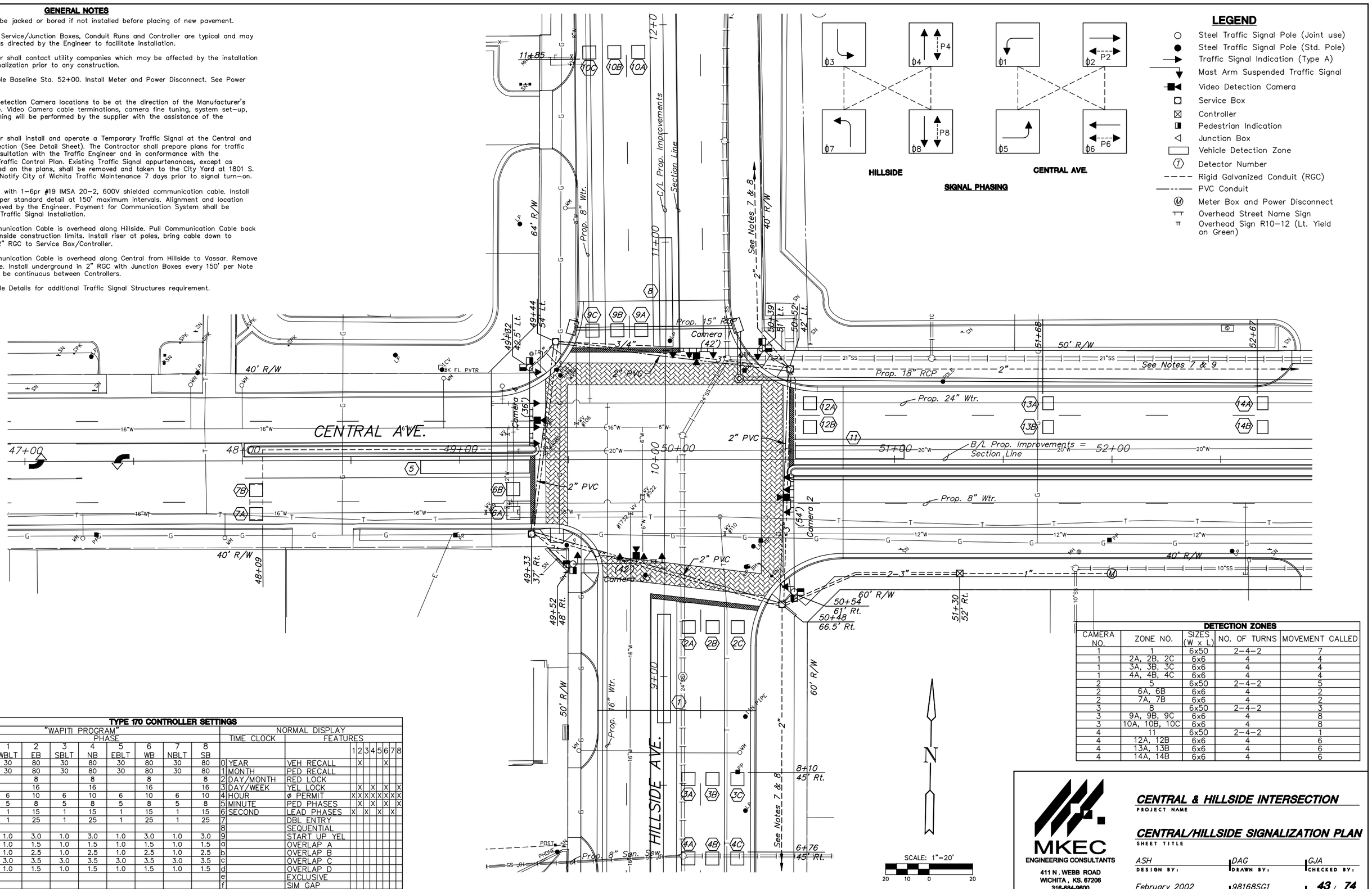
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

RCB DETAILS
SHEET TITLE

PAF	WNJ	ASH
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	RCBDTLS2	42 / 74
DATE	JOB NO.	SHEET/OF

GENERAL NOTES

1. Conduit shall be jacked or bored if not installed before placing of new pavement.
2. Placement of Service/Junction Boxes, Conduit Runs and Controller are typical and may be adjusted as directed by the Engineer to facilitate installation.
3. The Contractor shall contact utility companies which may be affected by the installation of Traffic Signalization prior to any construction.
4. KGE Power Pole Baseline Sta. 52+00. Install Meter and Power Disconnect. See Power Pole Details.
5. Exact Video Detection Camera locations to be at the direction of the Manufacturer's Representative. Video Camera cable terminations, camera fine tuning, system set–up, and programming will be performed by the supplier with the assistance of the contractor.
6. The Contractor shall install and operate a Temporary Traffic Signal at the Central and Hillside intersection (See Detail Sheet). The Contractor shall prepare plans for traffic signals in consultation with the Traffic Engineer and in conformance with the Contractor's Traffic Control Plan. Existing Traffic Signal appurtenances, except as otherwise noted on the plans, shall be removed and taken to the City Yard at 1801 S. McLean Blvd. Notify City of Wichita Traffic Maintenance 7 days prior to signal turn–on.
7. Install 2" RGC with 1–6pr #19 IMSA 20–2, 600V shielded communication cable. Install Junction Box per standard detail at 150' maximum intervals. Alignment and location shall be approved by the Engineer. Payment for Communication System shall be Subsidiary to Traffic Signal Installation.
8. Existing Communication Cable is overhead along Hillside. Pull Communication Cable back to first pole inside construction limits. Install riser at poles, bring cable down to underground 2" RGC to Service Box/Controller.
9. Existing Communication Cable is overhead along Central from Hillside to Vassar. Remove overhead cable. Install underground in 2" RGC with Junction Boxes every 150' per Note 8. Cable shall be continuous between Controllers.
10. See Signal Pole Details for additional Traffic Signal Structures requirement.



LEGEND

- Steel Traffic Signal Pole (Joint use)
- Steel Traffic Signal Pole (Std. Pole)
- Traffic Signal Indication (Type A)
- Mast Arm Suspended Traffic Signal
- Video Detection Camera
- Service Box
- Controller
- Pedestrian Indication
- Junction Box
- Vehicle Detection Zone
- (1) Detector Number
- Rigid Galvanized Conduit (RGC)
- PVC Conduit
- (M) Meter Box and Power Disconnect
- Overhead Street Name Sign
- Overhead Sign R10–12 (Lt. Yield on Green)

SIGNAL PHASING

TYPE 170 CONTROLLER SETTINGS

INTERVAL		"WAPITI PROGRAM" PHASE 1 WBLT	2 EB	3 SBLT	4 NB	5 EBLT	6 WB	7 NBLT	8 SB
MAX	0	30	80	30	80	30	80	30	80
MAX 2	1	30	80	30	80	30	80	30	80
WALK	2		8		8		8		8
FL. DW.	3		16		16		16		16
MAX INIT.	4	6	10	6	10	6	10	6	10
MIN GREEN	5	5	8	5	8	5	8	5	8
TBR	6	1	15	1	15	1	15	1	15
TTR	7	1	25	1	25	1	25	1	25
	8								
PASSAGE	9	1.0	3.0	1.0	3.0	1.0	3.0	1.0	3.0
MIN GAP	a	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
ADD ACT	b	1.0	2.5	1.0	2.5	1.0	2.5	1.0	2.5
YELLOW	c	3.0	3.5	3.0	3.5	3.0	3.5	3.0	3.5
RED CLR.	d	1.0	1.5	1.0	1.5	1.0	1.5	1.0	1.5
RED REV.	e								
WALK II	f								

NORMAL DISPLAY TIME CLOCK	FEATURES	1	2	3	4	5	6	7	8
0 YEAR	VEH RECALL		X				X		
1 MONTH	PED RECALL								
2 DAY/MONTH	RED LOCK								
3 DAY/WEEK	YEL LOCK		X		X		X		X
4 HOUR	ø PERMIT	X	X	X	X	X	X	X	X
5 MINUTE	PED PHASES		X		X		X		X
6 SECOND	LEAD PHASES	X		X		X		X	
7	DBL ENTRY								
8	SEQUENTIAL								
9	START UP YEL								
a	OVERLAP A								
b	OVERLAP B								
c	OVERLAP C								
d	OVERLAP D								
e	EXCLUSIVE								
f	SIM GAP								

LTT–2 WB THRU ø6 WITH ø1 DETECTION

DETECTION ZONES

CAMERA NO.	ZONE NO.	SIZES (W x L)	NO. OF TURNS	MOVEMENT CALLED
1	1	6x50	2–4–2	7
1	2A, 2B, 2C	6x6	4	4
1	3A, 3B, 3C	6x6	4	4
1	4A, 4B, 4C	6x6	4	4
2	5	6x50	2–4–2	5
2	6A, 6B	6x6	4	2
2	7A, 7B	6x6	4	2
3	8	6x50	2–4–2	3
3	9A, 9B, 9C	6x6	4	8
3	10A, 10B, 10C	6x6	4	8
4	11	6x50	2–4–2	1
4	12A, 12B	6x6	4	6
4	13A, 13B	6x6	4	6
4	14A, 14B	6x6	4	6

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL/HILLSIDE SIGNALIZATION PLAN
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168SG1	43 / 74
DATE	JOB NO.	SHEET/OF

BILL OF MATERIALS (FOR INFORMATION ONLY)

ITEM	UNIT	QUANTITY
TRAFFIC SIGNAL POLE STEEL W/MASTARM (JOINT USE)	EACH	4
CONCRETE CONTROLLER PAD	EACH	1
CONCRETE FOOTING – POLE	EACH	4
SERVICE BOX – 36 IN. DIA.	EACH	4
JUNCTION BOX – 24 IN. DIA. (INCLUDES INTERCONNECT)	EACH	17
GROUND ROD & CLAMP	EACH	6
CONDUIT CLAMP	EACH	AS REQUIRED
TRAFFIC SIGNAL LAMP 135 WATT	EACH	40
PEDESTRIAN SIGNAL LAMP 105 WATT	EACH	16
RED LENS L.E.D. UNIT	EACH	16
ENTRANCE HEAD	EACH	1
CIRCUIT BREAKER & BOX	EACH	1
TRAFFIC SIGNAL HEAD – 12" (TYPE A) W/MOUNTING BRACKET	EACH	12
TRAFFIC SIGNAL HEAD – 12" (TYPE I) W/MOUNTING BRACKET	EACH	4
PEDESTRIAN SIGNAL – 12" (TYPE K) W/MOUNTING BRACKET	EACH	8
PEDESTRIAN PUSHBUTTON W/SIGN	EACH	8
PAD MOUNTED CABINET & CONTROLLER SYSTEM–TYPE 170(SEE NOTE)	EACH	1
LEAD–IN WIRE NO. 6 AWG 1/c (TYPE THHN)	LIN. FT.	160
MULTI–CONDUCTOR CABLE NO. 14 AWG 5/c	LIN. FT.	520
MULTI–CONDUCTOR CABLE NO. 14 AWG 7/c	LIN. FT.	1,990
6 PR. #19 COMMUNICATION CABLE (HILLSIDE TO VASSAR)	LIN. FT.	2,650
STANDARD 1/c #8 (TYPE THHN)(GROUND)	LIN. FT.	830
CONDUIT 1"	LIN. FT.	80
CONDUIT 2" (INCLUDES INTERCONNECT)	LIN. FT.	1,850
CONDUIT 3"	LIN. FT.	580
2" PVC	LIN. FT.	415
VIDEO DETECTION PROCESSOR (ITERIS VANTAGE)	EACH	1
CAMERA HOUSING (ITERIS VANTAGE)	EACH	4
VIDEO DETECTION CAMERA AND MOUNTING HARDWARE (RISER BRACKETS)	EACH	4
VIDEO DETECTION PROCESSOR UNIT	EACH	4
VIDEO POWER CABLE NO. 16 AWG 3/C	LIN. FT.	870
VIDEO CABLE 75 OHM COAXIAL (BELDON #8281)	LIN. FT.	870
TV MONITER	EACH	1
CAMERA CHARGED COUPLING DEVICE (ITERIS VANTAGE)	EACH	4
STREET NAME SIGNS	EACH	4
LEFT TURN YIELD ON GREEN W/MOUNTING HARDWARE (R10–12)	EACH	4

TYPE 170 TRAFFIC CONTROLLER SYSTEM TO INCLUDE:

ONE (1) MODEL 170 CONTROLLER UNIT COMPLETE WITH 412B2 SYSTEM MEMORY MODULE CAPABLE OF SUPPORTING WAPITI MICRO SYSTEM W4IKS (53A OR LATEST REVISION) TRAFFIC PROGRAM ON 27256 EPROM.

ONE (1) MODEL 332 CABINET COMPLETE WITH ALL ACCESSORIES INCLUDING FOUR (4) MODEL 430 TRANSFER RELAYS, TWO (2) MODEL 204 FLASHER UNITS AND ONE (1) MODEL 210PC CONFLICT MONITOR.

THREE (3) MODEL 242 TWO CHANNEL ISOLATORS.

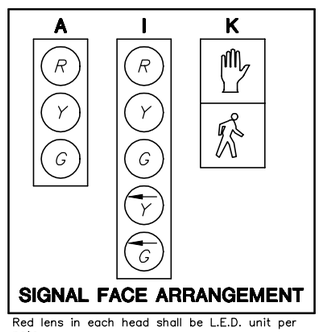
TWELVE (12) MODEL 222 TWO CHANNEL LOOP DETECTOR SENSOR UNITS.

TWELVE (12) MODEL 200 SWITCH PACKS.

NOTE: THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT FOR THE COMPLETE INSTALLATION AND OPERATION OF THE TRAFFIC SIGNAL WHETHER SPECIFICALLY MENTIONED OR NOT.

TRAFFIC SIGNAL HEAD SUMMARY

SIGNAL NO.	TYPE	SIZE	MOUNTING BRACKET	QUANTITY
1	I	5–12"	TYPE I	1
2	A	3–12"	TYPE I	2
3	A	3–12"	TYPE III	1
4	K	2–12"	TYPE II	2
5	I	5–12"	TYPE I	1
6	A	3–12"	TYPE I	2
7	A	3–12"	TYPE III	1
8	K	2–12"	TYPE II	2
9	I	5–12"	TYPE I	1
10	A	3–12"	TYPE I	2
11	A	3–12"	TYPE III	1
12	K	2–12"	TYPE II	2
13	I	5–12"	TYPE I	1
14	A	3–12"	TYPE I	2
15	A	3–12"	TYPE III	1
16	K	2–12"	TYPE II	2



Red lens in each head shall be L.E.D. unit per note.

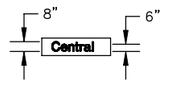
TRAFFIC SIGNAL POLE SUMMARY

STATION	TYPE	ARM LENGTH	SIGNALS ON ARM	X_1	X_2	OTHER EQUIP. ON ARM	SIGNALS ON POLE
49+32, Lt.	A	36'	3–D	8.5	11	C, F, G	1–D, 2–E
49+52, Rt.	A	42'	3–D	8.5	11	C, F, G	1–D, 2–E
50+39, Lt.	A	42'	3–D	8.5	11	C, F, G	1–D, 2–E
50+54, Rt.	A	54'	3–D	8.5	11	C, F, G	1–D, 2–E

A JOINT USE STEEL POLE WITH MAST ARM
B STANDARD STEEL POLE WITH MAST ARM
C PROTECTED TURN SIGN
D TRAFFIC SIGNAL
E PEDESTRIAN SIGNAL WITH PUSH BUTTON
F STREET NAME SIGN
G VIDEO DETECTION CAMERA

STREET NAME SIGN SUMMARY

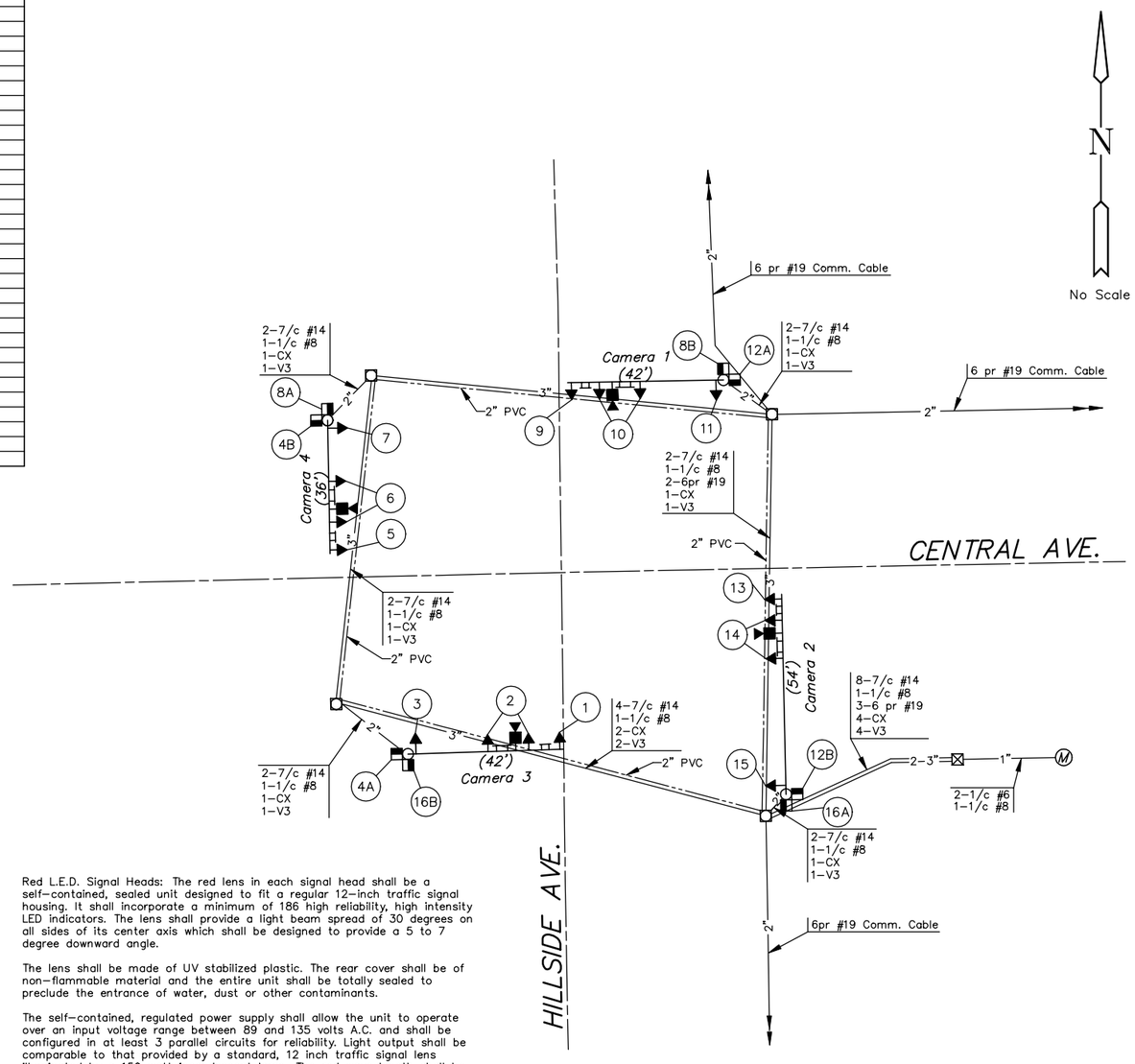
LEGEND	QUANTITY
Central	2
Hillside	2
TOTAL	4



Letters shall be series "E Modified".

LEGEND

- Steel Traffic Signal Pole (Joint use)
- Steel Traffic Signal Pole (Std. Pole)
- Traffic Signal Indication (Type A)
- Mast Arm Suspended Traffic Signal
- Video Detection Camera
- Service Box
- Controller
- Pedestrian Indication
- Junction Box
- Rigid Galvanized Conduit (RGC)
- PVC Conduit
- (M) Meter Box and Power Disconnect
- Overhead Street Name Sign
- Overhead Sign R10–12 (Lt. Yield on Green)
- CX Video Coax Cable (75 OHM)
- V3 Video Power Cable (#16 AWG 3/c)



Red L.E.D. Signal Heads: The red lens in each signal head shall be a self–contained, sealed unit designed to fit a regular 12–inch traffic signal housing. It shall incorporate a minimum of 186 high reliability, high intensity LED indicators. The lens shall provide a light beam spread of 30 degrees on all sides of its center axis which shall be designed to provide a 5 to 7 degree downward angle.

The lens shall be made of UV stabilized plastic. The rear cover shall be of non–flammable material and the entire unit shall be totally sealed to preclude the entrance of water, dust or other contaminants.

The self–contained, regulated power supply shall allow the unit to operate over an input voltage range between 89 and 135 volts A.C. and shall be configured in at least 3 parallel circuits for reliability. Light output shall be comparable to that provided by a standard, 12 inch traffic signal lens illuminated by a 150 watt incandescent lamp. The red wave length shall be 630 to 660 nm.

The manufacturer shall warrant the unit against defects in workmanship and materials for a period of at least five years after date of shipment. This warranty shall be assigned to the maintenance agency.

RECAPITULATION OF TRAFFIC SIGNAL QUANTITIES

BID ITEM	QUANTITY	UNIT
TRAFFIC SIGNAL INSTALLATION (CENTRAL & HILLSIDE)	LUMP SUM	L.S.

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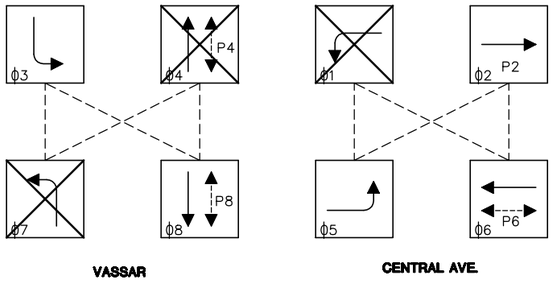
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL/HILLSIDE TRAFFIC SIGNAL SUMMARY
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168WR1	44 / 74
DATE	JOB NO.	SHEET/OF



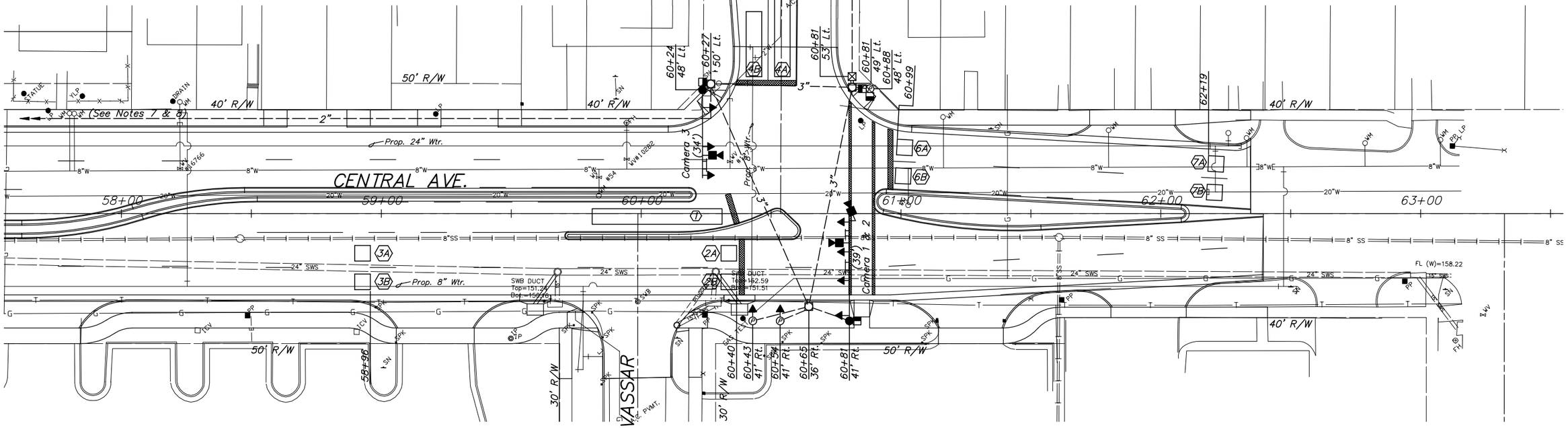
SIGNAL PHASING

GENERAL NOTES

1. Conduit shall be jacked or bored if not installed before placing of new pavement.
2. Placement of Service/Junction Boxes, Conduit Runs and Controller are typical and may be adjusted as directed by the Engineer to facilitate installation.
3. The Contractor shall contact utility companies which may be affected by the installation of Traffic Signalization prior to any construction.
4. KGE Power Pole Baseline Sta. 60+84, 180' Lt. Install Meter and Power Disconnect. See Power Pole Details.
5. Exact Video Detection Camera locations to be at the direction of the manufacturer's Representative. Video Camera cable terminations, camera fine tuning, system set-up, and programming will be performed by the supplier with the assistance of the contractor.
6. The Contractor shall install and operate a Temporary Traffic Signal at the Central and Vassar intersection (See Detail Sheet). The Contractor shall prepare plans for traffic signals in consultation with the Traffic Engineer and in conformance with the Contractor's Traffic Control Plan. Existing Traffic Signal appurtenances, except as otherwise noted on the plans, shall be removed and taken to the City Yard at 1801 S. McLean Blvd. Notify City of Wichita Traffic Maintenance 7 days prior to signal turn-on.
7. Install 2" RGC with 1-6pr #19 IMSA 20-2, 600V shielded communication cable. Install Junction Box per standard detail at 150' maximum intervals. Alignment and location shall be approved by the Engineer. Payment for Communication System shall be Subsidiary to Traffic Signal Installation.
8. Existing Communication Cable is overhead along Central from Hillside to Vassar. Remove overhead cable. Install underground in 2" RGC. Cable shall be continuous between Controllers.
9. See Signal Pole Details for additional Traffic Signal Structures requirement.

LEGEND

- (P) Pedestal Pole (10' Aluminum)
- ● Steel Traffic Signal Pole (Std. Pole)
- → Traffic Signal Indication (Type A)
- Mast Arm Suspended Traffic Signal
- ■◀ Video Detection Camera
- ▢ Service Box
- ⊠ Controller
- ◨ Pedestrian Indication
- ◁ Junction Box
- ▭ Vehicle Detection Zone
- ⟨1⟩ Detector Number
- ——— Rigid Galvanized Conduit (RGC)
- (M) Meter Box and Power Disconnect
- ⊤⊤ Overhead Street Name Sign
- π Overhead Sign R10-12 (Lt. Yield on Green)



SCALE: 1"=20'

20 10 0 20

TYPE 170 CONTROLLER SETTINGS

"WAPITI PROGRAM"

INTERVAL		1 WBLT	2 EB	3 SBLT	4 NB	5 EBLT	6 WB	7 NBLT	8 SB
MAX	0		80			30	80		40
MAX 2	1		80			30	80		40
WALK	2						8		5
FL. DW.	3						12		16
MAX INIT.	4		10			6	10		10
MIN GREEN	5		8			5	8		8
TBR	6		15			1	15		1
TTR	7		25			1	25		1
	8								
PASSAGE	9		3.0			1.0	3.0		1.0
MIN GAP	a		1.5			1.0	1.5		1.0
ADD ACT	b		2.5			1.0	2.5		1.0
YELLOW	c		4.0			3.0	4.0		3.5
RED CLR.	d		1.5			1.0	1.5		1.5
RED REV.	e								
WALK II	f								

NORMAL DISPLAY

TIME CLOCK		FEATURES	1	2	3	4	5	6	7	8
0	YEAR	VEH RECALL		X				X		
1	MONTH	PED RECALL								
2	DAY/MONTH	RED LOCK								
3	DAY/WEEK	YEL LOCK	X						X	
4	HOUR	ø PERMIT	X				X	X		X
5	MINUTE	PED PHASES	X					X		X
6	SECOND	LEAD PHASES	X		X		X		X	
7		DBL ENTRY								
8		SEQUENTIAL								
9		START UP YEL								
a		OVERLAP A								
b		OVERLAP B								
c		OVERLAP C								
d		OVERLAP D								
e		EXCLUSIVE								
f		SIM GAP	X					X		

LTT-2 WB THRU ø6 WITH ø1 DETECTION

DETECTORS

CAMERA NO.	ZONE NO.	SIZES (W x L)	NO. OF TURNS	MOVEMENT CALLED
1	1	6x50	2-4-2	5
1	2A, 2B	16x6	4	2
1	3A, 3B	16x6	4	2
2	4A	6x40	2-4-2	3
2	4B	6x25	2-4-2	8
3	6A, 6B	6x6	4	6
3	7A, 7B	6x6	4	6

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316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL/VASSAR SIGNALIZATION PLAN
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168SG2	45 / 74
DATE	JOB NO.	SHEET/OF

BILL OF MATERIALS (FOR INFORMATION ONLY)

ITEM	UNIT	QUANTITY
TRAFFIC SIGNAL POLE STEEL W/MASTARM (STANDARD USE)	EACH	2
TRAFFIC SIGNAL POLE ALUMINUM (15')	EACH	3
CONCRETE CONTROLLER PAD	EACH	1
CONCRETE FOOTING – POLE	EACH	5
SERVICE BOX – 36 IN. DIA.	EACH	3
JUNCTION BOX – 24 IN. DIA.	EACH	4
GROUND ROD & CLAMP	EACH	7
CONDUIT CLAMP	EACH	AS REQUIRED
TRAFFIC SIGNAL LAMP 135 WATT	EACH	20
PEDESTRIAN SIGNAL LAMP 105 WATT	EACH	8
RED LENS L.E.D. UNIT	EACH	9
ENTRANCE HEAD	EACH	1
CIRCUIT BREAKER & BOX	EACH	1
TRAFFIC SIGNAL HEAD – 12" (TYPE A) W/MOUNTING BRACKET	EACH	8
TRAFFIC SIGNAL HEAD – 12" (TYPE I) W/MOUNTING BRACKET	EACH	1
PEDESTRIAN SIGNAL – 12" (TYPE K) W/MOUNTING BRACKET	EACH	4
PEDESTRIAN PUSHBUTTON W/SIGN	EACH	4
PAD MOUNTED CABINET & CONTROLLER SYSTEM–TYPE 170(SEE NOTE)	EACH	1
LEAD–IN WIRE NO. 6 AWG 1/c (TYPE THHN)	LIN. FT.	275
MULTI–CONDUCTOR CABLE NO. 14 AWG 5/c	LIN. FT.	250
MULTI–CONDUCTOR CABLE NO. 14 AWG 7/c	LIN. FT.	570
6 PR. #19 COMMUNICATION CABLE	LIN. FT.	65
STANDARD 1/c #8 (TYPE THHN)(GROUND)	LIN. FT.	505
CONDUIT 1"	LIN. FT.	140
CONDUIT 2"	LIN. FT.	80
CONDUIT 3"	LIN. FT.	250
VIDEO DETECTION PROCESSOR (ITERIS VANTAGE)	EACH	1
CAMERA HOUSING (ITERIS VANTAGE)	EACH	3
VIDEO DETECTION CAMERA AND MOUNTING HARDWARE (RISER BRACKETS)	EACH	3
VIDEO DETECTION PROCESSOR UNIT	EACH	3
VIDEO POWER CABLE NO. 16 AWG 3/c	LIN. FT.	495
VIDEO CABLE 75 OHM COAXIAL (BELDON #8281)	LIN. FT.	495
TV MONITER	EACH	1
CAMERA CHARGED COUPLING DEVICE (ITERIS VANTAGE)	EACH	3
STREET NAME SIGNS	EACH	2
LEFT TURN YIELD ON GREEN W/MOUNTING HARDWARE (R10–12)	EACH	1

TYPE 170 TRAFFIC CONTROLLER SYSTEM TO INCLUDE:

ONE (1) MODEL 170 CONTROLLER UNIT COMPLETE WITH 412B2 SYSTEM MEMORY MODULE CAPABLE OF SUPPORTING WAPITI MICRO SYSTEM W4IKS (53A OR LATEST REVISION) TRAFFIC PROGRAM ON 27256 EPROM.

ONE (1) MODEL 332 CABINET COMPLETE WITH ALL ACCESSORIES INCLUDING FOUR (4) MODEL 430 TRANSFER RELAYS, TWO (2) MODEL 204 FLASHER UNITS AND ONE (1) MODEL 210PC CONFLICT MONITOR.

THREE (3) MODEL 242 TWO CHANNEL ISOLATORS.

SEVEN (7) MODEL 222 TWO CHANNEL LOOP DETECTOR SENSOR UNITS.

SEVEN (7) MODEL 200 SWITCH PACKS.

NOTE: THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT FOR THE COMPLETE INSTALLATION AND OPERATION OF THE TRAFFIC SIGNAL WHETHER SPECIFICALLY MENTIONED OR NOT.

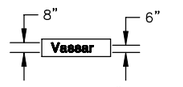
TRAFFIC SIGNAL POLE SUMMARY

STATION	TYPE	ARM LENGTH	SIGNALS ON ARM	X_1	X_2	OTHER EQUIP. ON ARM	SIGNALS ON POLE
60+24, Lt.	B	34'	2–D	11		F, G	1–D, 1–E
60+43, Rt.	A	–	–	–		–	1–D
60+54, Rt.	A	–	–	–		–	1–D
60+81, Rt.	B	39'	3–D	11.5	11	C, F, G	1–D, 1–E
60+88, Lt.	A	–	–	–		–	2–E

A STANDARD 10' POLE (ALUMINUM)
B STANDARD STEEL POLE WITH MAST ARM
C PROTECTED TURN SIGN
D TRAFFIC SIGNAL
E PEDESTRIAN SIGNAL WITH PUSH BUTTON
F STREET NAME SIGN
G VIDEO DETECTION CAMERA

STREET NAME SIGN SUMMARY

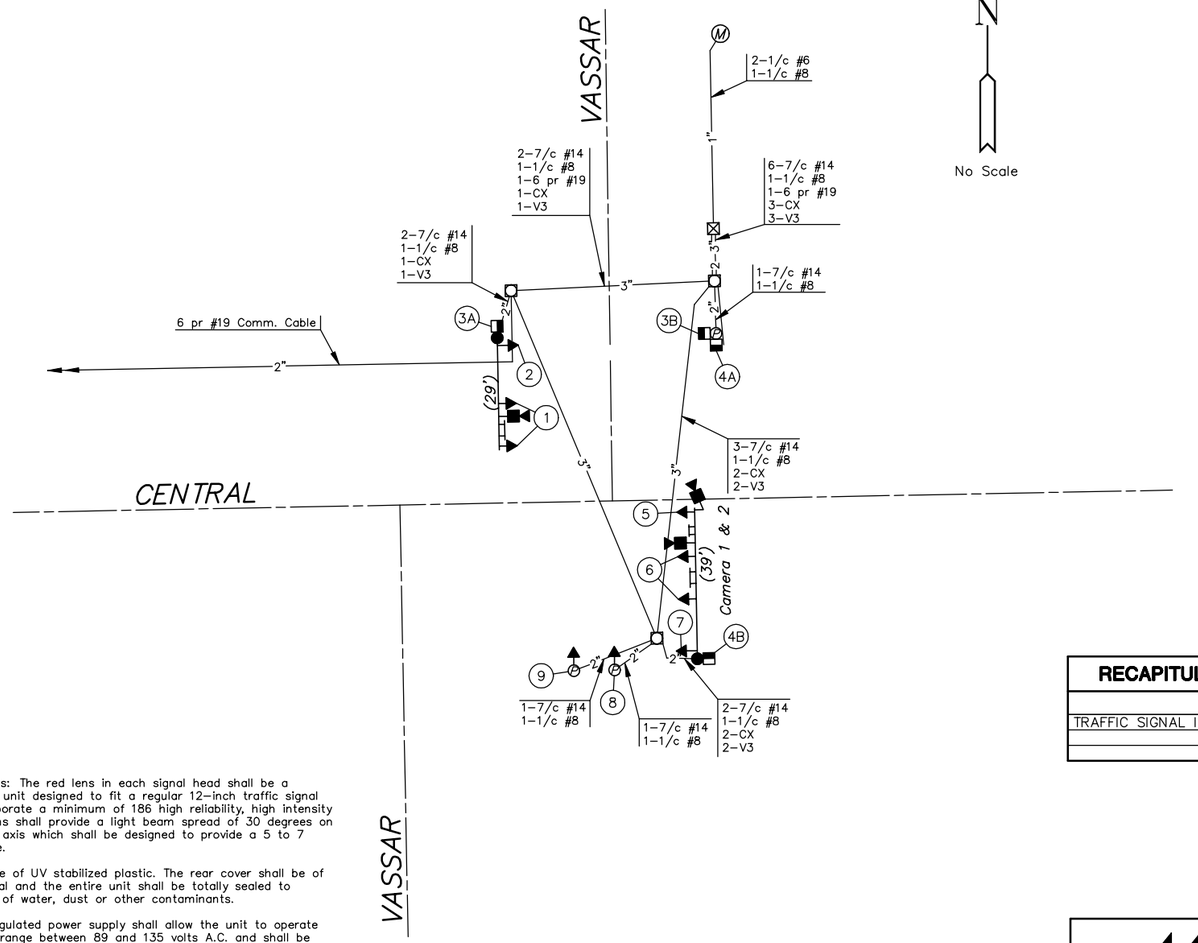
LEGEND	QUANTITY
Vassar	2
TOTAL	2



Letters shall be series "E Modified".

LEGEND

- Pedestal Pole (10' Aluminum)
- Steel Traffic Signal Pole (Std. Pole)
- Traffic Signal Indication (Type A)
- Mast Arm Suspended Traffic Signal
- Video Detection Camera
- Service Box
- Controller
- Pedestrian Indication
- Junction Box
- Rigid Galvanized Conduit (RGC)
- Meter Box and Power Disconnect
- Overhead Street Name Sign
- Overhead Sign R10–12 (Lt. Yield on Green)
- CX Video Coax Cable (75 OHM)
- V3 Video Power Cable (#16 AWG 3/c)



N

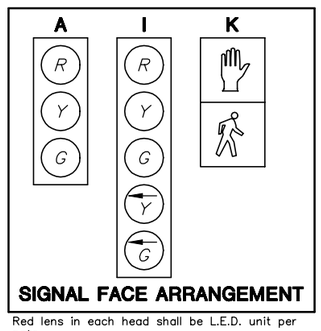
No Scale

RECAPITULATION OF TRAFFIC SIGNAL QUANTITIES

BID ITEM	QUANTITY	UNIT
TRAFFIC SIGNAL INSTALLATION (CENTRAL & VASSAR)	LUMP SUM	L.S.

TRAFFIC SIGNAL HEAD SUMMARY

SIGNAL NO.	TYPE	SIZE	MOUNTING BRACKET	QUANTITY
1	A	3–12"	TYPE I	2
2	A	3–12"	TYPE III	1
3	K	2–12"	TYPE II	2
4	K	2–12"	TYPE II	2
5	I	5–12"	TYPE I	1
6	A	3–12"	TYPE I	2
7	A	3–12"	TYPE III	1
8	A	3–12"	TYPE III	1
9	A	3–12"	TYPE III	1



SIGNAL FACE ARRANGEMENT

Red lens in each head shall be L.E.D. unit per note.

Red L.E.D. Signal Heads: The red lens in each signal head shall be a self–contained, sealed unit designed to fit a regular 12–inch traffic signal housing. It shall incorporate a minimum of 186 high reliability, high intensity LED indicators. The lens shall provide a light beam spread of 30 degrees on all sides of its center axis which shall be designed to provide a 5 to 7 degree downward angle.

The lens shall be made of UV stabilized plastic. The rear cover shall be of non–flammable material and the entire unit shall be totally sealed to preclude the entrance of water, dust or other contaminants.

The self–contained, regulated power supply shall allow the unit to operate over an input voltage range between 89 and 135 volts A.C. and shall be configured in at least 3 parallel circuits for reliability. Light output shall be comparable to that provided by a standard, 12 inch traffic signal lens illuminated by a 150 watt incandescent lamp. The red wave length shall be 630 to 660 nm.

The manufacturer shall warrant the unit against defects in workmanship and materials for a period of at least five years after date of shipment. This warranty shall be assigned to the maintenance agency.

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WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CENTRAL/VASSAR TRAFFIC SIGNAL SUMMARY
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168WR2	46 / 74
DATE	JOB NO.	SHEET/OF

BILL OF MATERIALS (FOR INFORMATION ONLY)		
ITEM	UNIT	QUANTITY
CROSSWALK SIGNAL:		
TRAFFIC SIGNAL POLE STEEL W/MASTARM (STANDARD USE)	EACH	2
CONCRETE BASE – POLE	EACH	2
SERVICE BOX – 36 IN. DIA.	EACH	2
GROUND ROD & CLAMP	EACH	3
CONDUIT CLAMP	EACH	AS REQUIRED
TRAFFIC SIGNAL LAMP 135 WATT	EACH	16
PEDESTRIAN SIGNAL LAMP 105 WATT	EACH	4
RED LENS L.E.D. UNIT	EACH	8
ENTRANCE HEAD	EACH	1
CIRCUIT BREAKER & BOX	EACH	1
TRAFFIC SIGNAL HEAD – 12" (TYPE A) W/MOUNTING BRACKET	EACH	8
PEDESTRIAN SIGNAL HEAD – 12" (TYPE K) W/MOUNTING BRACKET	EACH	2
PEDESTRIAN PUSHBUTTON W/SIGN	EACH	2
POLE MOUNTED CABINET & CONTROLLER SYSTEM–TYPE 170(SEE NOTE)	EACH	1
LEAD–IN WIRE NO. 6 AWG 1/c (TYPE THHN)	LIN. FT.	135
MULTI–CONDUCTOR CABLE NO. 14 AWG 5/c	LIN. FT.	620
CONDUIT 1"	LIN. FT.	55
CONDUIT 2"	LIN. FT.	30
CONDUIT 3"	LIN. FT.	402
STANDARD 1/c #8 (TYPE THHN)(GROUND)	LIN. FT.	325

TYPE 170 TRAFFIC CONTROLLER SYSTEM TO INCLUDE:

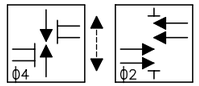
ONE (1) MODEL 170 CONTROLLER UNIT COMPLETE WITH 412B2 SYSTEM MEMORY MODULE CAPABLE OF SUPPORTING WAPITI MICRO SYSTEM W4IKS (53A OR LATEST REVISION) TRAFFIC PROGRAM ON 27256 EPROM WITH 400 MODEM.

ONE (1) MODEL 336 CABINET COMPLETE WITH ALL ACCESSORIES INCLUDING FOUR (4) MODEL 430 TRANSFER RELAYS, TWO (2) MODEL 204 FLASHER UNITS AND ONE (1) MODEL 210PC CONFLICT MONITOR.

THREE (3) MODEL 242 TWO CHANNEL ISOLATORS.

SEVEN (7) MODEL 200 SWITCH PACKS.

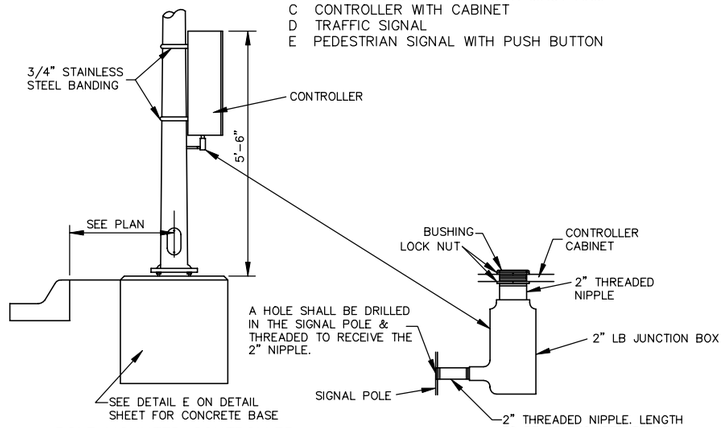
NOTE: THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT FOR THE COMPLETE INSTALLATION AND OPERATION OF THE TRAFFIC SIGNAL WHETHER SPECIFICALLY MENTIONED OR NOT.



SIGNAL PHASING

CROSSWALK SIGNAL POLE SUMMARY				
STATION	TYPE	ARM LENGTH	SIGNALS ON ARM	SIGNALS/EQUIP. ON POLE
55+60, Lt.	B	25'	2–D	1–C, 1–D, 1–E
55+72, Rt.	B	50'	4–D	1–D, 1–E

A STANDARD 10' POLE (ALUMINUM)
B STANDARD STEEL POLE WITH MAST ARM
C CONTROLLER WITH CABINET
D TRAFFIC SIGNAL
E PEDESTRIAN SIGNAL WITH PUSH BUTTON



POLE MOUNTED CONTROLLER

GENERAL NOTES

1. Conduit shall be jacked or bored if not installed before placing of new pavement.
2. Placement of Service/Junction Boxes, Conduit Runs and Controller are typical and may be adjusted as directed by the Engineer to facilitate installation.
3. The Contractor shall contact all utility companies which may be affected by the installation of Traffic Signalization prior to any construction.
4. KGE Power Pole Baseline Sta. 55+27, 59' Rt. Install Meter and Power Disconnect. See Power Pole Details.
5. Red L.E.D. Signal Heads: The red lens in each signal head shall be a self–contained, sealed unit designed to fit a regular 12–inch traffic signal housing. It shall incorporate a minimum of 186 high reliability, high intensity LED indicators. The lens shall provide a light beam spread of 30 degrees on all sides of its center axis which shall be designed to provide a 5 to 7 degree downward angle.

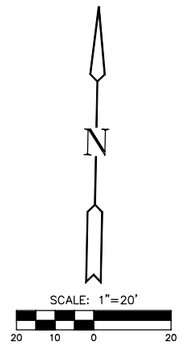
   The lens shall be made of UV Stabilized plastic. The rear cover shall be of non–flammable material and the entire unit shall be totally sealed to preclude the entrance of water, dust or other contaminants.

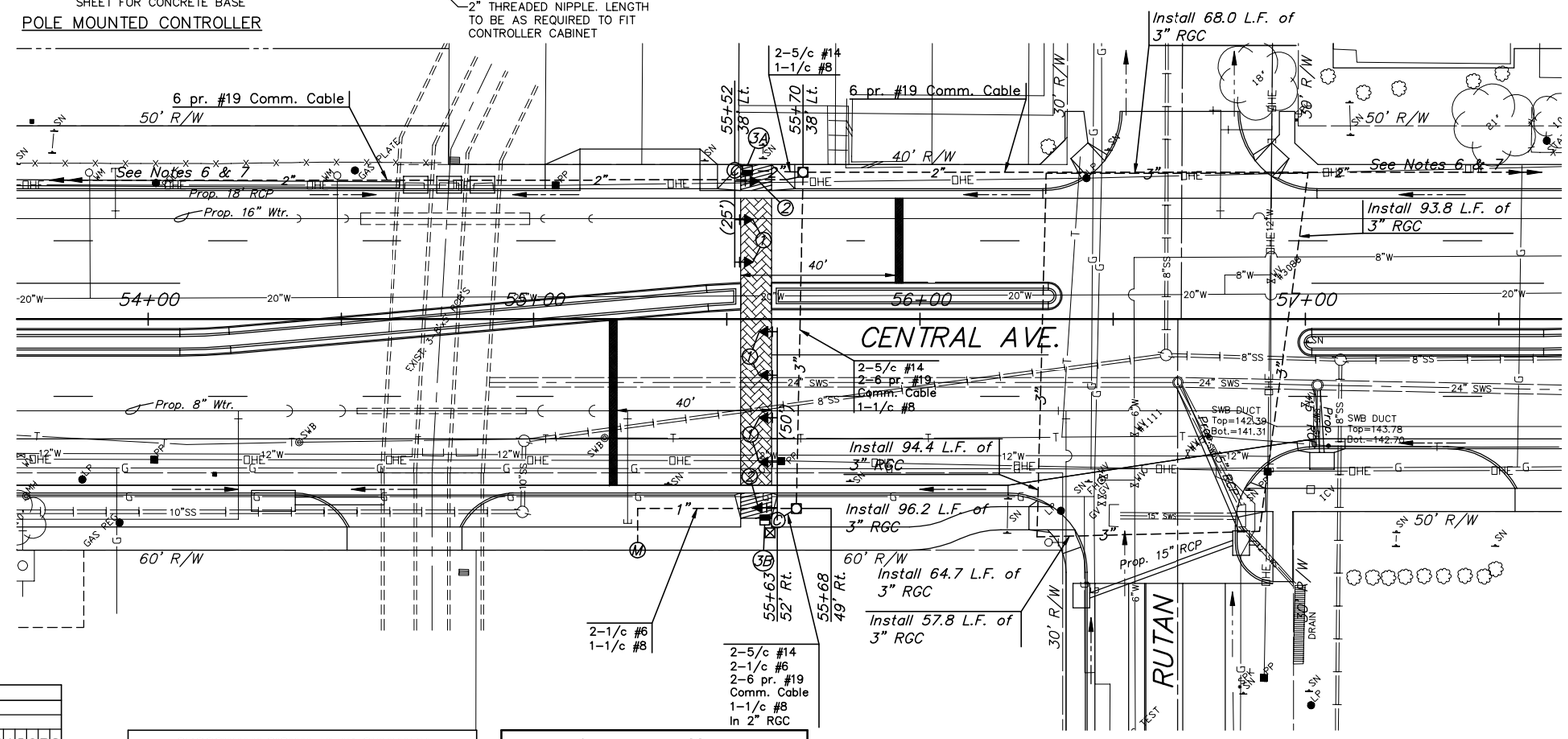
   The self–contained, regulated power supply shall allow the unit to operate over an input voltage range between 89 and 135 volts A.C. and shall be configured in at least 3 parallel circuits for reliability. Light output shall be comparable to that provided by a standard, 12 inch traffic signal lens illuminated by a 150 watt incandescent lamp. The red wave length shall be 630 to 660 nm.

   The manufacturer shall warrant the unit against defects in workmanship and materials for a period of at least five years after date of shipment. This warranty shall be assigned to the maintenance agency.
6. Install 2" RGC with 1–6pr #19 IMSA 20–2, 600V shielded communication cable. Install Junction Box per standard detail at 150' maximum intervals. Alignment and location shall be approved by the Engineer. Payment for Communication System shall be Subsidiary to Traffic Signal Installation.
7. Existing Communication Cable is overhead along Central from Hillside to Vassar. Remove overhead cable. Install underground in 2" RGC. Cable shall be continuous between Controllers.
8. See Signal Pole Details for additional Traffic Signal Structures requirement.

LEGEND

- Ⓒ Crosswalk Signal Pole and Mast Arm
- Traffic Signal Indication (Type A)
- Service Box
- Controller
- Pedestrian Indication
- Rigid Galvanized Conduit (RGC)
- Ⓜ Meter Box and Power Disconnect



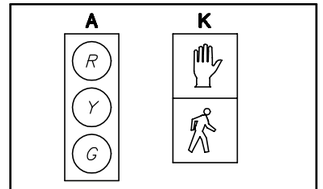


RECAPITULATION OF TRAFFIC SIGNAL QUANTITIES		
BID ITEM	QUANTITY	UNIT
TRAFFIC SIGNAL INSTALLATION (PEDESTRIAN CROSSING)	1	LUMP SUM

TYPE 170 CONTROLLER SETTINGS																				
	"WAPITI PROGRAM"									NORMAL DISPLAY										
	PHASE									TIME CLOCK		FEATURES								
INTERVAL	1 WBLT	2 EB	3 SBLT	4 NB	5 EBLT	6 WB	7 NBLT	8 SB				1	2	3	4	5	6	7	8
MAX 0		30		30					0	YEAR	VEH RECALL		X						
MAX 2 1		30		30					1	MONTH	PED RECALL								
WALK 2				8					2	DAY/MONTH	RED LOCK								
FL. DW. 3				20					3	DAY/WEEK	YEL LOCK		X		X				
MAX INIT. 4		30		28					4	HOUR	ø PERMIT		X		X				
MIN GREEN 5		30		28					5	MINUTE	PED PHASES				X				
TBR 6		10							6	SECOND	LEAD PHASES	X		X		X		X	
TTR 7		10							7		DBL ENTRY								
8									8		SEQUENTIAL								
PASSAGE 9									9		START UP YEL								
MIN GAP a									a		OVERLAP A								
ADD ACT b									b		OVERLAP B								
YELLOW c		3.0		4.0					c		OVERLAP C								
RED CLR. d				1.5					d		OVERLAP D								
RED REV. e									e		EXCLUSIVE								
WALK II f									f		SIM GAP								

CROSSWALK SIGNAL HEAD SUMMARY				
SIGNAL NO.	TYPE	SIZE	MOUNTING BRACKET	QUANTITY
1	A	3–12"	TYPE I	6
2	A	3–12"	TYPE IV*	2
3	K	2–12"	TYPE IV*	2

* One Type IV Bracket will support 1 Type A and 1 Type K Heads.



SIGNAL FACE ARRANGEMENT

Red lens in each head shall be L.E.D. unit per note 5.

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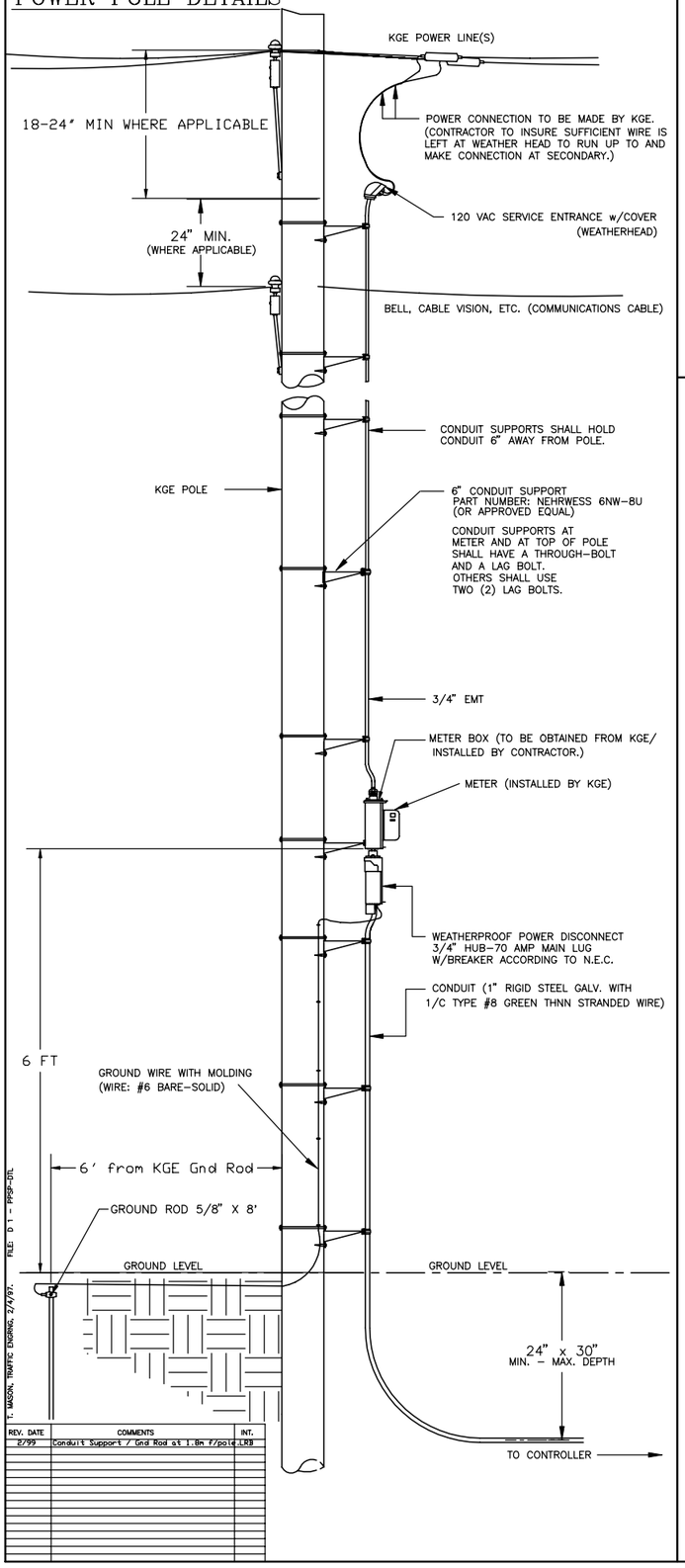
MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

CENTRAL AND HILLSIDE INTERSECTION
PROJECT NAME

PEDESTRIAN CROSSING SIGNALIZATION
SHEET TITLE

ASH	WNJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168SG3	47 / 74
DATE	JOB NO.	SHEET/OF

POWER POLE DETAILS

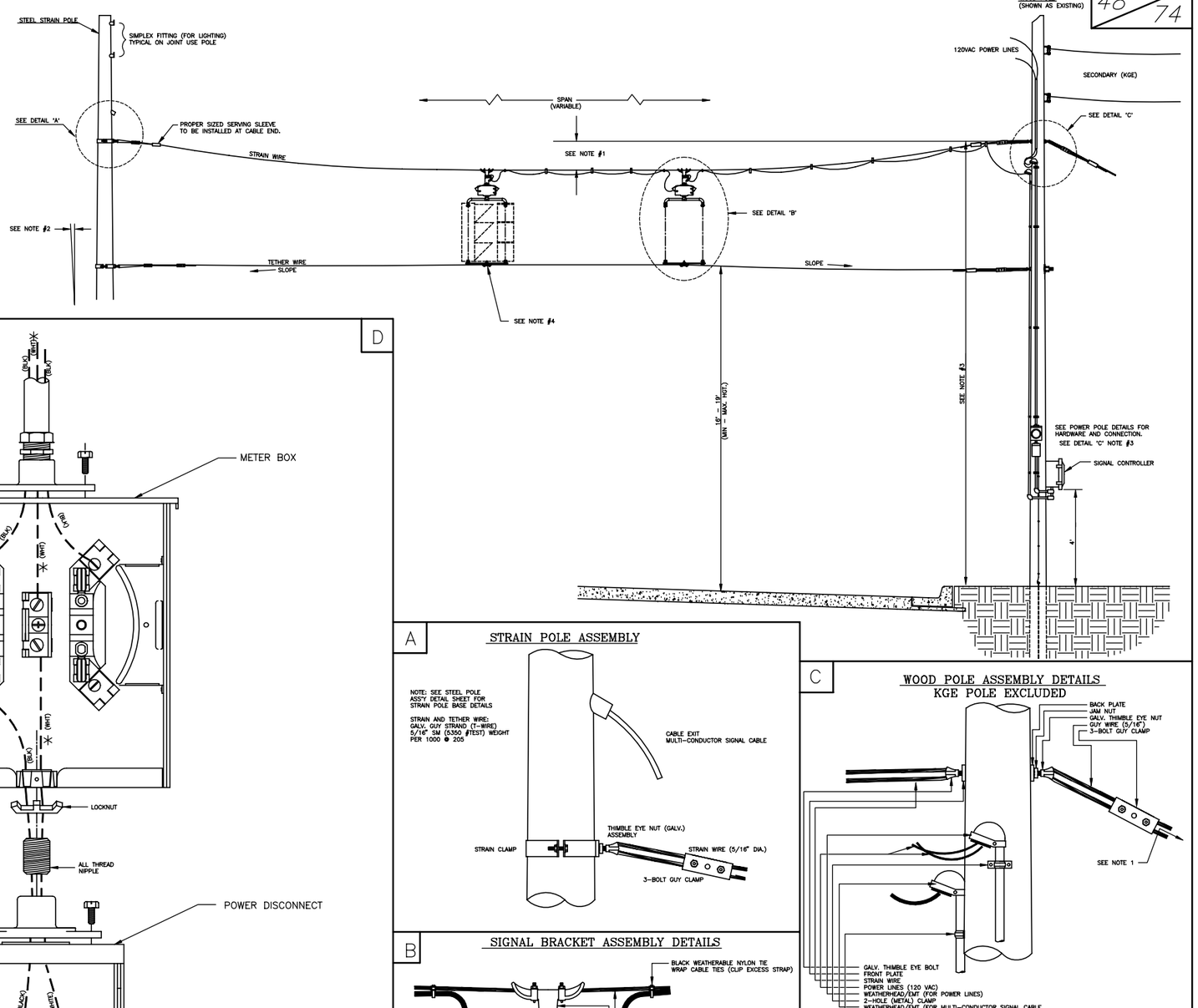


REV. DATE	COMMENTS	INT.
2/99	Conduit Support / Gnd Rod at 1.8m f/pole	LKB

FILE: D-1 - PPSP-DTL
T. MASON, TRAFFIC ENGRNG, 2/4/97.

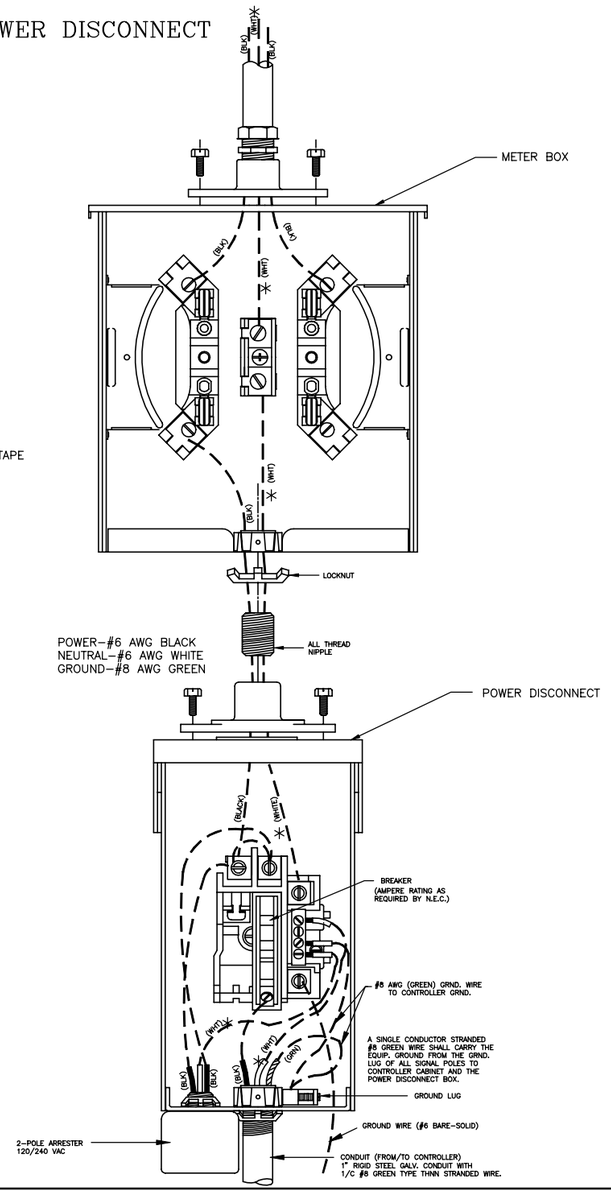
SPANWIRE ASSEMBLY DETAILS

1. MAX. SAG = 5% OF SPAN.
2. STANDARD BACKRAKE = 1.5°
3. HEIGHT OF STRAIN WIRE HOOK-UP TO BE DETERMINED BY FIELD ENGINEER. TRAFFIC SIGNAL CABLE TO BE SECURED TO STRAIN (SPAN) WIRE WEATHERABLE NYLON CABLE HANGERS (12" CTR.) DETAIL 'B'
4. TETHER CLAMP TO BE DESIGNED TO RELEASE UNDER 'HIGH WIND LOAD' TO PERMINT SIGNAL 'FREE SWING'.



METER BOX & POWER DISCONNECT DETAILS

D



NOTE:

* TO BE MARKED WITH WHITE TAPE

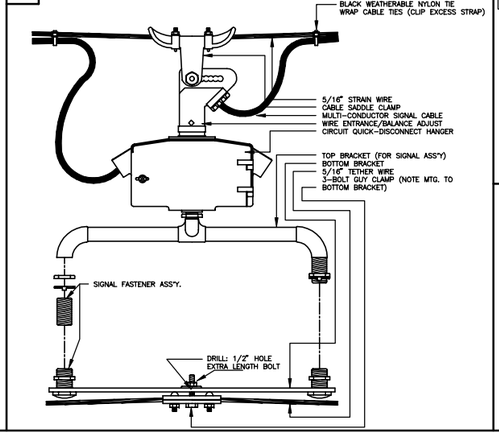
POWER-#6 AWG BLACK
NEUTRAL-#6 AWG WHITE
GROUND-#8 AWG GREEN

A

STRAIN POLE ASSEMBLY

B

SIGNAL BRACKET ASSEMBLY DETAILS



C

WOOD POLE ASSEMBLY DETAILS
KGE POLE EXCLUDED

NOTE:

1. GALV. THIMBLE EYE ANCHOR BOLT AND EXPANDING ANCHOR (NOT SHOWN) TO STABILIZE WOOD POLE (WHERE APPLICABLE)
2. ANY COMBINATION OF ROUND/THIMBLE EYE BOLTS AND NUTS MAY BE UTILIZED AS APPLICATION MAY VARY. FIELD ENGINEER TO DETERMINE TYPE OF HARDWARE USED.
3. HARDWARE SHOWN IS TRANSFERRABLE TO STEEL POLE IN WHOLE OF PART WHERE STEEL STRAIN POLE IS USED. (POWER; SIGNAL CABLE; METER, ETC.) FIELD ENGINEER TO MAKE DETERMINATION. STEEL STRAIN POLE APPLICATIONS MAY VARY AS TO MOUNTING ON POLE; USE OF CLAMPS, BANDED BRACKETS, ETC. ARE STD. - FIELD ENGINEER TO DETERMINE BEST TYPE APPLICATIONS.

PROJECT DESCRIPTION

POWER POLE AND SPAN POLE ASSEMBLY DETAILS

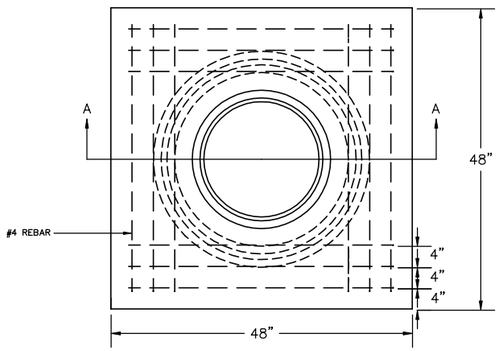
PROJECT NUMBER

DRAWN BY: T.M.	APPROVED BY	REVISED BY: L. B.
DATE: FEB. 96		DATE: 2/26/99

CITY OF WICHITA
DEPARTMENT OF PUBLIC WORKS

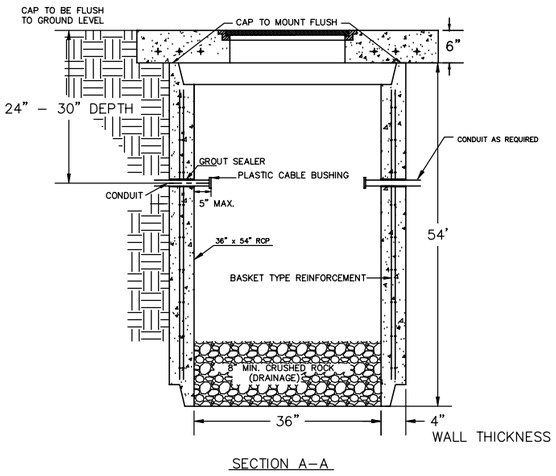
DIVISION OF TRAFFIC ENGINEERING	SCALE
RANDALL W. HOSKINS, P.E. TRAFFIC ENGINEER	NO SCALE

SERVICE BOX CONSTRUCTION/INSTALLATION DETAILS

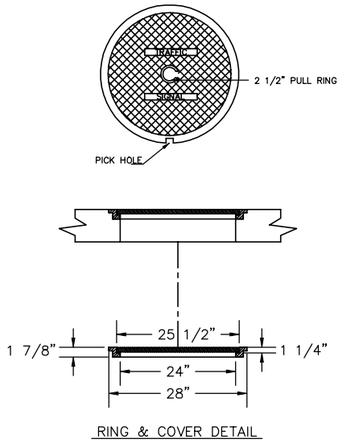


PRE-CAST CONCRETE SERVICE BOX

(36" I.D. X 54" RCP) with 6" CAP

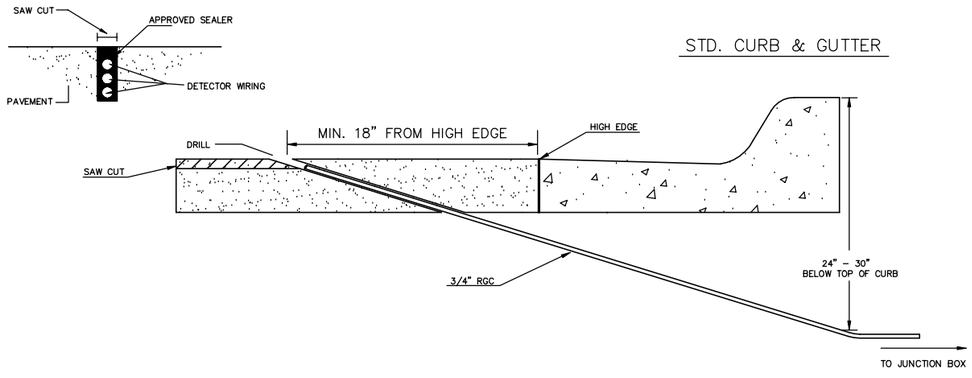


SECTION A-A



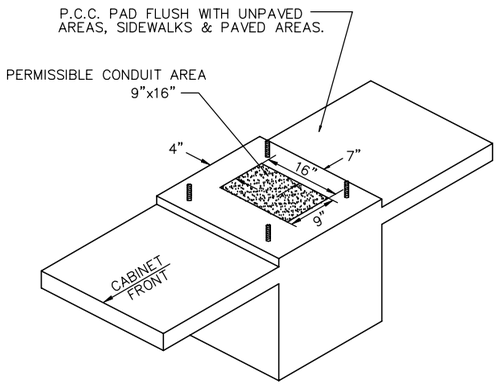
RING & COVER DETAIL

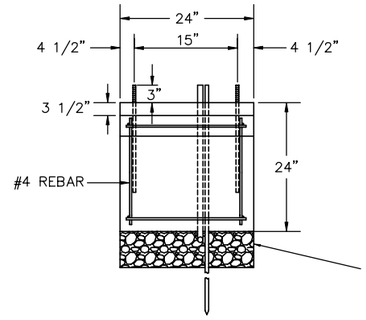
CONDUIT/DETECTOR WIRE INSTALLATION DETAILS

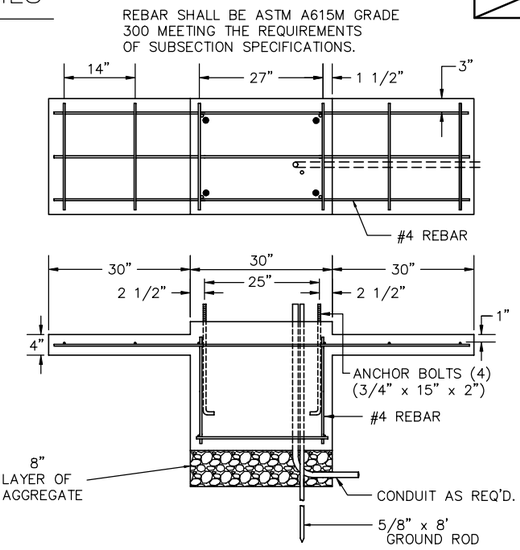


STD. CURB & GUTTER

170 CONTROLLER PAD DETAILS



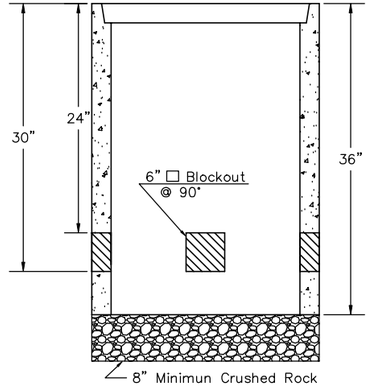




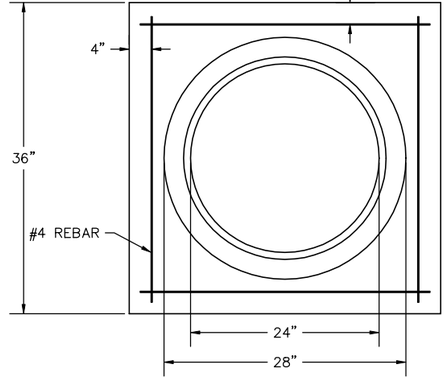
JUNCTION BOX DETAILS

PRE-FAB Junction Box

(24" I.D. X 36" R.C.P.)

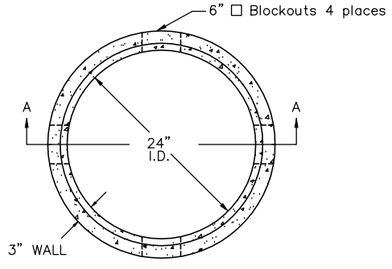


SECTION A-A



JUNCTION BOX CAP

36" x 36" x 6"
TOP OF CAP TO BE FLUSH WITH GROUND LEVEL.



"SEE SERVICE BOX INSTALLATION FOR RING & COVER DETAILS.

NOTES:

SERVICE & JUNCTION BOX:

1. CONDUIT CONNECTION TO BE FLUSH TO WITHIN 125 mm OF INSIDE FACE OF SIDE WALL, CONDUIT TO DRAIN INTO SERVICE BOX.
2. CONDUIT CONNECTIONS TO SERVICE BOX SHALL BE TERMINATED WITH PLASTIC CABLE BUSHING.
3. CONDUIT SHALL BE SEALED WITH APPROVED SEALER AT INSIDE WALL FACE.
4. ALL SERVICE & JUNCTION BOXES TO HAVE 200 mm OF CRUSHED ROCK.

TRENCHING:

1. DEPTH TO BE 30" MINIMUM WITH ROCK & STUBBLE FREE BACKFILL TO SERVE AS BEDDING MATERIAL. MAINTAIN MINIMUM CONDUIT DEPTH IN TRENCH.
2. BACKFILL TO BE COMPACTED IN 6" LOOSE LIFTS BY HAND OR MECHANICAL TAMPING TO A 95% STANDARD DENSITY.

CONDUIT:

1. SLOPE CONDUIT TO DRAIN AS DIRECTED BY THE ENGINEER.
2. 3" RIGID STEEL CONDUIT BTWN. SERVICE BOXES.
   1 1/4" " " " BTWN. SERVICE & JUNCTION BOXES.
   3/4" " " " BTWN. JUNCTION BOXES.
   3/4" " " " BTWN. JUNCTION BOX & DETECTOR LOOP SAW CUT

REV. DATE	COMMENTS	INT

PROJECT DESCRIPTION

SERVICE/JUNCTION BOX, CONTROLLER PAD CONSTRUCTION/INSTALLATION DETAILS

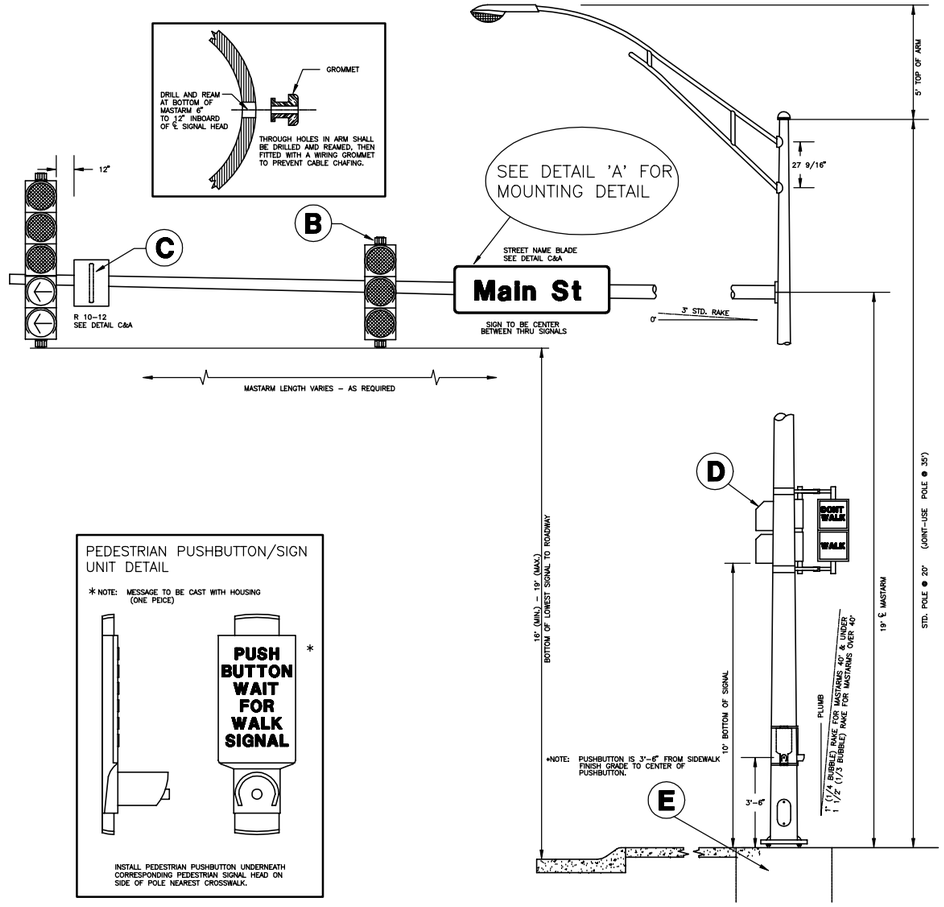
PROJECT NUMBER

DRAWN BY: T.M.	APPROVED BY	REVISED:
DATE: Apr. 96		DATE:

CITY OF WICHITA

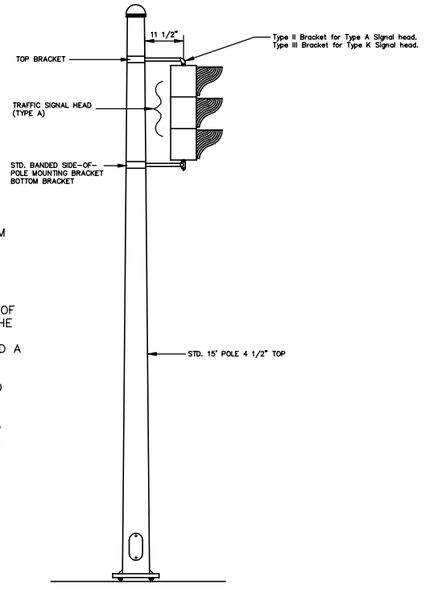
DEPARTMENT OF PUBLIC WORKS

TRAFFIC ENGINEERING DIVISION		SCALE
WM. G. McKINLEY P.E.	TRAFFIC ENGINEER	NO SCALE



PEDESTRIAN PUSHBUTTON/SIGN UNIT DETAIL

INSTALL PEDESTRIAN PUSHBUTTON UNDERNEATH CORRESPONDING PEDESTRIAN SIGNAL HEAD ON SIDE OF POLE NEAREST CROSSWALK.



PEDESTAL POLE

NOTE:

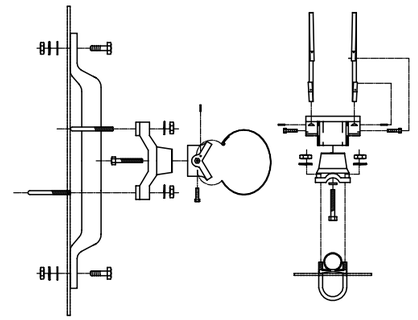
SPECIAL FINISH FOR TRAFFIC SIGNAL STRUCTURES: ALL EXTERIOR SURFACES ARE COATED WITH A ZINC RICH EPOXY POWDER TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS ELECTROSTATICALLY APPLIED AND PARTIALLY CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE STEEL SUBSTRATE TO A MINIMUM OF 250 DEGREES FAHRENHEIT.

THE POWDER PRIMED SURFACE IS COATED WITH AN INTERMEDIATE COAT OF POLYESTER POWDER TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS ELECTROSTATICALLY APPLIED AND CURED BY HEATING THE SUBSTRATE IN A CONVECTION OVEN TO A MINIMUM OF 350 DEGREES AND A MAXIMUM OF 400 DEGREES FAHRENHEIT.

THE INTERMEDIATE COAT IS TOP COATED WITH ONE COAT OF HIGH-BUILD ACRYLIC POLYURETHANE ENAMEL TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS ELECTROSTATICALLY APPLIED AND CURED BY HEATING THE SUBSTRATE IN A CONVECTION OVEN TO A MINIMUM OF 225 DEGREES FAHRENHEIT. THE FINAL TOP COATING COLOR SHALL BE BLACK.

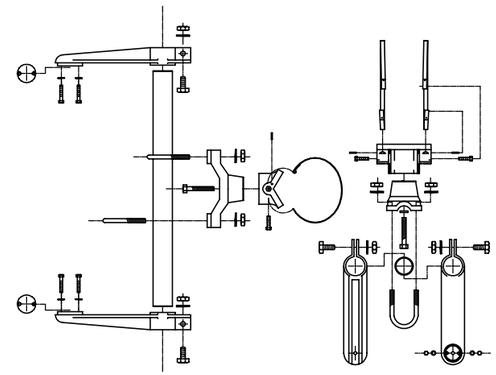
THE COLOR OF EXTERIOR SURFACE OF ALL STRUCTURES, POLES, SIGNAL HEADS, BRACKETS, EQUIPMENT, CABINETS, COVERS, PANELS AND COMPONENTS SHALL BE MATCHING BLACK, UNLESS OTHERWISE NOTED.

BANDED SIGN MOUNTING BRACKET DETAIL



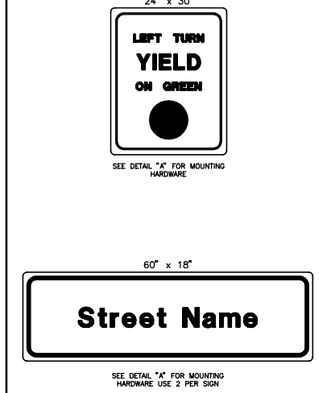
A

TYPE I SIGNAL MOUNTING BRACKET ASSEMBLY DETAIL



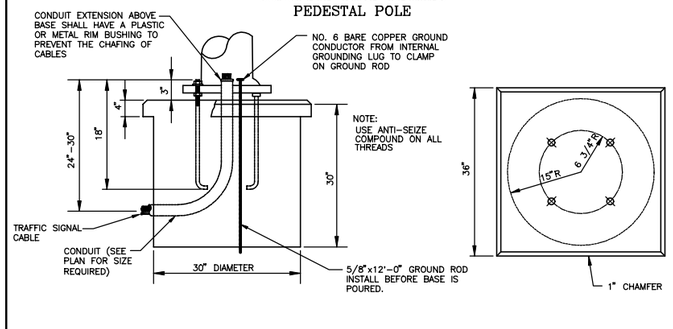
B

STANDARD SIGNING

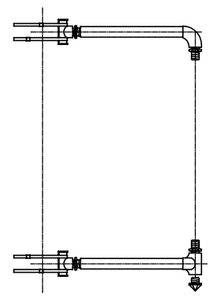


C

CONCRETE BASE DETAILS
PEDESTAL POLE

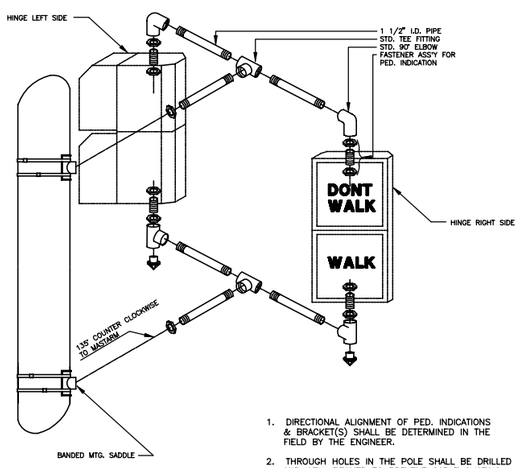


TYPE III SIDE-OF-POLE MOUNTING BRACKET ASSEMBLY



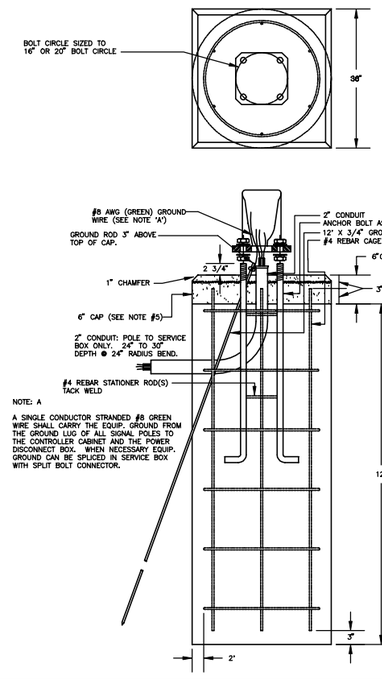
F

TYPE II SIGNAL MOUNTING BRACKET ASSEMBLY (SIDE-OF-POLE)



1. DIRECTIONAL ALIGNMENT OF PED. INDICATIONS & BRACKET(S) SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. THROUGH HOLES IN THE POLE SHALL BE DRILLED AND WELL REAMED TO PREVENT CABLE CHAFING.
3. HINGE PEDESTRIAN SIGNAL DOORS AWAY FROM POLE.

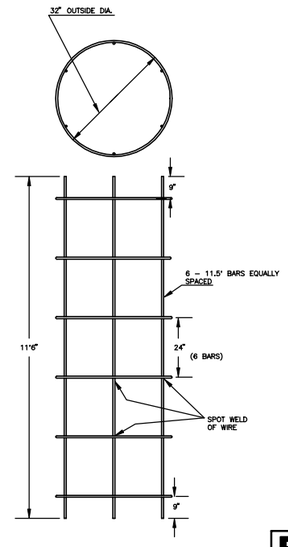
D



NOTE:

1. THE ANCHOR BOLTS FOR THE SIGNAL POLE SHALL BE TACK WELDED TOGETHER IN A 16" OR 20" DIA. BOLT PATTERN (ON CENTERS AS SHOWN) TO MAINTAIN REQUIRED BOLT CONFIGURATION PATTERN AND TO AID IN VERTICAL POSITIONING WHILE CONCRETE BASE IS POURED.
2. USE ANTI-SEIZE COMPOUND ON ALL THREADS.
3. 12' x 3/4" GROUND ROD TO BE POSITIONED BEFORE POURING BASE.
4. CLASS 'A' CONCRETE SHALL BE USED TO CONSTRUCT BASE.
5. CONSTRUCT A 6" THICK x 36" SQUARE CONCRETE CAP AFTER POLE HAS BEEN ERECTED & PLUMBED. CHAMFER EDGE 1". MUST BE APPROVED BY ENG. BEFORE POURED.
6. CONDUIT SHALL HAVE PLASTIC (OR METAL) BUSHING (ABOVE BASE) TO PREVENT CABLE CHAFING.
7. USE #6 BARE COPPER GROUND CONDUCTOR FROM CLAMP TO GROUND BOLT IN ACCESS HOLE.

REBAR CAGE



E

PROJECT DESCRIPTION

STEEL SIGNAL POLE ASSEMBLY DETAILS

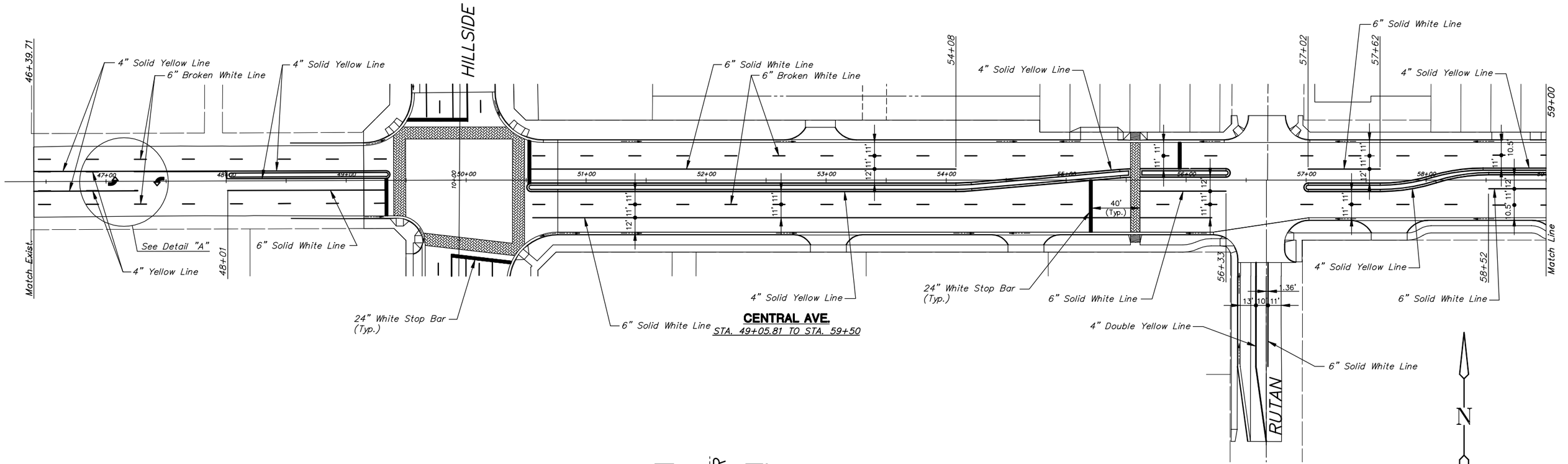
PROJECT NUMBER

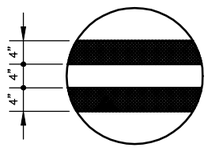
472-82858

DRAWN BY: T.M.	APPROVED BY	REVISED BY: T.M.
DATE: FEB. 96		DATE: MAY, 97

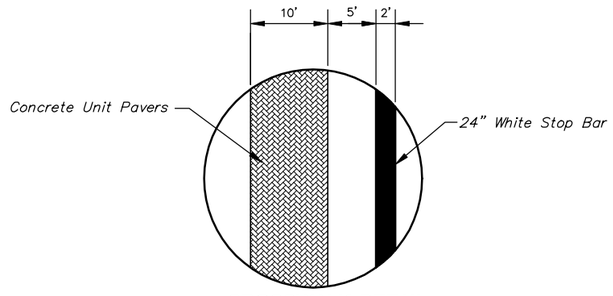
CITY OF WICHITA
DEPARTMENT OF PUBLIC WORKS

DIVISION OF TRAFFIC ENGINEERING	SCALE
WM. G. McKINLEY P.E. TRAFFIC ENGINEER	NO SCALE

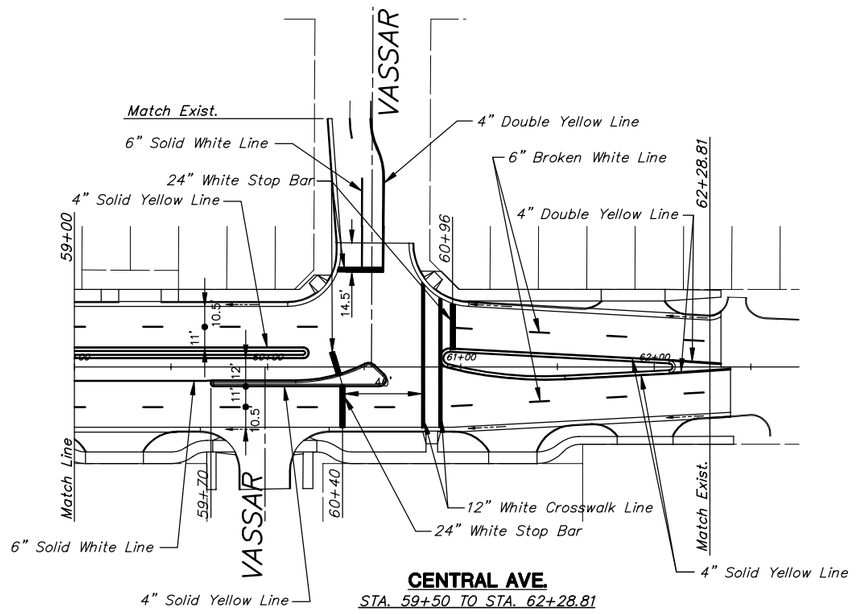




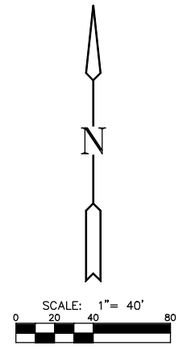
DOUBLE YELLOW DETAIL

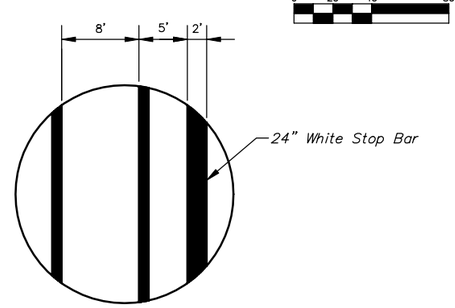


CROSSWALK DETAIL
Central & Hillside



CENTRAL AVE.
STA. 59+50 TO STA. 62+28.81





CROSSWALK DETAIL
Vassar

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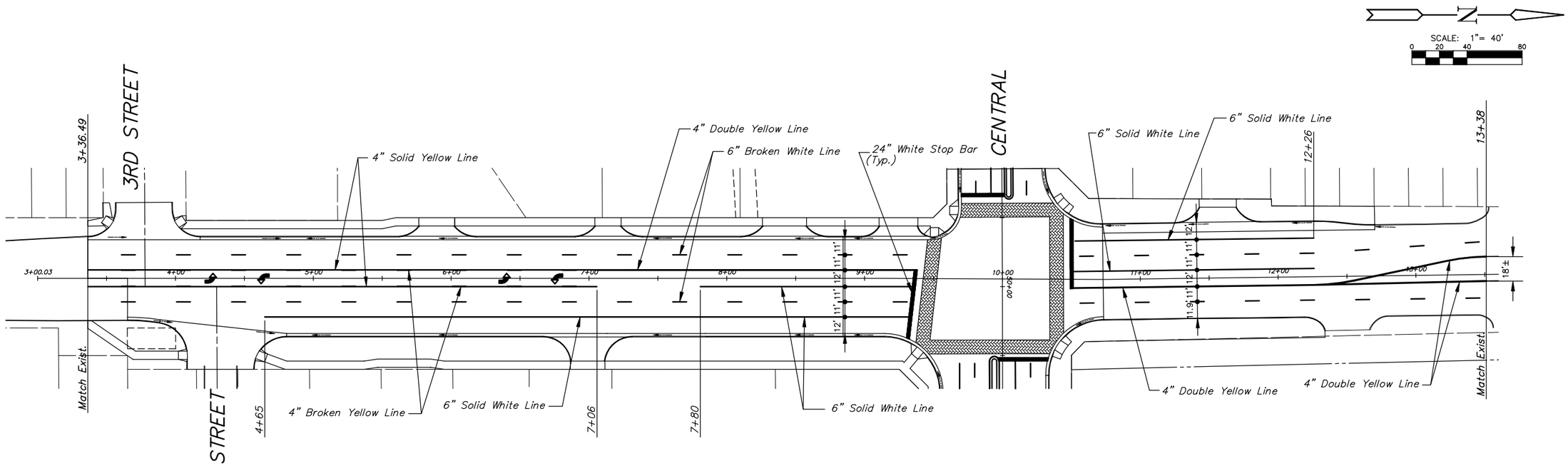
MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

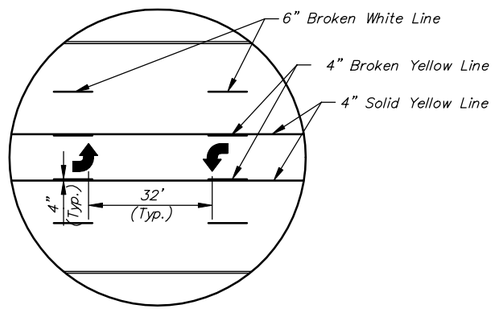
PAVEMENT MARKING PLAN
SHEET TITLE

GJA	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168ST1	51 / 74
DATE	JOB NO.	SHEET/OF

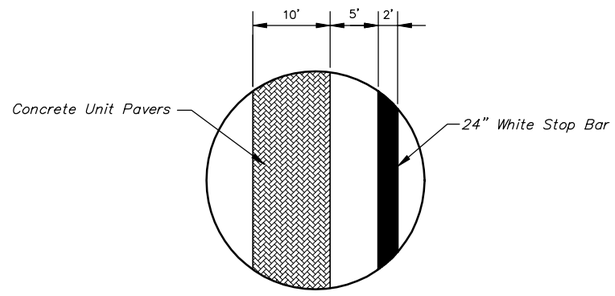


3RD STREET

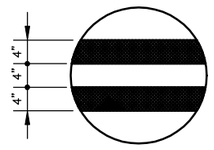
HILLSIDE AVE.
STA. 5+67.55 TO STA. 13+38



Detail "A"



CROSSWALK DETAIL
Central & Hillside



DOUBLE YELLOW DETAIL

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
Pavement Marking (White)(6")	3,865	L.F.
Pavement Marking (White)(12")	144	L.F.
Pavement Marking (White)(24")	320	L.F.
Pavement Marking (Yellow)(4")	5,235	L.F.
Pavement Marking Symbol (White)(Left Turn Arrow)	6	Each

MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

PAVEMENT MARKING PLAN
SHEET TITLE

GJA	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168ST2	52 / 74
DATE	JOB NO.	SHEET/OF

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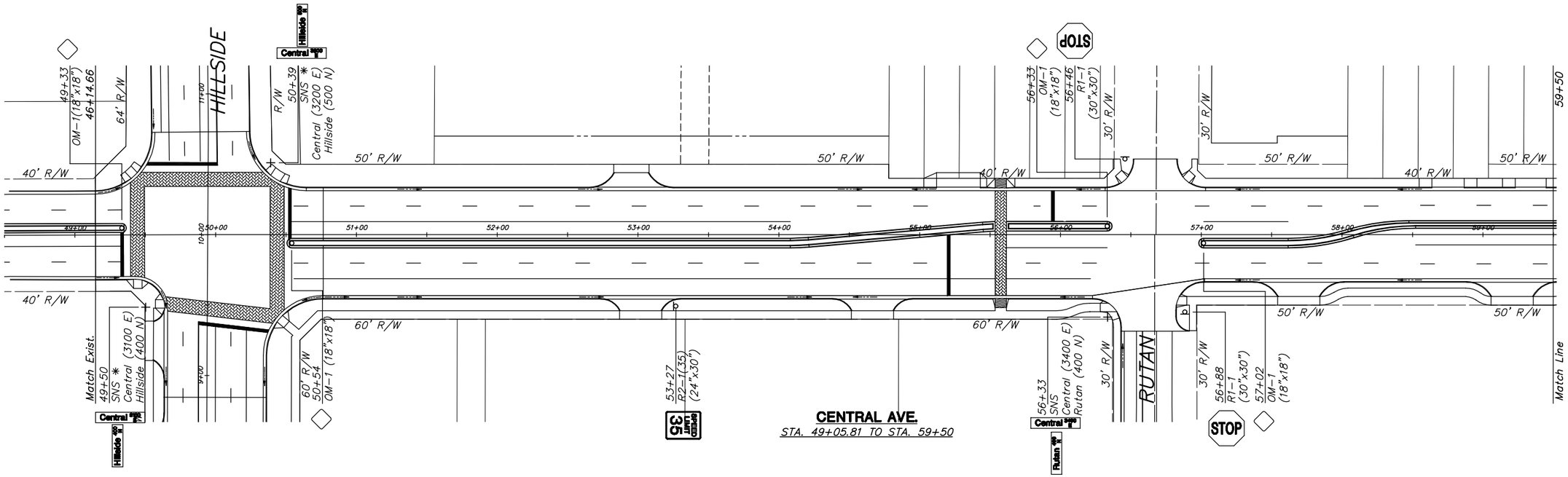

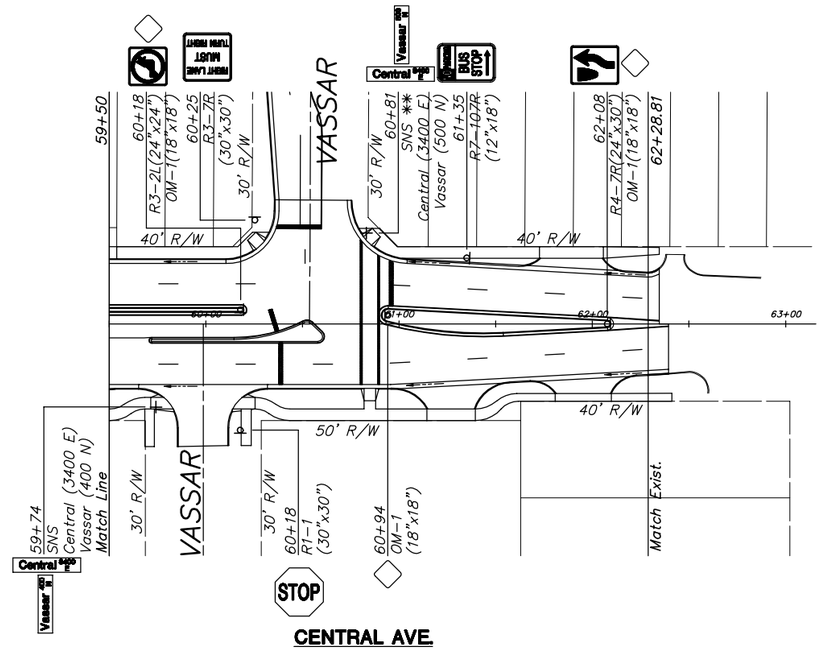

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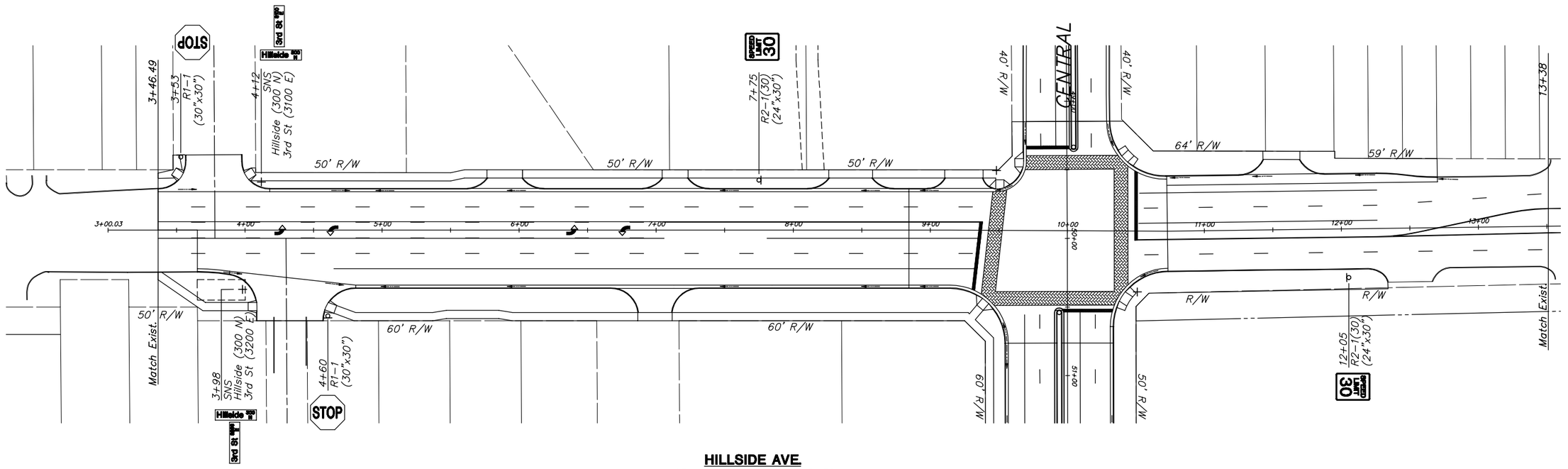
MID-KANSAS ENGINEERING
CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

SIGNING PLAN
SHEET TITLE

GJA	WNJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168SN1	53 / 74
DATE	JOB NO.	SHEET/OF



HILLSIDE AVE.

STA. 3+46.49 TO STA. 13+38

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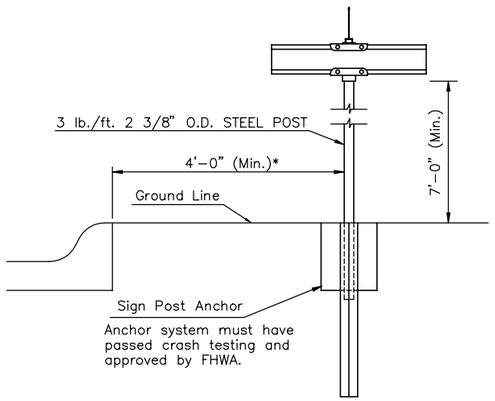
MID-KANSAS ENGINEERING
CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

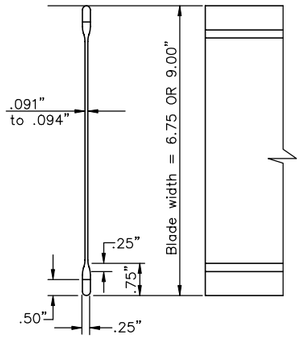
SIGNING PLAN
SHEET TITLE

GJA	WNJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168SN2	54 / 74
DATE	JOB NO.	SHEET/OF



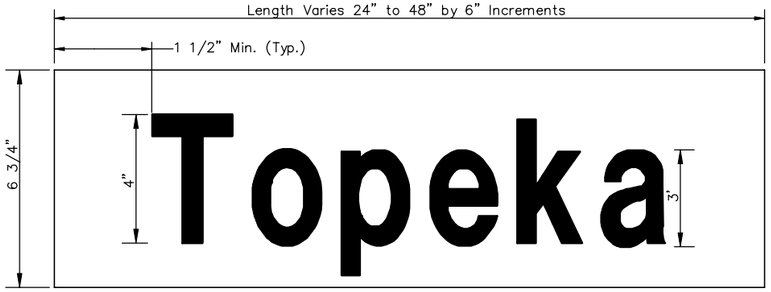
TYPICAL STREET NAME SIGN MOUNTING INSTALLATION

CURB AND GUTTER SECTION

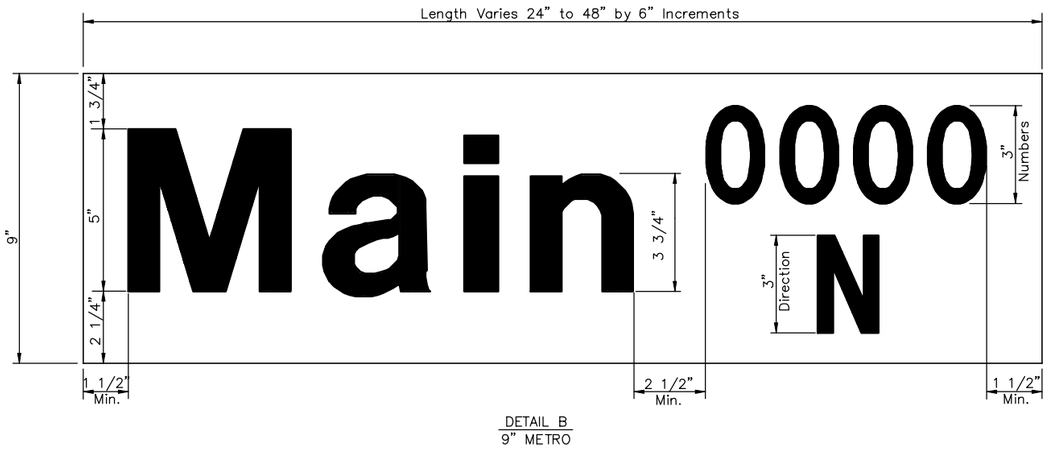


STREET NAME SIGN

BLADE DETAILS



DETAIL A
6 3/4" STANDARD



DETAIL B
9" METRO

STREET NAME	NO. BLADES REQ'D	
	6 3/4" STD.	9" METRO
Central 3100 E		1
Central 3200 E		1
Central 3400 E		3
Hillside 300 N		2
Hillside 400 N		1
Hillside 500 N		1
Rutan 400 N		1
Vassar 400 N		1
Vassar 500 N		1
3rd St 3100 E		1
3rd St 3200 E		1

NOTE: REFERENCES BELOW TO "STANDARD SPECIFICATIONS" DENOTE "STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION EDITION 1990" BY THE KANSAS DEPARTMENT OF TRANSPROTATION.

1. POST ANCHORS: POSTS SHALL BE ANCHORED WITH A YIELDING BASE POST SUPPORT AS DETAILED.

2. POSTS FOR STREET NAME SIGNS (SNS): POSTS SHALL BE 9 FEET LONG, CONSTRUCTED FROM 2 3/8" O.D. GALVANIZED STEEL PIPE WEIGHING A MINIMUM OF 3 LBS./FOOT. POSTS SHALL BE POSITIONED SO THAT THE BOTTOM BLADE IS 7 FEET ABOVE GRADE.

3. SIGN BLANKS FOR TRAFFIC CONTROL SIGNS: SIGN BLANKS SHALL BE FABRICATED FROM 0.080" ALUMINUM ALLOY 6063-T6 CONFORMING TO THE REQUIREMENTS OF SUBSECTION 1626 OF THE STANDARD SPECIFICATIONS.

4. SIGN BLADES FOR STREET NAME SIGNS: EXTRUDED ALUMINUM BLADES SHALL BE ALUMINUM ALLOY CONFORMING TO 6063-T6 OR 5052-H38 (ASTM SPECIFICATION B221, LATEST ISSUE). BLADES SHALL HAVE AN ALODINE OR PHOSPHATE ETCHED FINISH. BLADES SHALL HAVE SQUARE CORNERS AND NO HOLES.

   MINIMUM BLADE LENGTH SHALL BE 24". MAXIMUM BLADE LENGTH SHALL BE 48". LENGTH VARIES BY INCREMENTS OF 6".

   BLADES BEARING THE STREET NAMES SHALL BE FIRMLY ATTACHED TO THE MOUNTING BRACKETS USING ALLEN-TYPE SET SCREWS. THE BLADES SHALL BE ORIENTED PARALLEL TO THE STREET.

5. MOUNTING BRACKETS FOR SIGNS: DIE-CAST ALUMINUM BRACKETS SHALL BE ALUMINUM ALLOY 360 HAVING A TENSILE STRENGTH OF 44,000 PSI. THE BRACKETS SHALL BE SMOOTHLY FINISHED FREE OF PITS, BURRS, AND FLAWS. EACH BRACKET SHALL BE TAPPED AND DRILLED FOR 5/16" ZINC-PLATED ALLEN-TYPE SET SCREWS HAVING SELF-LOCKING SAW-TOOTH ENDS.

6. FASTENERS: ALL STEEL FASTENERS FOR TRAFFIC CONTROL SIGNS SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 1614 OF THE STANDARD SPECIFICATIONS.

7. REFLECTIVE SHEETING: REFLECTIVE SHEETING SHALL BE TYPE II – HIGH PERFORMANCE CLASS HA IN ACCORDANCE WITH SUBSECTION 2201 OF THE STANDARD SPECIFICATIONS.

8. PROCESS INK: ALL PROCESS INK SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 2202 OF THE STANDARD SPECIFICATIONS.

9. DETAILS: REGULATORY AND WARNING SIGNS SHALL CONFORM TO THE DETAILS IN "STANDARD HIGHWAY SIGNS", FHWA, 1979.

10. DETAILS – SNS: THE REFLECTIVE SHEETING FOR THE 9" METRO SIZE SNS IS TO BE THE HIGHWAY GREEN BACKGROUND WITH SILVERWHITE #2 COPY WITH 5" UPPER CASE AND LOWER CASE PRIMARY COPY AND SUFFIX COPY, BOTH SERIES "C". THE CARDINAL DIRECTION CENTERED DIRECTLY BELOW THE BLOCK NUMBER SHALL BE AN UPPER CASE, 3" SERIES "C" LETTER. FACES TO TRIM TO A 8 1/2" WIDTH. (SEE DETAIL B.)

    SHOP DRAWINGS OF LAYOUT FOR SNS SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION OF THE CITY OF WICHITA FOR APPROVAL PRIOR TO FABRICATION. THE FINISHED SIGNS AS SUPPLIED SHALL BE OF GOOD APPEARANCE, FREE FROM RAGGED EDGES, CRACKS SCALES OR BLISTERS AND SHALL BE CLEAN-CUT. SIGNS SHALL BE PACKED IN SUCH MANNER AS TO PREVENT DAMAGE OR DEFACEMENT DURING SHIPMENT OR STORAGE.

11. PERMANENT TRAFFIC CONTROL AND SNS: PERMANENT TRAFFIC CONTROL AND SNS SHALL BE MEASURED AND PAID FOR AT THE LUMP SUM PRICE FOR SIGNING. THE PAYMENT AS SET FORTH ABOVE SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EXCAVATION, BACKFILLING. POSTS, ANCHORS, FASTENERS, MATERIALS, LABOR, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

SIGNING DETAILS

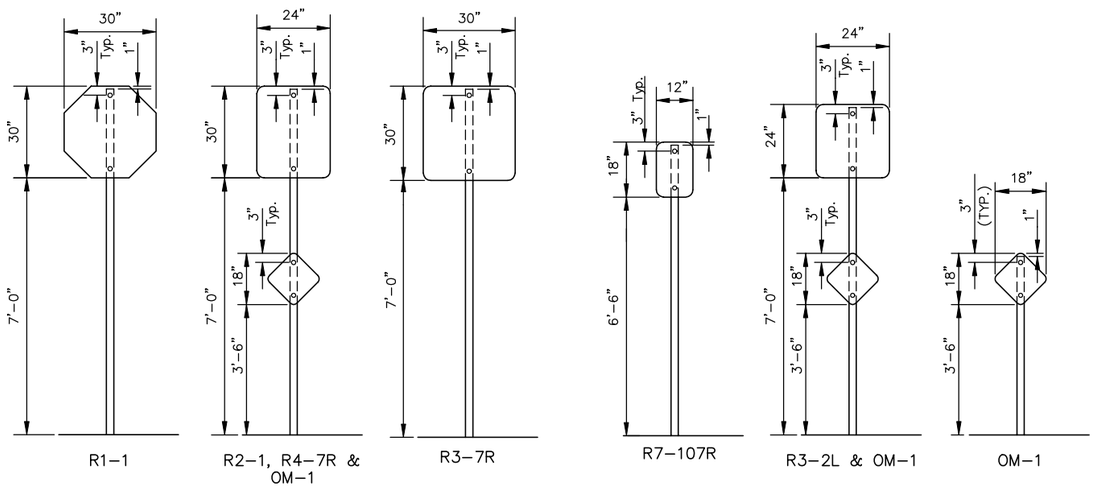
SCALE: NONE	APPROVED BY	DATE: JUNE '93
DRAWN BY: TM		REVISED: JUNE '97

CITY OF WICHITA
DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING SECTION

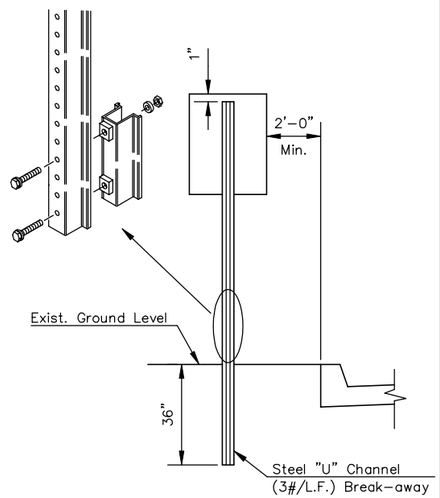
TRAFFIC CONTROL SIGNS & SIGN POST

Station	Location from ℄	Classification – Each								Sign Post Length	
		R1–1	R2–1	R7–107R	R3–7R	R4–7R	SNS ✳	R3–2L	OM–1	Breakaway 1–3/4"x1–3/4"	"U"– Channel
Central											
49+33	Lt.								1	6.0	
49+50	Rt.						1				
50+39	Lt.						1				
50+54	Rt.								1	6.0	
53+27	Rt.		1							10.5	
56+33	Lt.								1	6.0	
56+33	Rt.						1				
56+46	Lt.	1								10.5	
56+88	Rt.	1								10.5	
57+02	Rt.								1	6.0	
59+74	Rt.						1				
60+18	Lt.							1	1	10.0	
60+18	Rt.	1								10.5	
60+25	Lt.				1					11.0	
60+81	Lt.						1				
60+94	Lt.								1	6.0	
61+35	Lt.			1							8.0
62+08	B/L					1			1	10.5	
Hillside											
3+53	Lt.	1								10.5	
3+98	Rt.						1				
4+12	Lt.						1				
4+60	Rt.	1								10.5	
7+75	Lt.		1							10.5	
12+05	Rt.		1							10.5	
Total		5	3	1	1	1	7	1	7	145.5	8.0

✳ SNS: Street Name Sign See Typical Mounting Installation Detail



SIGN MOUNTING DETAILS



TRAFFIC SIGN INSTALLATION DETAIL

FOR SIGNS NOT GREATER THAN 12" WIDE

SIGN POST LENGTH SUMMARY ✳

BREAKAWAY SIGN POST:	
1 3/4"x1 3/4"x LENGTH	EACH
6'	5
10	1
10–1/2'	9
11'	1
2–1/4"x2–1/4"x18"	16
2"x2"x36"	16
U–CHANNEL	
LENGTH	EACH
STUBS 3'	1
POSTS 8'	1
POSTS 9'	
POSTS 9–1/2'	
POSTS 11'	

✳ For Information Only

RECAPITULATION OF MATERIALS ✳

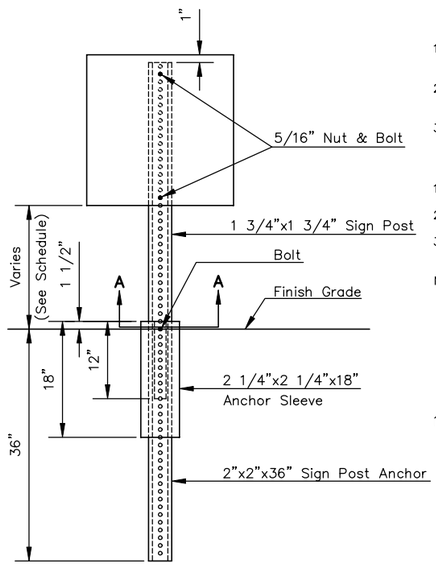
ITEMS	TOTAL	UNIT
Sign Face, (High Intensity HA Reflective Sheeting)	83.75	S.F.
Steel "U" Channel Sign Post	11.0	L.F.
Breakaway Sign Post, 1–3/4" x 1–3/4"	145.5	L.F.
Breakaway Anchor Sleeve, 2–1/4" x 2–1/4" x 18"	24.0	L.F.
Breakaway Sign Post Anchor, 2" x 2" x 36"	48.0	L.F.
Street Name Sign Assembly (Per Typical Installation Detail)	7	EACH

RECAPITULATION OF MATERIALS

BID ITEMS	TOTAL	UNIT
Signing	LUMP SUM	L.S.

SIGN DESCRIPTION

CLASSIFICATION	TYPE	SIZE	AREA
R1–1	STOP SIGN	30"x30"	6.25 SQ. FT.
R2–1	SPEED LIMIT	24"x30"	5.00 SQ. FT.
R3–7R	RIGHT LANE MUST TURN RIGHT	30"x30"	6.25 SQ. FT.
R7–107R	NO PARKING BUS STOP →	12"x18"	1.50 SQ. FT.
R4–7R	KEEP RIGHT	24"x30"	5.00 SQ. FT.
R3–2L	NO LEFT TURN	24"X24"	4.00 SQ. FT.
OM–1	OBJECT MARKER	18"X18"	2.25 SQ. FT.



BREAK–AWAY SIGN POST DETAIL

PAVEMENT INSTALLATION SEQUENCE

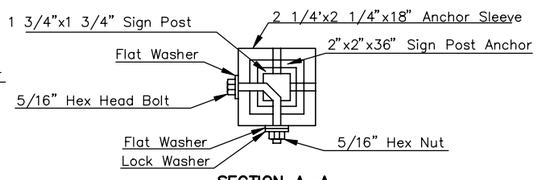
1. SIGN POST ANCHOR DRIVEN INTO SUBGRADE PRIOR TO THE PLACEMENT OF THE PAVEMENT.
2. ANCHOR SLEEVE DRIVEN INTO SUBGRADE OVER THE SIGN POST ANCHOR PRIOR TO THE PLACEMENT OF THE PAVEMENT.
3. INSERT SIGN POST INTO THE SIGN POST ANCHOR AND BOLT IN PLACE.

GROUND INSTALLATION SEQUENCE

1. SIGN POST ANCHOR DRIVEN INTO THE GROUND.
2. ANCHOR SLEEVE DRIVEN INTO THE GROUND OVER THE SIGN POST ANCHOR.
3. INSERT SIGN POST INTO THE SIGN POST ANCHOR AND BOLT IN PLACE.

NOTE: IN ALL INSTALLATIONS THE FIRST HOLE ABOVE THE FINISHED GRADE LEVEL IN ALL THREE UNITS MUST BE IN LINE FOR INSERTION OF THE BOLT.

ALL BOLTS AND NUTS FOR FASTENING THE SIGNS AND SIGN POST ASSEMBLY SHALL COMPLY WITH SECTION 1614 AND ALL WASHERS SHALL COMPLY WITH SECTION 1614 OF THE STANDARD SPECIFICATION FOR STATE ROAD AND BRIDGE CONSTRUCTION (1990 EDITION) AND SHALL BE SUBSIDIARY ITEM.



SECTION A–A

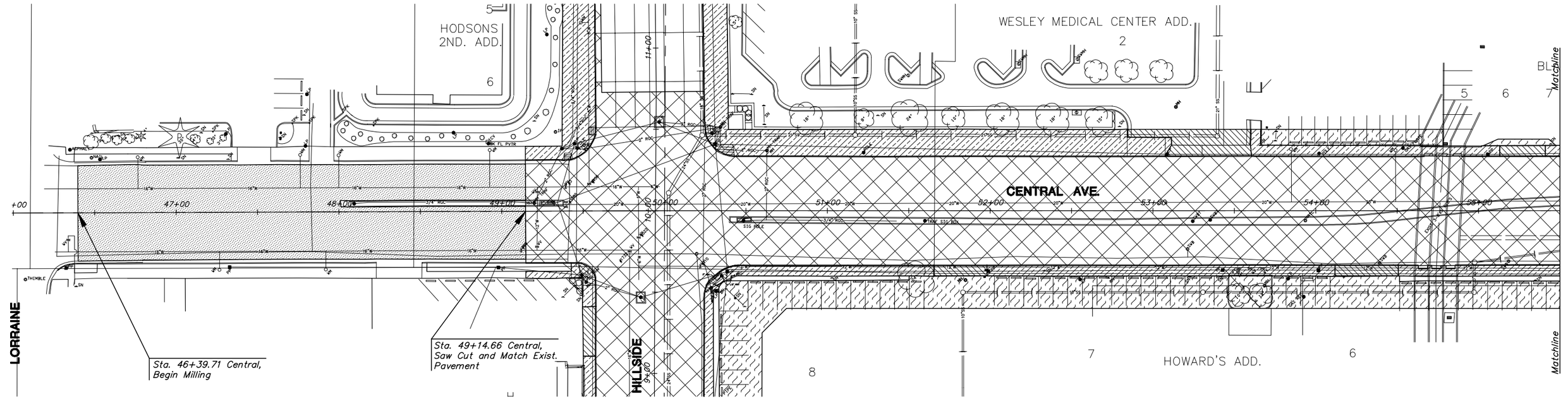
NOTE: SEE TRAFFIC SIGNAL POLE DETAILS FOR ADDITIONAL TRAFFIC SIGN REQUIREMENTS. THE COLOR OF SIGN BACKS, POSTS AND HARDWARE SHALL BE BLACK TO MATCH THE TRAFFIC SIGNAL POLES.

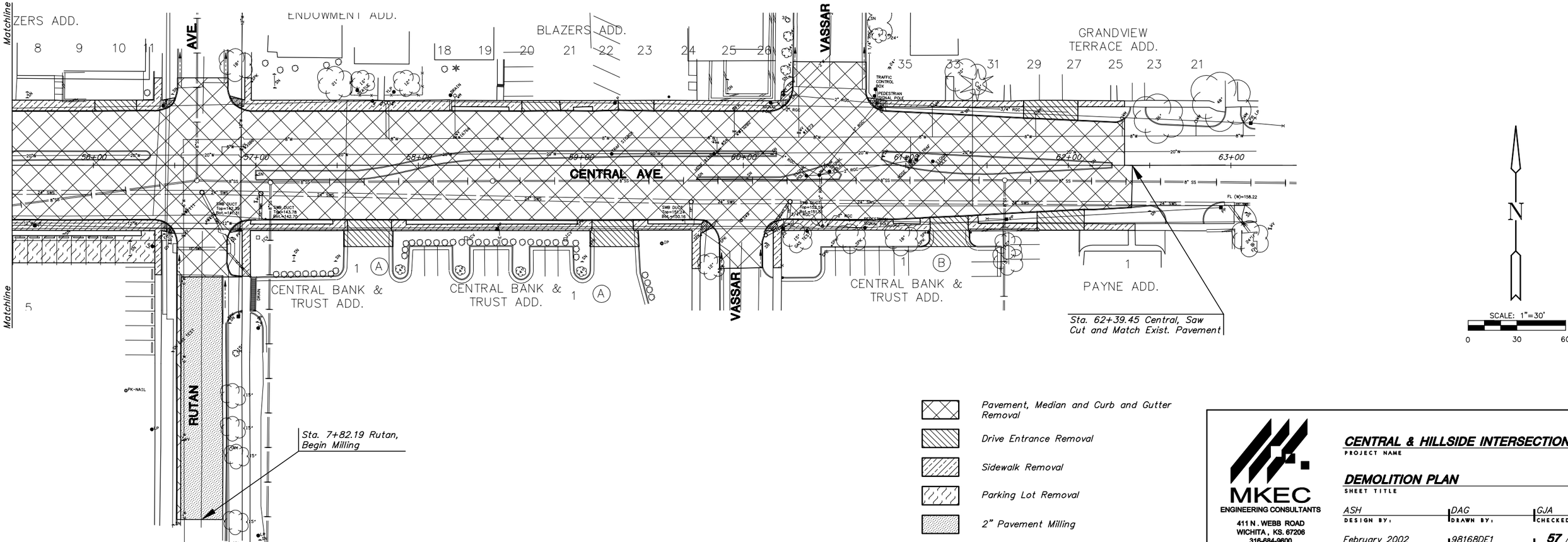
WICHITA, KANSAS

SIGNING DETAILS

JOB NO. DATE: CH'KD:

SCALE: NONE DRAWN: APP'VD:





N

SCALE: 1"=30'

0 30 60

- Pavement, Median and Curb and Gutter Removal
- Drive Entrance Removal
- Sidewalk Removal
- Parking Lot Removal
- 2" Pavement Milling

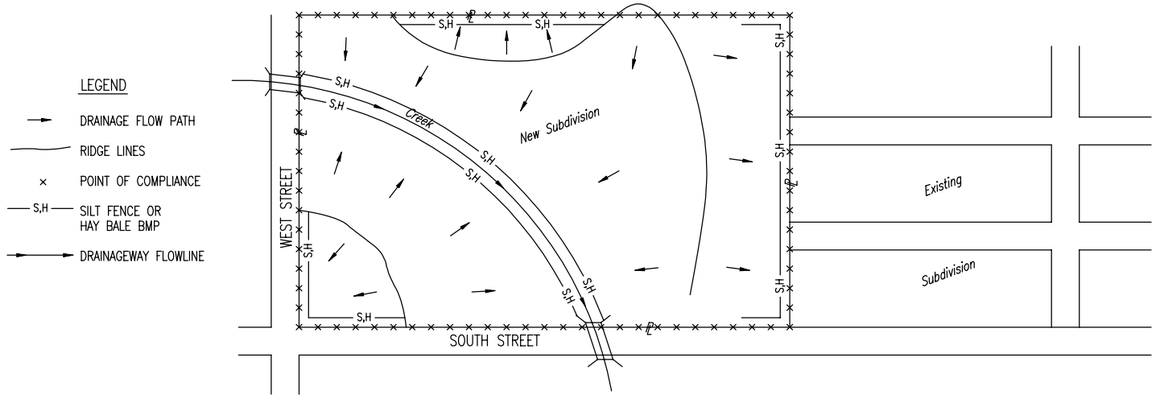
MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

DEMOLITION PLAN
SHEET TITLE

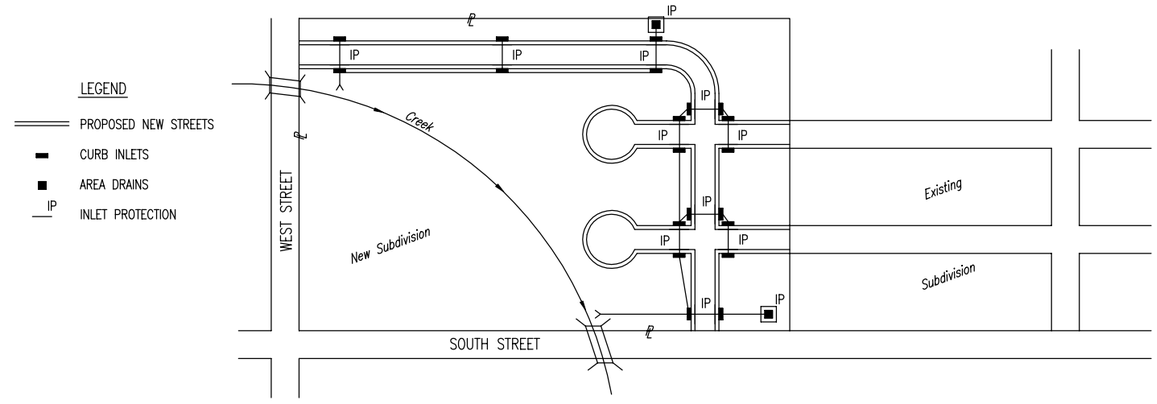
ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168DE1	57 / 74
DATE	JOB NO.	SHEET/OF

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



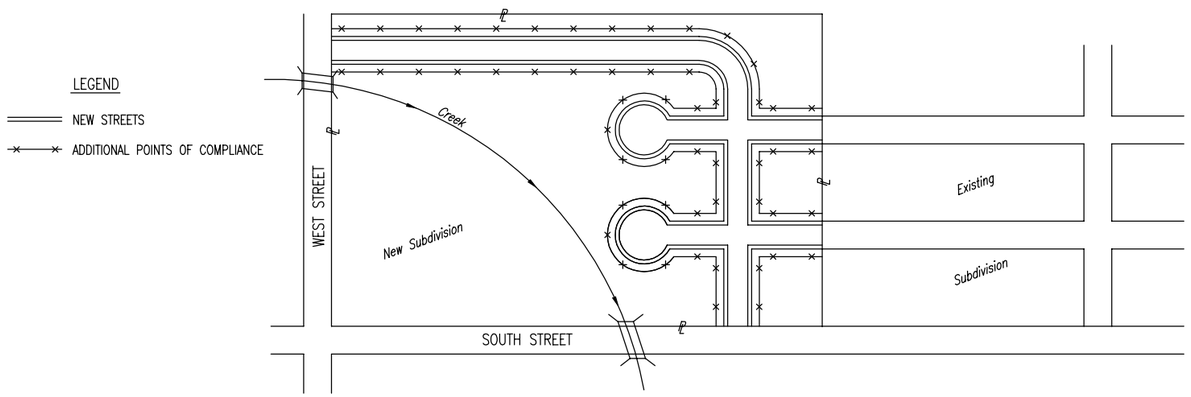
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR GUTTERLINES ON THE ADJACENT BOUNDRY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDRY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON–SITE BMP'S.

PHASE 2 – INSTALLATION OF STORM SEWER

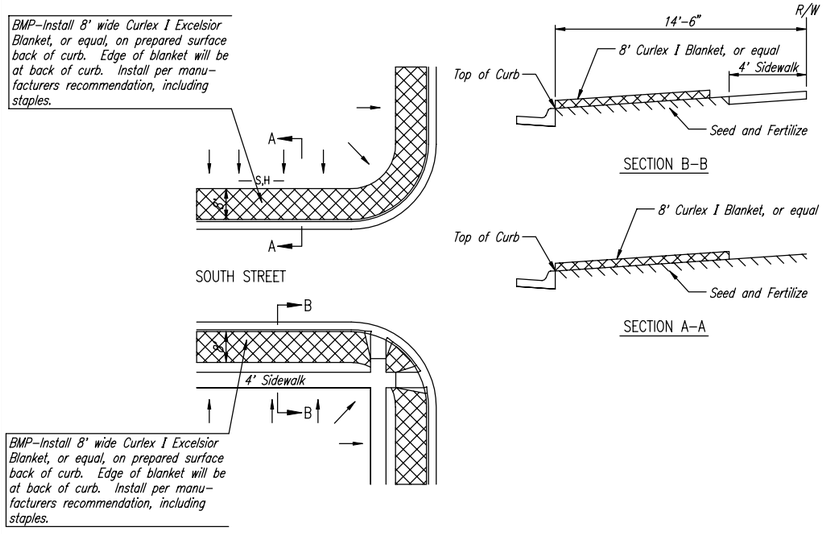


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYBALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION BMP'S MUST BE INSTALLED. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE BMP'S. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE BMP'S ONCE INSTALLED.
7. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

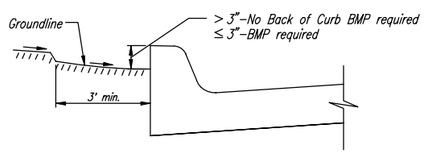
PHASE 3 – STREET CONSTRUCTION



1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON–SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. BMP'S WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLIMENTED WITH HAYBALE OR SILT FENCE BMP'S AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB BMP'S.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.



BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL

GENERAL NOTES:

1. THE INTENT OF ALL BEST MANAGEMENT PRACTICES (B.M.P.'S) IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, OR ANY OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. BMP'S SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON THE BMP DETAIL SHEETS.
4. PERSONS DESTROYING BMP'S SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT BMP'S.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 5 ACRES OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL BMP'S ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLAN.
6. FOR SUBDIVISIONS SMALLER THAN 5 ACRES, SOIL EROSION BMP'S ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THAT SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

G:\CIVIL\01017\DWG\SAN\BMP2.DWG

CITY OF WICHITA

SOIL EROSION BMPS SUBDIVISION DEVELOPMENT PROCESS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
472–83039	706705
DATE: FEB. 2002	SHEET 58A OF 74

GENERAL NOTES:

1. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPES OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.

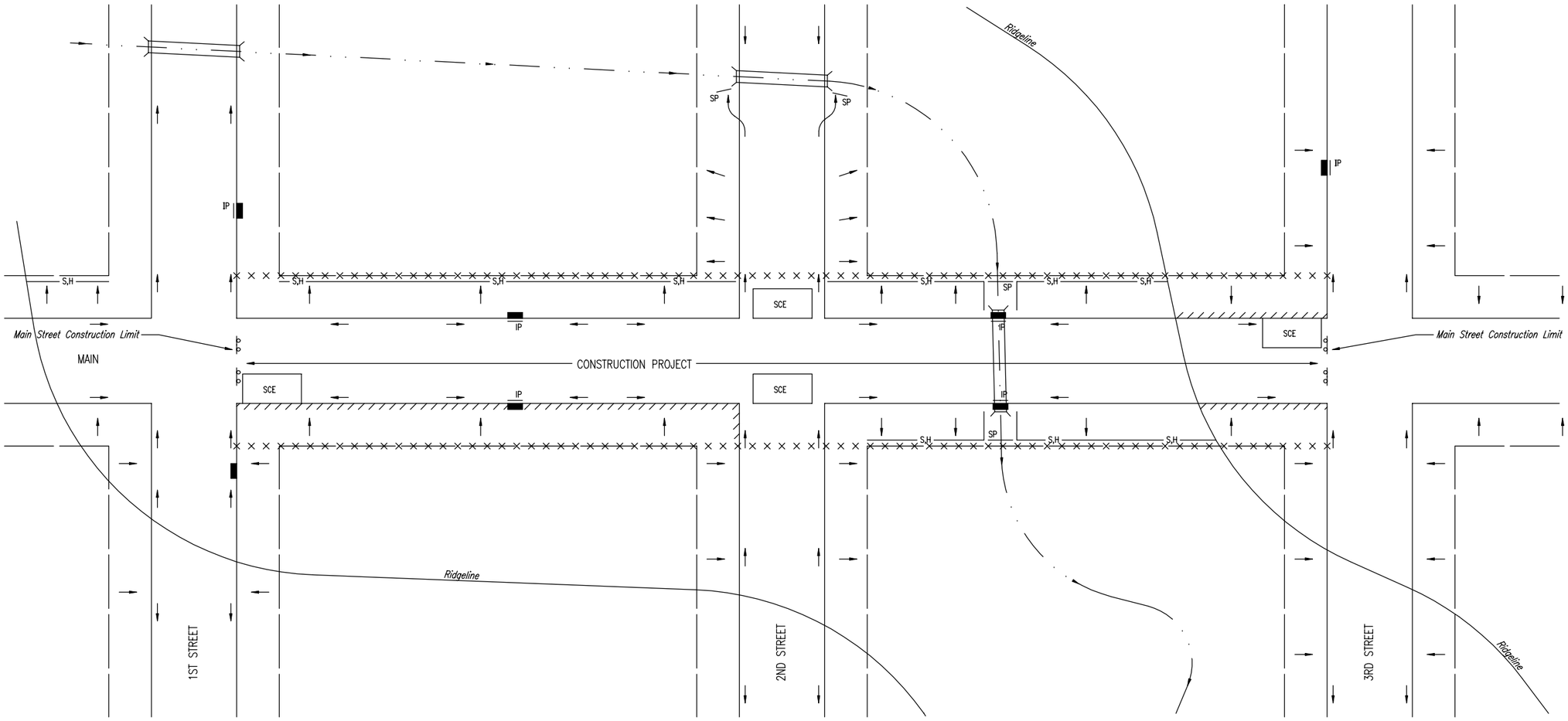
2. BMP'S MUST BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS.

3. IF THE PROJECT WILL DISTURB 5 ACRES OR MORE, A FEDERAL/STATE NPDES STORMWATER PERMIT IS REQUIRED. A DETAILED STORMWATER POLLUTION PREVENTION PLAN, IS REQUIRED. THE BMP'S SHOWN ON THIS SHEET ARE CONSIDERED TO BE THE MINIMUM TO BE SHOWN IN THE POLLUTION PREVENTION PLAN.

4. FOR PROJECTS DISTURBING LESS THAN 5 ACRES, CONTRACTORS ARE ENCOURAGED TO PREPARE STORMWATER POLLUTION PREVENTION PLANS PRIOR TO CONSTRUCTION.

5. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE CONTRACTOR TO THE PENALTIES PROVIDED FOR THEREIN.

6. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THOSE SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED AS LONG AS THEY ARE EFFECTIVE AND MAINTAINED.



LEGEND

- R-O-W LIMITS
- DRAINAGE FLOW PATH
- R/W LIMIT WITHIN CONSTRUCTION LIMIT
- STORM WATER INLETS
- IP — INLET PROTECTION
- S,H — SILT FENCE OR HAYBALE BMP
- SP — STREAM PROTECTION
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- BACK OF CURB PROTECTION

NOTES:

1. GENERAL BMP GOAL IS TO KEEP ALL SEDIMENT CONFINED TO THE CONSTRUCTION SITE, AND OUT OF ALL UNDERGROUND PIPES, DITCHES, AND OTHER DRAINAGE FACILITIES.

2. THE POINT OF COMPLIANCE IS GENERALLY THE RIGHT-OF-WAY LINES WITHIN THE LIMITS OF CONSTRUCTION.

3. BMP'S WILL BE REQUIRED AT ALL POINTS ALONG THE PROJECT WHERE DISTURBED EARTH CAN DRAIN ONTO PRIVATE PROPERTY.

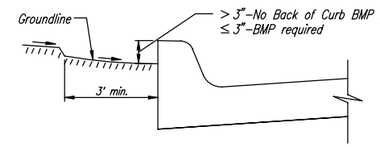
4. INLET PROTECTION DEVICES WILL BE REQUIRED WHEREVER WATER CAN DRAIN OFF THE PROJECT SITE INTO AN INLET, INCLUDING ANY SIDE STREET INLETS.

5. BMP'S SHALL BE INSTALLED AT CREEK CROSSINGS SO AS TO PREVENT SEDIMENT FROM ENTERING THEREIN.

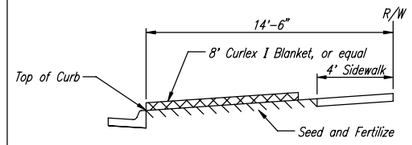
6. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED, AS NEEDED, TO PREVENT MUD FROM TRACKING ONTO STREETS NOT UNDER CONSTRUCTION AND ON STREETS WITHIN THE PROJECT LIMITS IF TRAFFIC IS BEING MAINTAINED THROUGH THE PROJECT.

7. ANY MUD TRACKED ONTO STREETS MUST BE REMOVED AT THE END OF EACH WORK DAY.

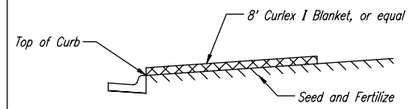
8. THE CONTACTOR WILL BE REQUIRED TO PLACE BMP'S BACK OF CURB, WHENEVER WATER CAN DRAIN OVER CURB, TO KEEP ERODED SOIL OUT OF THE GUTTERLINES, IN ACCORDANCE WITH THE FOLLOWING:
   A. THE BMP REQUIRED WILL BE CURLEX I EXCELSIOR BLANKET, OR EQUAL. SAID BLANKET SHALL BE PLACED OVER THE APPROPRIATE SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS. (SEE BACK OF CURB PROTECTION DETAIL)
   B. THIS BMP SHALL BE INSTALLED IMMEDIATELY WHENEVER THE CURB IS BACKFILLED TO WITHIN 3" OF THE TOP OF CURB. (SEE CURB BACKFILL DETAIL) OTHER BMP'S MAY BE REQUIRED AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB.
   C. ADDITIONALLY, OTHER BMP'S (HAYBALES, SILT FENCE, ETC.) WILL BE INSTALLED AT LOCATIONS OF CONCENTRATED FLOW RESULTING IN SEDIMENT OVERRUNNING THE MAT.
   D. SHOULD THE PROJECT PLANS SPECIFY THAT THE RIGHT-OF-WAY IS TO BE SODDED, THE EXCELSIOR MAT WILL NOT BE REQUIRED SO LONG AS THE SOD IS PLACED WITHIN 48 HOURS AFTER CURB BACKFILL REACHES A HEIGHT OF 3" OR LESS FROM TOP OF CURB. (SEE DETAIL)



CURB BACKFILL DETAIL

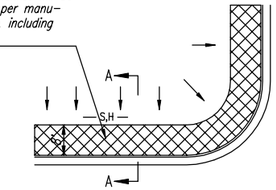


SECTION B-B

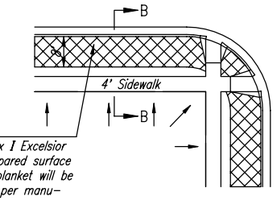


SECTION A-A

BMP-Install 8' wide Curlex I Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manu-facturers recommendation, including staples.



SOUTH STREET



BMP-Install 8' wide Curlex I Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manu-facturers recommendation, including staples.

BACK OF CURB PROTECTION DETAIL

NOTES:

1. EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.

2. EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

3. AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE GUTTER, SUPPLIMENTAL BMP'S WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED, TO FIX THE PROBLEM.

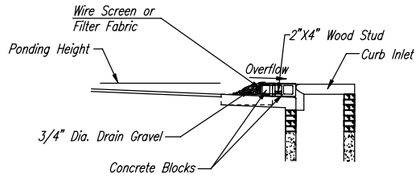
CITY OF WICHITA

SOIL EROSION BMPS STREET IMPROVEMENT PROJECTS

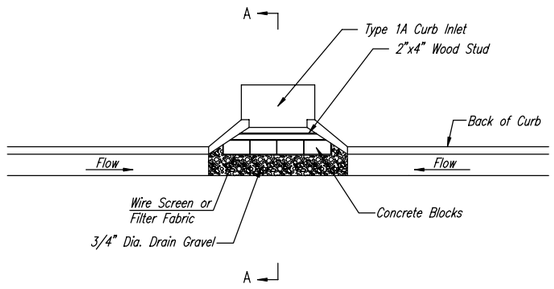
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
472-83039	706705

DATE: FEB. 2002



SECTION A–A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION–RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

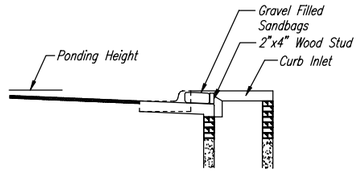
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1–1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

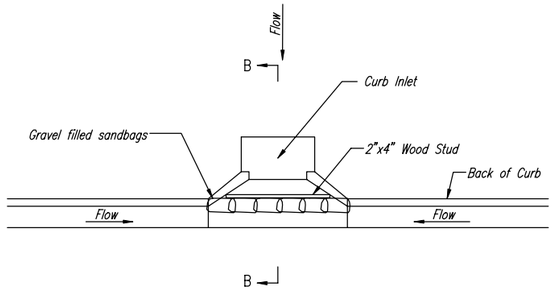
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

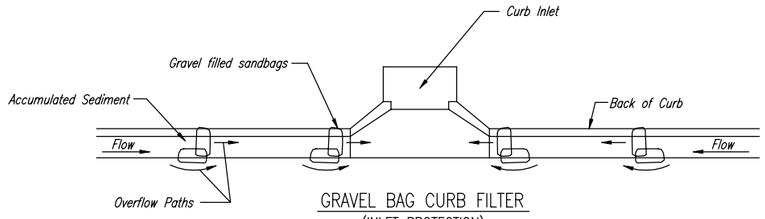


SECTION B–B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

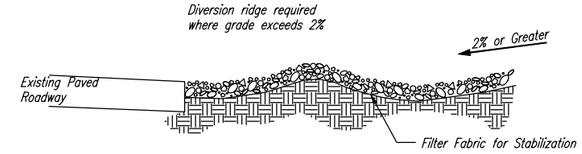
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

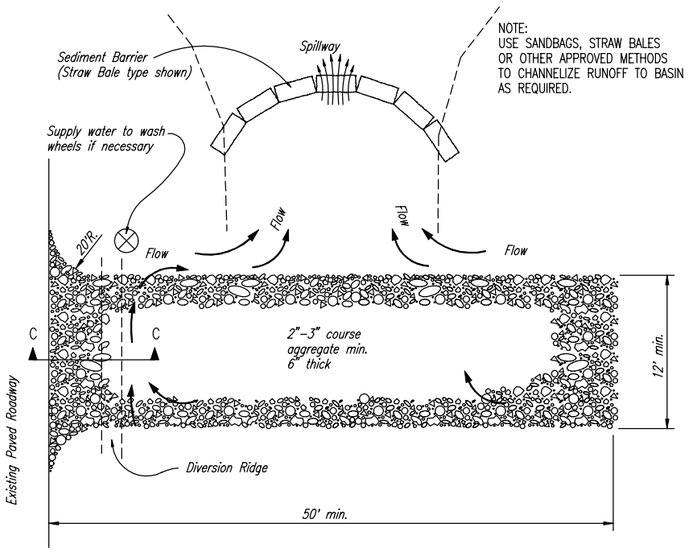
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C–C



STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

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CITY OF WICHITA

SOIL EROSION BMP DETAILS

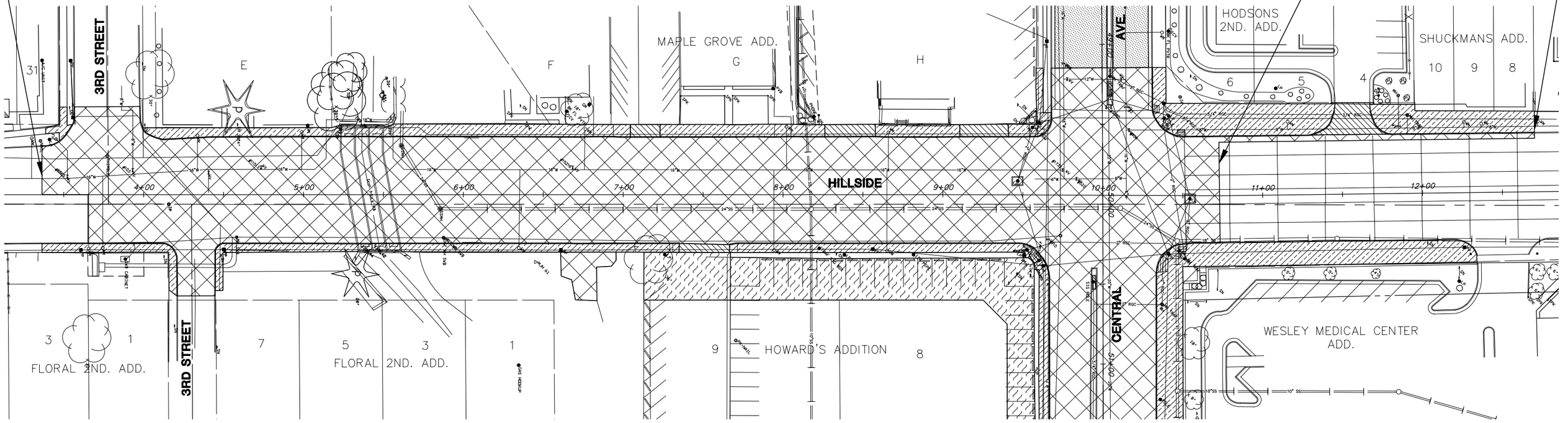
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.
472–83039	706705
DATE: FEB. 2002	SHEET 58C OF 74

Sta. 3+36.49 Hillside, Saw Cut and Match Exist. Pavement

Sta. 12+70.54 Hillside, Saw Cut and Match Exist. Pavement

Sta. 10+73.06 Hillside, Saw Cut and Match Exist. Pavement



N

SCALE: 1"=30'

0 30 60

- Pavement, Median and Curb and Gutter Removal
- Drive Entrance Removal
- Sidewalk Removal
- Parking Lot Removal
- 2" Pavement Milling

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

DEMOLITION PLAN
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
January 2002	98168DE2	58 / 74
DATE	JOB NO.	SHEET/OF

H:\CIVIL\98168\DEMO\98168DE2.DWG 03/26/2001 10:43:45 AM CST

GENERAL NOTES

1. CHANNELIZING DEVICES: "DEVICES" INCLUDES BUT IS NOT LIMITED TO BARRICADES, BARRIERS, CONES, DRUMS AND VERTICAL PANELS.
   (A) THE MAXIMUM SPACING BETWEEN DEVICES IN THE TAPER SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO THE EXISTING SPEED LIMIT (IN MPH) PRIOR TO WORK.
   (B) THE SPACING BETWEEN DEVICES IN THE WORK ZONE SHOULD NOT EXCEED A DISTANCE IN FEET OF TWO TIMES THE POSTED SPEED.
   (C) WHERE EXISTING CONDITIONS WARRANT, THE ENGINEER MAY REQUIRE A DECREASE IN THE SPACING STIPULATED ABOVE. TRAFFIC CONTROL DEVICES NEEDED FOR THIS CONDITION SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.
   (D) TRAFFIC CONES MAY BE UTILIZED AS CHANNELIZING DEVICES FOR DAY-TIME TRAFFIC CONTROL OPERATIONS. THE ENGINEER MAY REQUIRE THAT CONES BE SUPPLEMENTED BY OTHER TRAFFIC CONTROL DEVICES IN CERTAIN SITUATIONS SUCH AS OPEN TRENCHES.

2. COVERING OF SIGNS NOT IN USE:
   WHEN NO WORK IS IN PROGRESS NOR IS ANY EXPECTED TO BE FOR AN EXTENDED PERIOD OF TIME, AND THE ROADWAY IS UNRESTRICTED TO THE TRAVELING PUBLIC, TRAFFIC CONTROL SIGNS SHALL BE REMOVED OR COMPLETELY COVERED WITH ADEQUATE OPAQUE WATERPROOF MATERIAL. TAPE SHALL NOT BE APPLIED TO THE FACE OF A SIGN.

3. CLEAR ZONE:
   WHENEVER PRACTICAL, ALL CONSTRUCTION EQUIPMENT, MATERIALS, AND DEBRIS SHALL BE STORED OUT OF THE CLEAR ZONE. WHERE THIS CANNOT BE ACHIEVED, THE CONTRACTOR SHALL PLACE APPROPRIATE SIGNS AND/OR BARRICADES AS DESIGNATED BY THE ENGINEER. TRAFFIC CONTROL DEVICES NEEDED FOR THIS CONDITION SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

4. MAINTENANCE:
   THE CONTRACTOR SHALL MAINTAIN ALL SIGNS AND DEVICES IN THEIR PROPER POSITION AND CLEAN AND/OR REPLACE ANY DAMAGED OR ILLEGIBLE SIGN OR DEVICE AS DIRECTED BY THE ENGINEER.

5. TAPER FORMULAS:
   L = WS FOR SPEEDS OF 45 MPH OR MORE
   L = $WS^2/60$ FOR SPEEDS OF 40 MPH OR LESS
   WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
   S = NUMERICAL VALUE OF POSTED SPEED PRIOR TO WORK IN MPH
   W = WIDTH OF OFFSET IN FEET

6. PAVEMENT MARKINGS:
   (A) TYPE I TAPE IS TO BE APPLIED TO A FINAL SURFACE AS A TEMPORARY MARKING WHEN THE PATTERN OF THE PERMANENT MARKINGS WILL BE DIFFERENT THAN THE TEMPORARY MARKING. TYPE II TAPE IS TO BE APPLIED TO A TEMPORARY SURFACE THAT IS TO BE REMOVED OR COVERED BY FUTURE CONSTRUCTION. TYPE II TAPE IS ALSO TO BE APPLIED TO A FINAL SURFACE WHERE IT IS KNOWN THERE WILL BE PERMANENT MARKINGS PLACED IN THE SAME PATTERN AS THE TEMPORARY TYPE II TAPE.
   (B) ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED AND ALL TRANSITION TAPERS, CROSSOVERS, AND EDGE LINES ALONG CHANNELIZING DEVICES SHALL BE MARKED WITH SOLID FOUR-INCH WIDE PAVEMENT MARKING TAPE WHEN THE WORK WILL OCCUPY A LOCATION MORE THAN THREE DAYS.

7. TEMPORARY AND POST MOUNTED SIGNS:
   TRAFFIC CONTROL PLANS THAT ARE ANTICIPATED TO REMAIN IN PLACE DURING DAYLIGHT HOURS ONLY ARE CONSIDERED "TEMPORARY". TEMPORARY SIGNS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF ONE FOOT. TRAFFIC CONTROL PLANS OF LONGER DURATION WILL REQUIRE THAT ALL SIGNS BE POST MOUNTED AT A MINIMUM HEIGHT OF SEVEN FEET.

8. EXISTING SIGNS:
   IF EXISTING SIGNS THAT ARE TO REMAIN (OR THAT ARE TO BE REMOVED AND RESET) INTERFERE WITH CONSTRUCTION WORK, THE CONTRACTOR SHALL REMOVE, STORE, AND RESET THE SIGNS. THIS SHALL BE SUBSIDIARY TO OTHER TRAFFIC CONTROL BID ITEMS.

9. CONFLICTING SIGNS:
   ALL PERMANENT AND TEMPORARY SIGNING WHICH IS IN CONFLICT WITH THE TRAFFIC CONTROL PLAN SHALL BE REMOVED OR COVERED.

10. MINIMUM LANE WIDTHS:
    LANE WIDTHS SHALL BE A MINIMUM OF 11 FEET (MEASURED BETWEEN CENTERLINES OF PAVEMENT MARKINGS), OR AS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER. A LANE WIDTH LESS THAN 11 FEET MAY REQUIRE RESTRICTED ROADWAY WIDTH SIGNING.

11. BARRICADES:
    TYPE III BARRICADES PLACED ACROSS A ROADWAY SHALL BE SUITABLY DISTRIBUTED ACROSS THE ROADWAY TO EFFECTIVELY CLOSE THE ROADWAY. WHERE PROVISION IS MADE FOR ACCESS BY AUTHORIZED VEHICLES, THE BARRICADES SHALL CLOSE THE ROAD AT THE END OF THE WORK DAY. WHENN ACCESS MUST BE ALLOWED FOR LOCAL TRAFFIC, THE TYPE III BARRICADES SHOULD BE STAGGERED.

RECOMMENDED CONSTRUCTION SEQUENCE AND TRAFFIC HANDLING

PHASE	HANDLING OF TRAFFIC	MAJOR CONSTRUCTION ITEMS	WATER MAIN CONSTRUCTION	REMARKS
1	Two-way traffic on South side of Central. Two-way traffic on East side of Hillside.	Install traffic control signs, signals and devices. Construct Storm Water Sewer and Water Mains to the extent possible and allow traffic through Construction. North side of Central and West side of Hillside will be constructed. Construct NW Quadrant at Central & Hillside Intersection.	Construct Main 1, Main 5, Main 7, East Tap of Main 2, North half of Main 9, North Tap of Main 4 and North half of Main 3.	Contractor will maintain access to properties. Paving operations at entrances will be phased to allow continued points of access. Contractor must insure that adequate protection is maintained for all open excavation. Cross road pipe installations shall be available for traffic at the end of the work day. Flowable Fill mix design may be modified to produce acceptable strengths for this reduced time constraint.
	Two-way traffic on West side of Hillside. Two-way traffic on South side of Central.	Construct Storm Water Sewer and Water Mains to the extent possible and allow traffic through Construction. Construct RCBC extension. Construct NE quadrant at Central and Hillside intersection. Continue construction on North side of Central as needed. Construct Vassar modification.	Construct Main 1 at Central and Hillside.	
2	Two-way traffic on North side of Central. Two-way traffic on East side of Hillside.	Construct Storm Water Sewer. Connect Water Services North of Central by Boring. Connect Water Services East of Hillside by Boring. South side of Central will be constructed. West side of Hillside will be constructed. Construct SW quadrant at Central & Hillside intersection. Construct Rutan widening. Modify RCBC Deck.	Construct Main 2, South half of Main 3, Main 4, South half of Main 9, Main 6, and Main 8.	Contractor will maintain access to properties. Paving operations at entrances will be phased to allow continued points of access. Contractor must insure that adequate protection is maintained for all open excavation. Cross road pipe installations shall be available for traffic at the end of the work day. Flowable Fill mix design may be modified to produce acceptable strengths for this reduced time constraint.
	Two-way traffic on West side of Hillside. Two-way traffic on North side of Central.	Complete Storm Water Sewer. Construct SE quadrant at Central and Hillside intersection. Continue constructing South side of Central as needed.	Construct Main 2 at Central and Hillside.	

SIGN SPACING (IN FEET):

	A	B	C
URBAN (40 MPH OR LOWER)	200	200	200
URBAN (45 MPH OR HIGHER)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1000	1600	2600

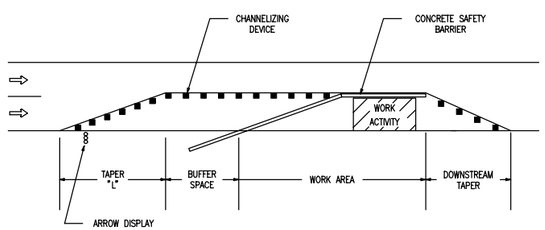
IN NO CASE SHALL THE SPACING BETWEEN SIGNS BE LESS THAN 100 FEET.

BUFFER SPACE:

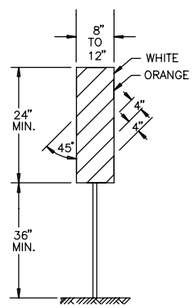
SPEED (MPH)	20	25	30	35	40	45	50	55	60	65
LENGTH (FEET)	35	55	85	120	170	220	280	335	415	485

NEITHER WORK ACTIVITY NOR STORAGE OF EQUIPMENT, VEHICLES, OR MATERIAL SHOULD OCCUR IN THE BUFFER SPACE. WHEN A PROTECTION VEHICLE IS PLACED IN ADVANCE OF THE WORK SPACE, ONLY THE SPACE UPSTREAM OF THE VEHICLE CONSTITUTES THE BUFFER SPACE.

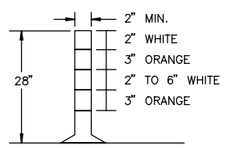
IF TEMPORARY CONCRETE SAFETY BARRIER IS USED TO SEPARATE APPROACHING TRAFFIC FROM THE WORK ACTIVITY, THE BARRIER SHALL BE CONSIDERED PART OF THE WORK AREA. A FULL LANE WIDTH SHOULD BE AVAILABLE THROUGHOUT THE LENGTH OF THE BUFFER SPACE. FOR EXAMPLE:



VERTICAL PANEL



THE ENTIRE AREA OF VERTICAL PANELS SHALL BE FULLY REFLECTORIZED WITH TYPE II HIGH PERFORMANCE RETROREFLECTIVE SHEETING.



TUBULAR MARKERS

GENERAL NOTES

All signs and pavement markings conflicting with this traffic control shall be covered or removed as directed by the Engineer.

As the various construction activities progress, certain situations may arise which will preclude adhering to the original construction sequence or which in the opinion of the Contractor, would readily adapt themselves to a more efficient phasing operation. Should this occur, the Contractor may submit to the Engineer on alternate plan for approval.

Two-way traffic will be maintained on Central and Hillside.

Contractor shall maintain existing drainage system nearly as possible during construction, or supplement the existing system with ditches and temporary pipes. Temporary pipes shall be removed or filled with grout before final construction.

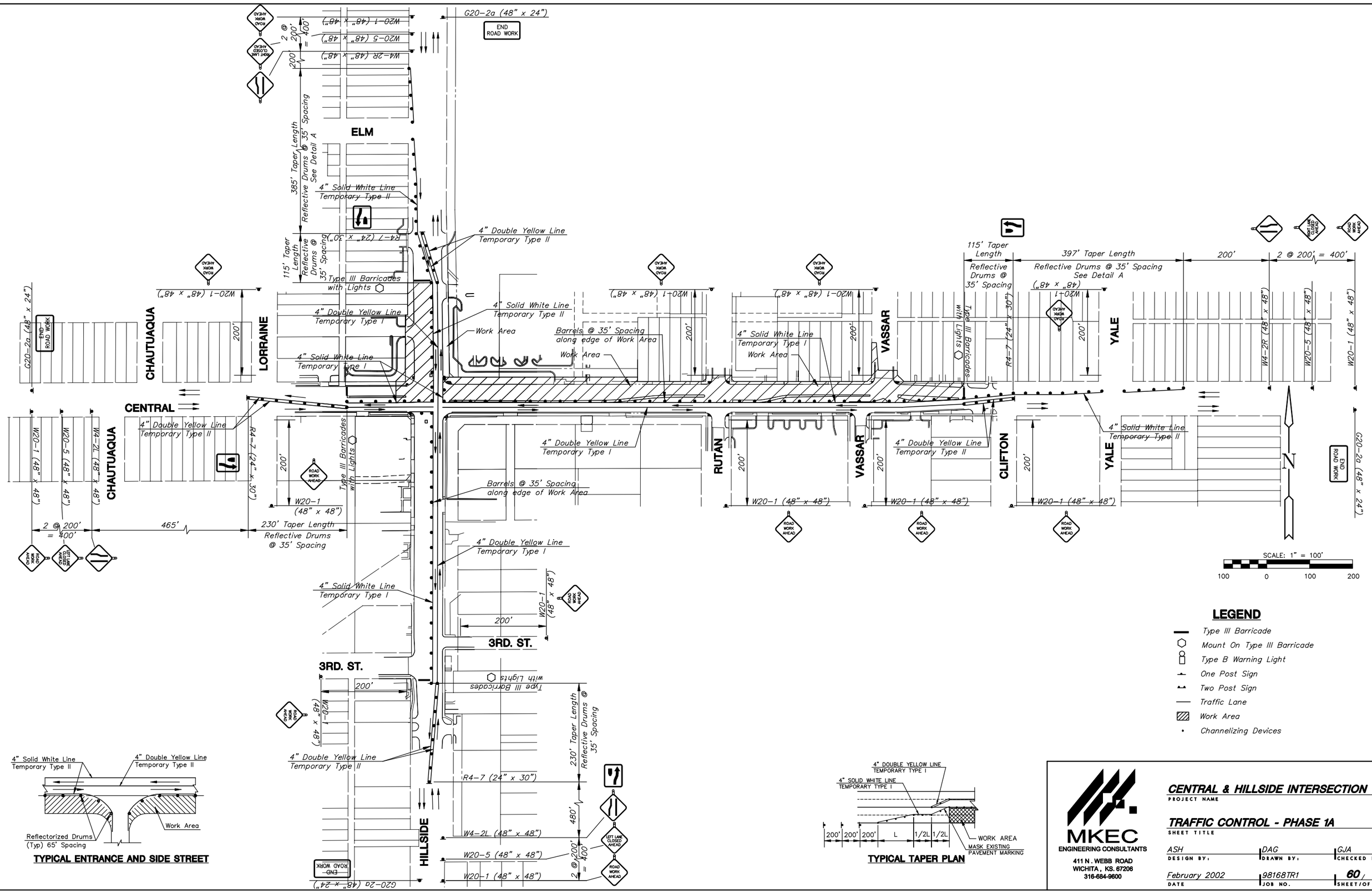
Entrance and exit for vehicles to Wesley Medical Center shall be freely accessible during all project phases. Coordinate phasing requirements with Wesley Medical Center Physical Plant Director, Roger Neifert; Construction Coordinator, John Romig 688-2770; or Security Director, Jim Carney, 688-3333.

MID-KANSAS ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

CONSTRUCTION STAGING SUMMARY
SHEET TITLE

DCH	DAG	DCH
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	CONSTAGE	59 / 74
DATE	JOB NO.	SHEET/OF



LEGEND

- Type III Barricade
- Mount On Type III Barricade
- Type B Warning Light
- One Post Sign
- Two Post Sign
- Traffic Lane
- Work Area
- Channelizing Devices

TYPICAL ENTRANCE AND SIDE STREET

TYPICAL TAPER PLAN

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TRAFFIC CONTROL - PHASE 1A
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168TR1	60 / 74
DATE	JOB NO.	SHEET/OF

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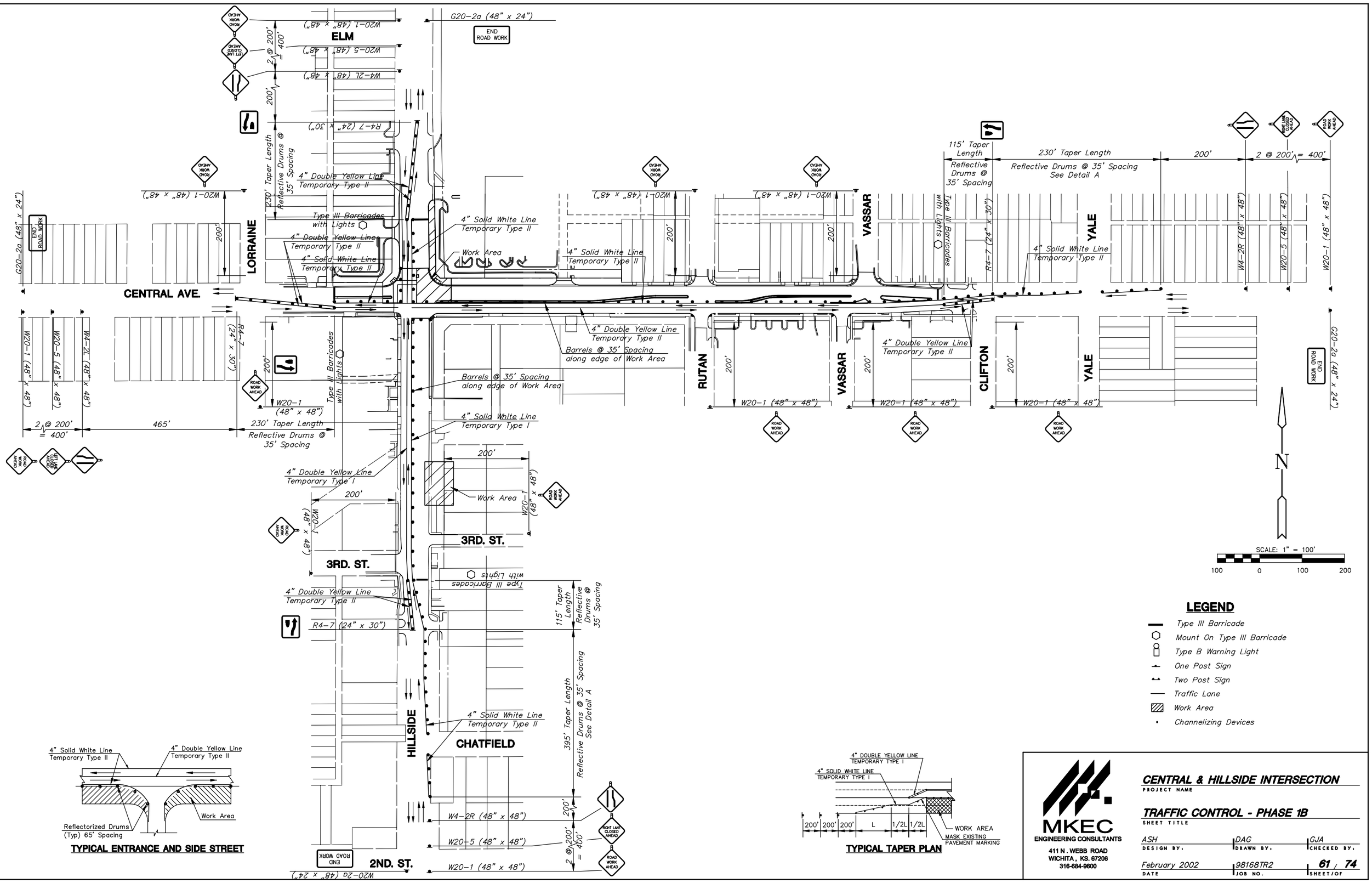

TYPICAL ENTRANCE AND SIDE STREET

TYPICAL TAPER PLAN

LEGEND

- Type III Barricade
- Mount On Type III Barricade
- Type B Warning Light
- One Post Sign
- Two Post Sign
- Traffic Lane
- Work Area
- Channelizing Devices

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TRAFFIC CONTROL - PHASE 1B
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168TR2	61 / 74
DATE	JOB NO.	SHEET/OF

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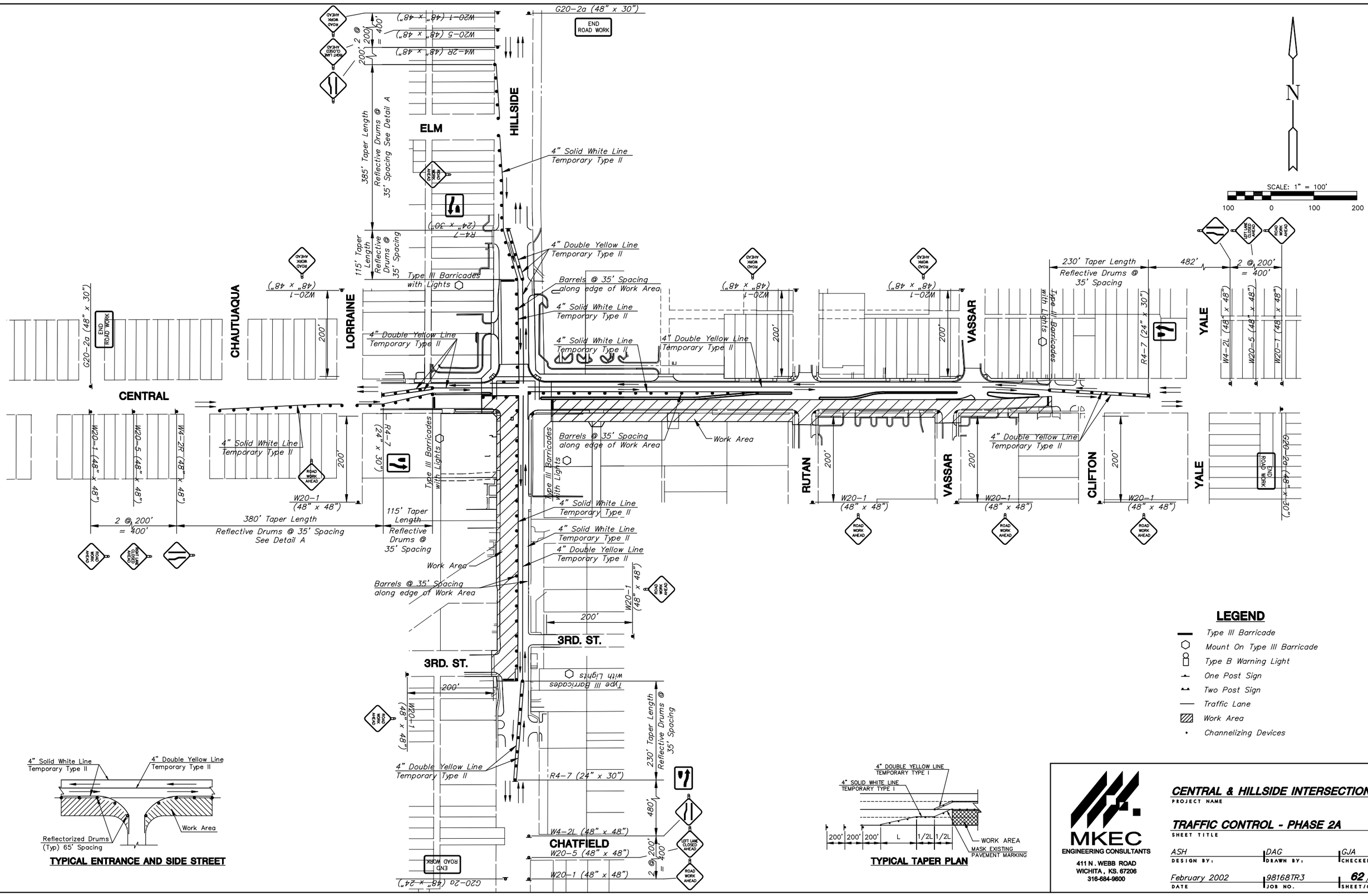

LEGEND

- Type III Barricade
- Mount On Type III Barricade
- Type B Warning Light
- One Post Sign
- Two Post Sign
- Traffic Lane
- Work Area
- Channelizing Devices

TYPICAL ENTRANCE AND SIDE STREET

TYPICAL TAPER PLAN

MKEC ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TRAFFIC CONTROL - PHASE 2A
SHEET TITLE

ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168TR3	62 / 74
DATE	JOB NO.	SHEET/OF

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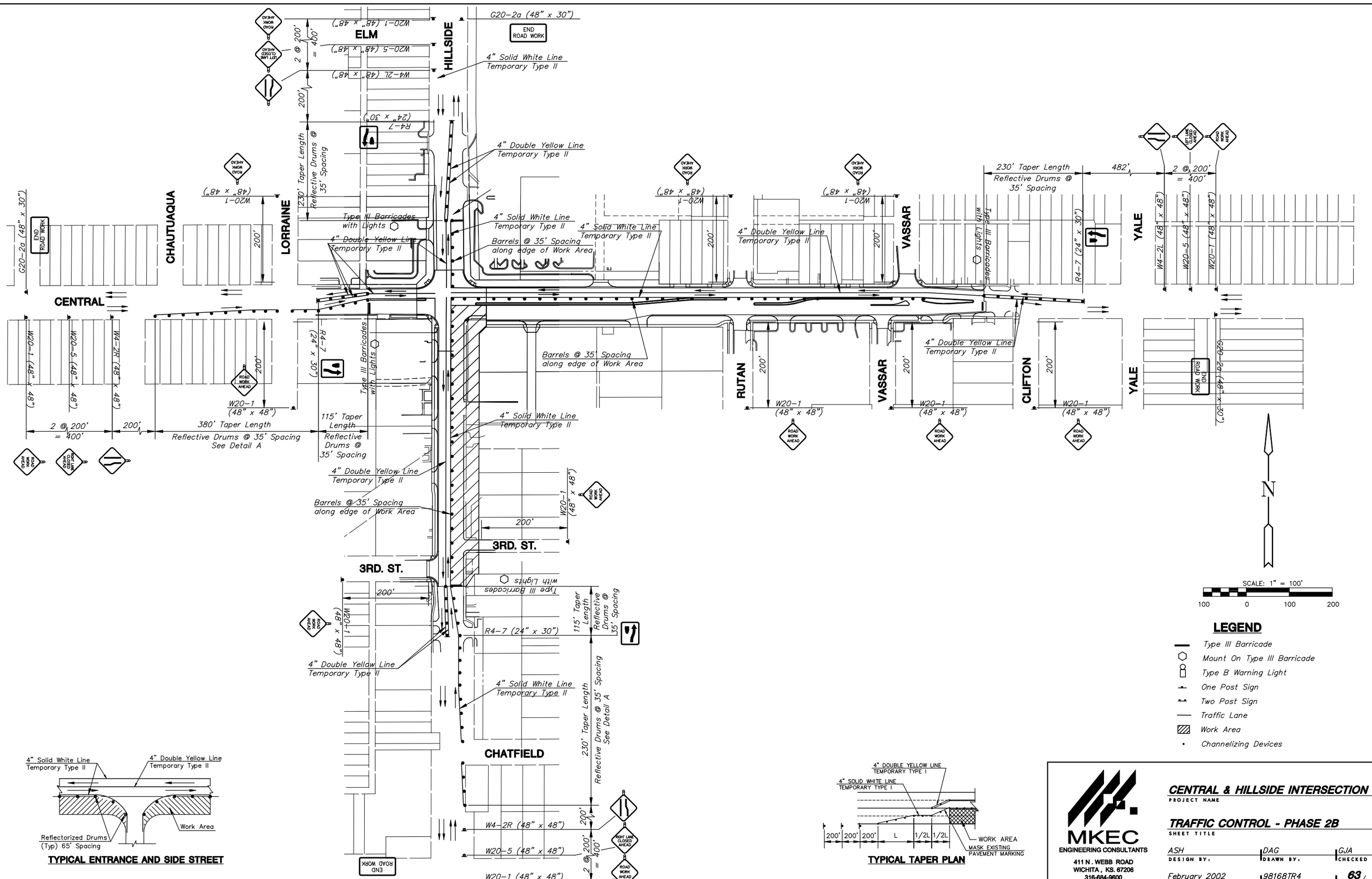


LEGEND

- Type III Barricade
- Mount On Type III Barricade
- Type B Warning Light
- One Post Sign
- Two Post Sign
- Traffic Lane
- Work Area
- Channelizing Devices

TYPICAL ENTRANCE AND SIDE STREET

TYPICAL TAPER PLAN

MKEC
ENGINEERING CONSULTANTS
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

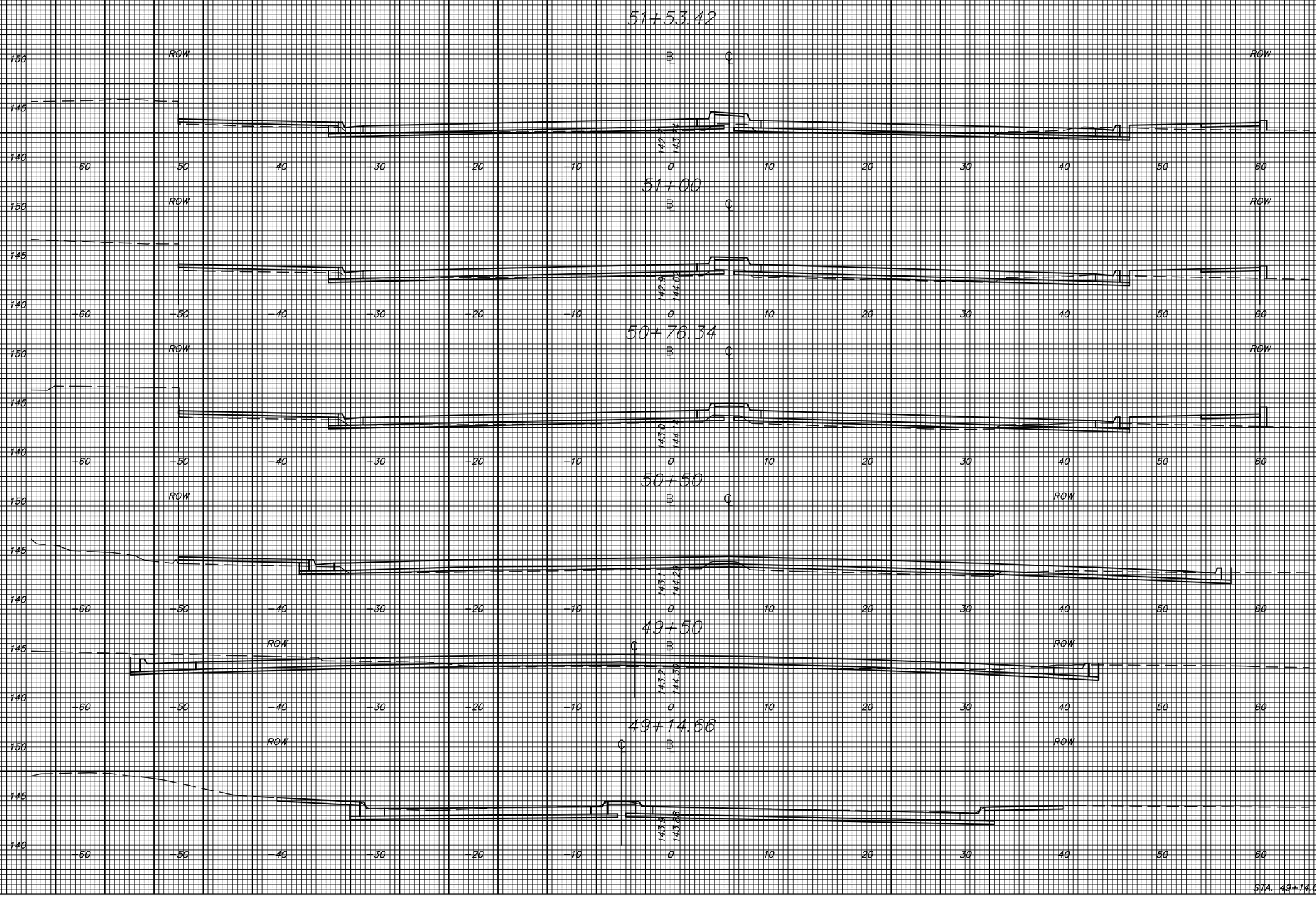
CENTRAL & HILLSIDE INTERSECTION
PROJECT NAME

TRAFFIC CONTROL - PHASE 2B
SHEET TITLE

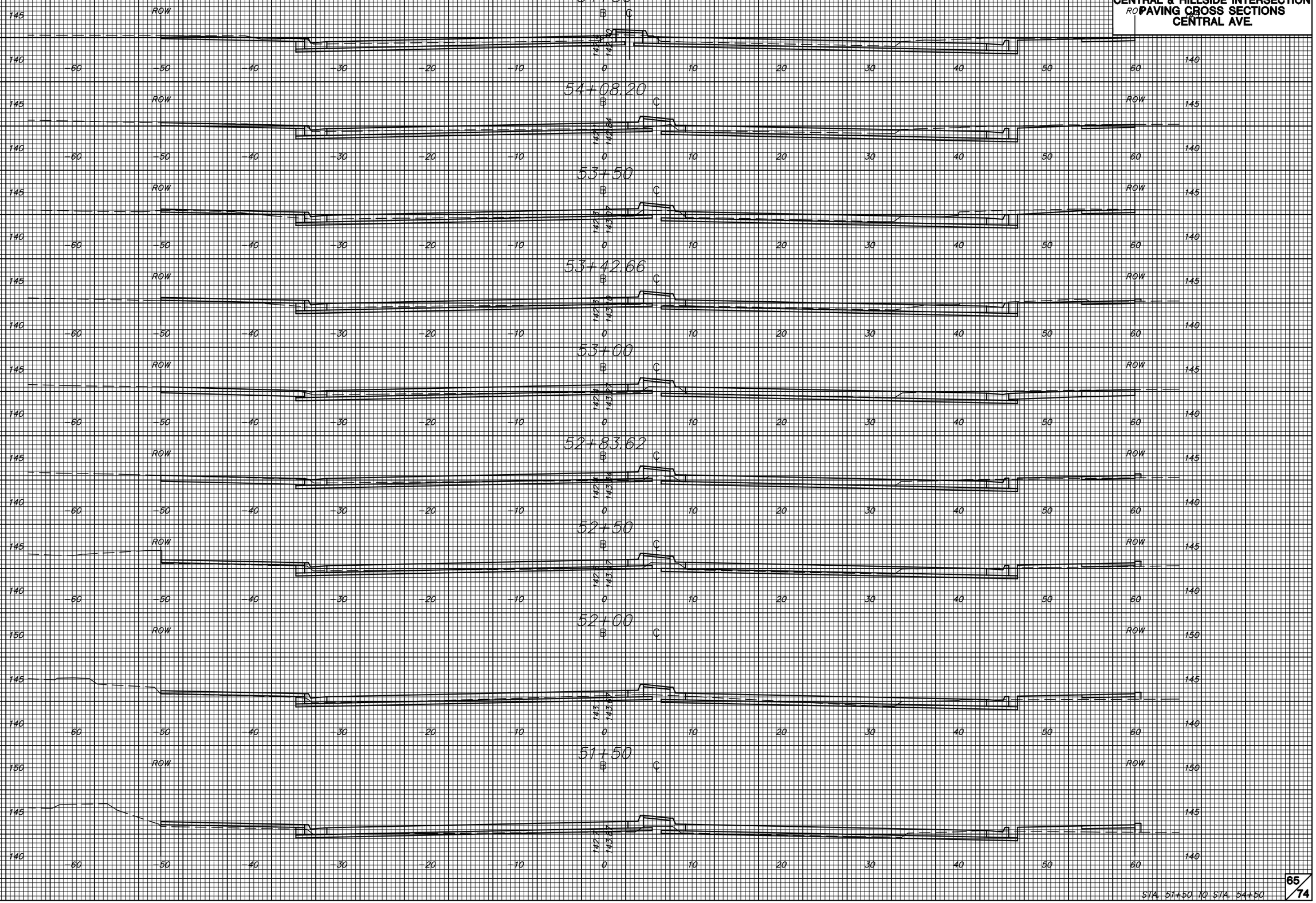
ASH	DAG	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
February 2002	98168TR4	63 / 74
DATE	JOB NO.	SHEET/OF

H:\CIVIL\98168\TRAFFIC\98168TR2.DWG

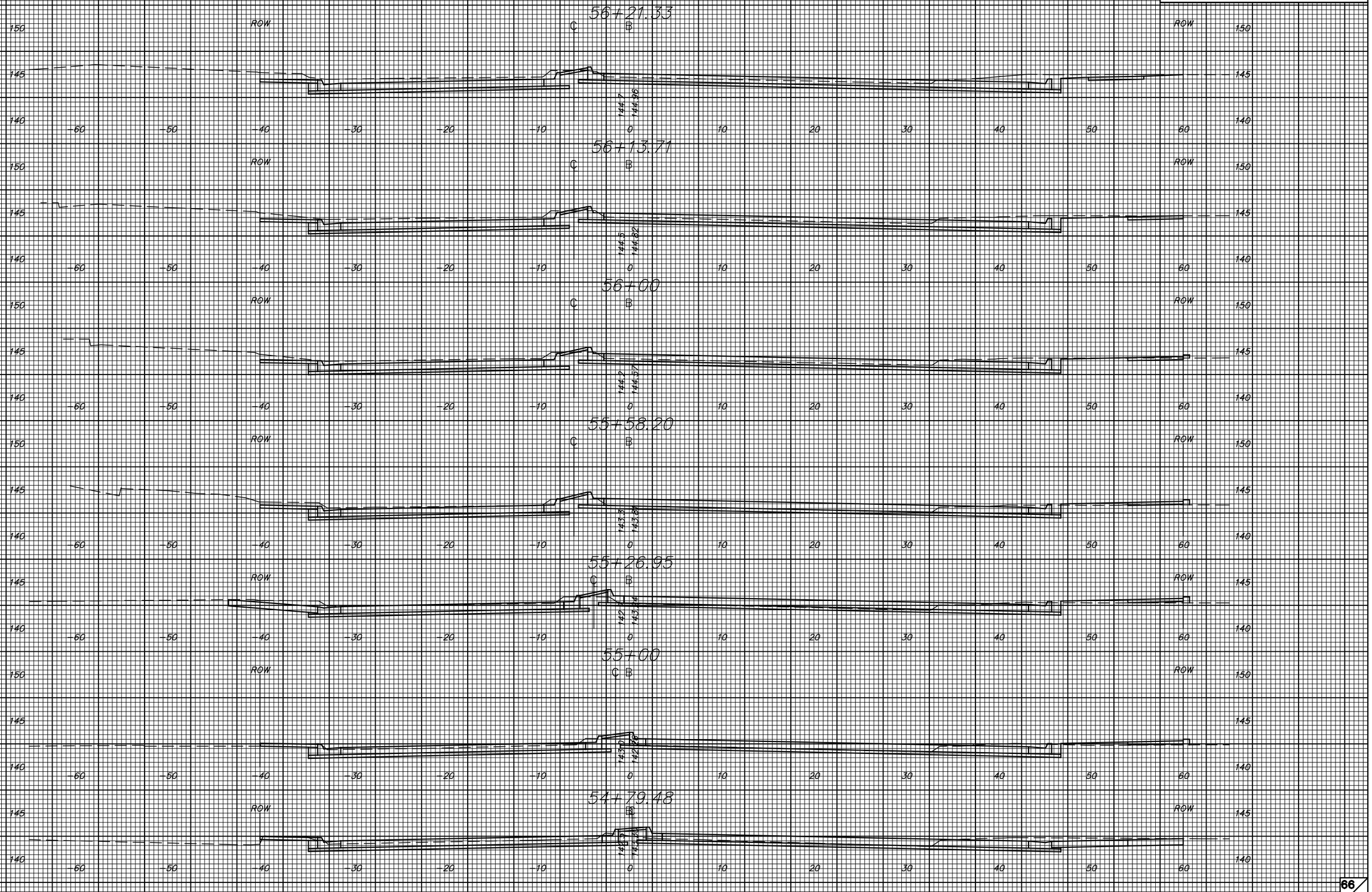
CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.



CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.

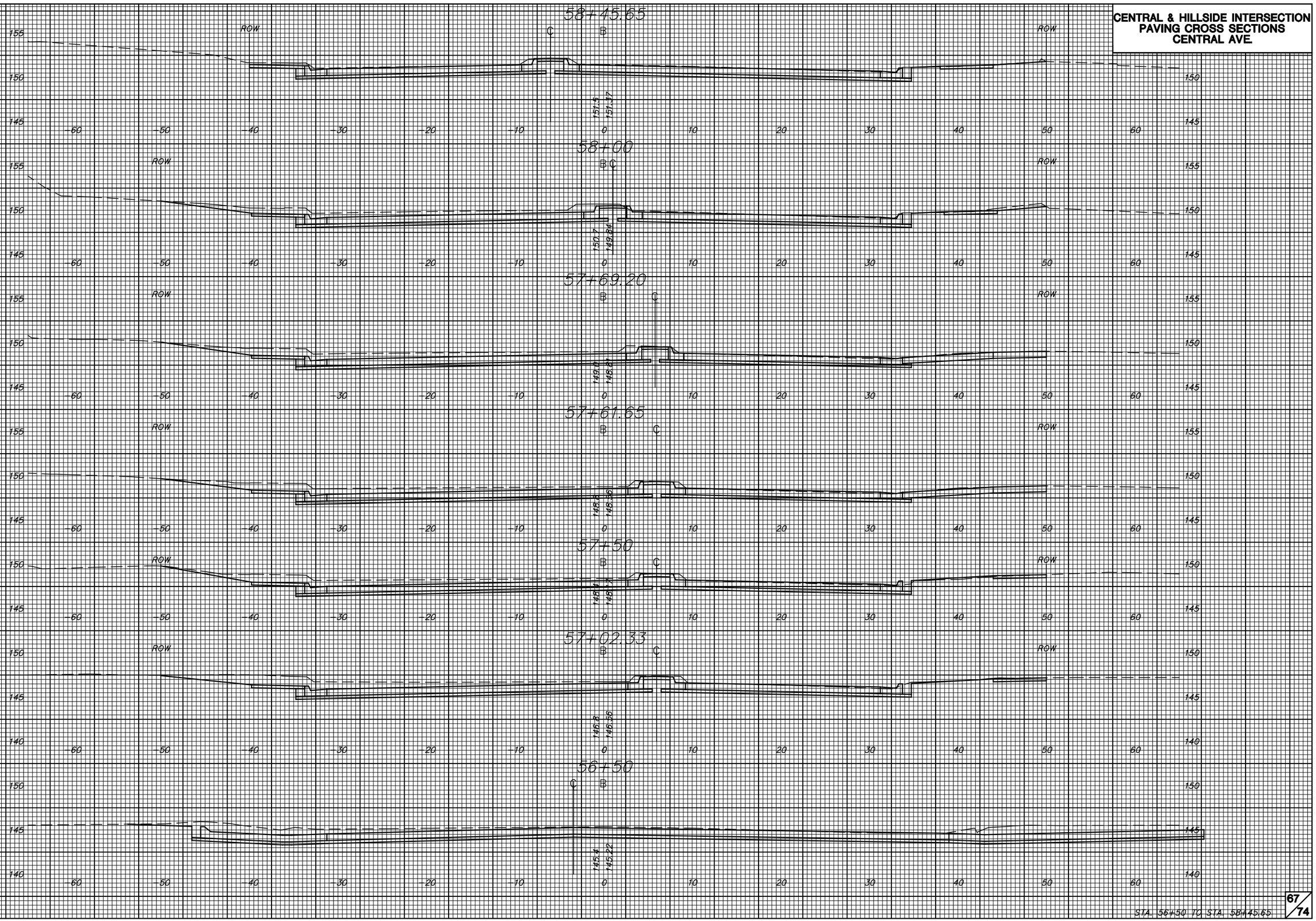


CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.



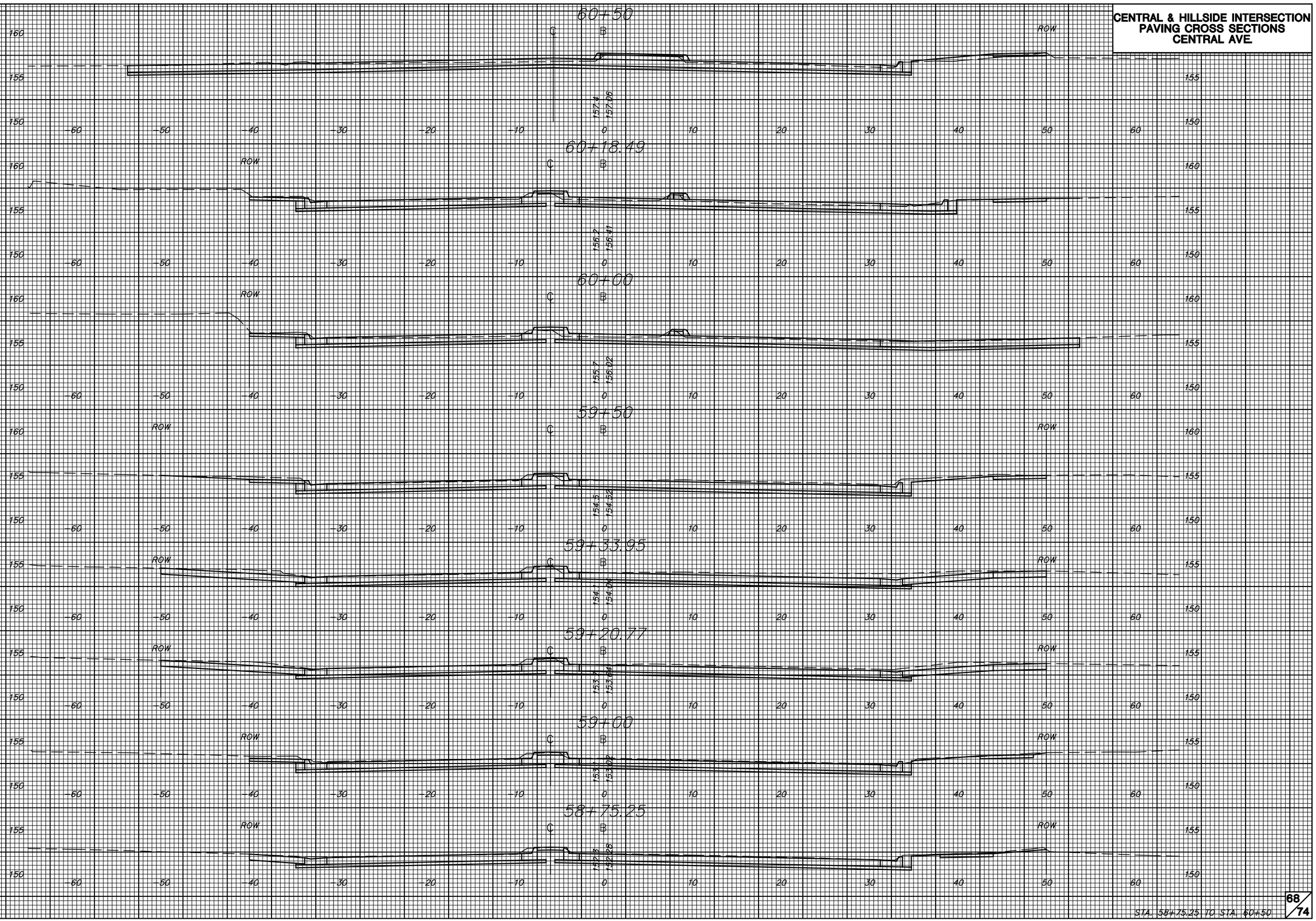
STA. 54+79.48 TO STA. 56+21.33

CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.

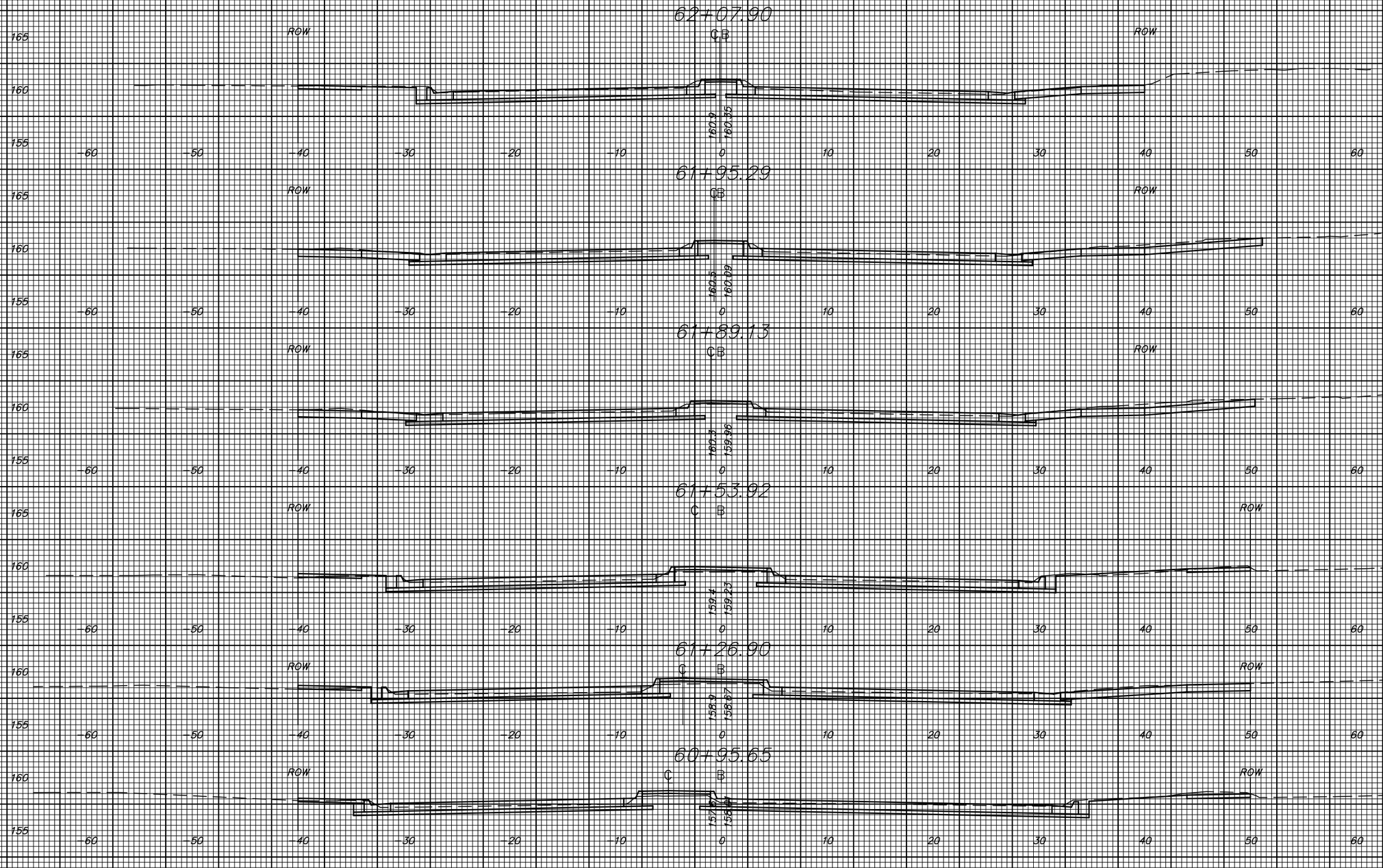


STA. 56+50 TO STA. 58+45.65

CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.



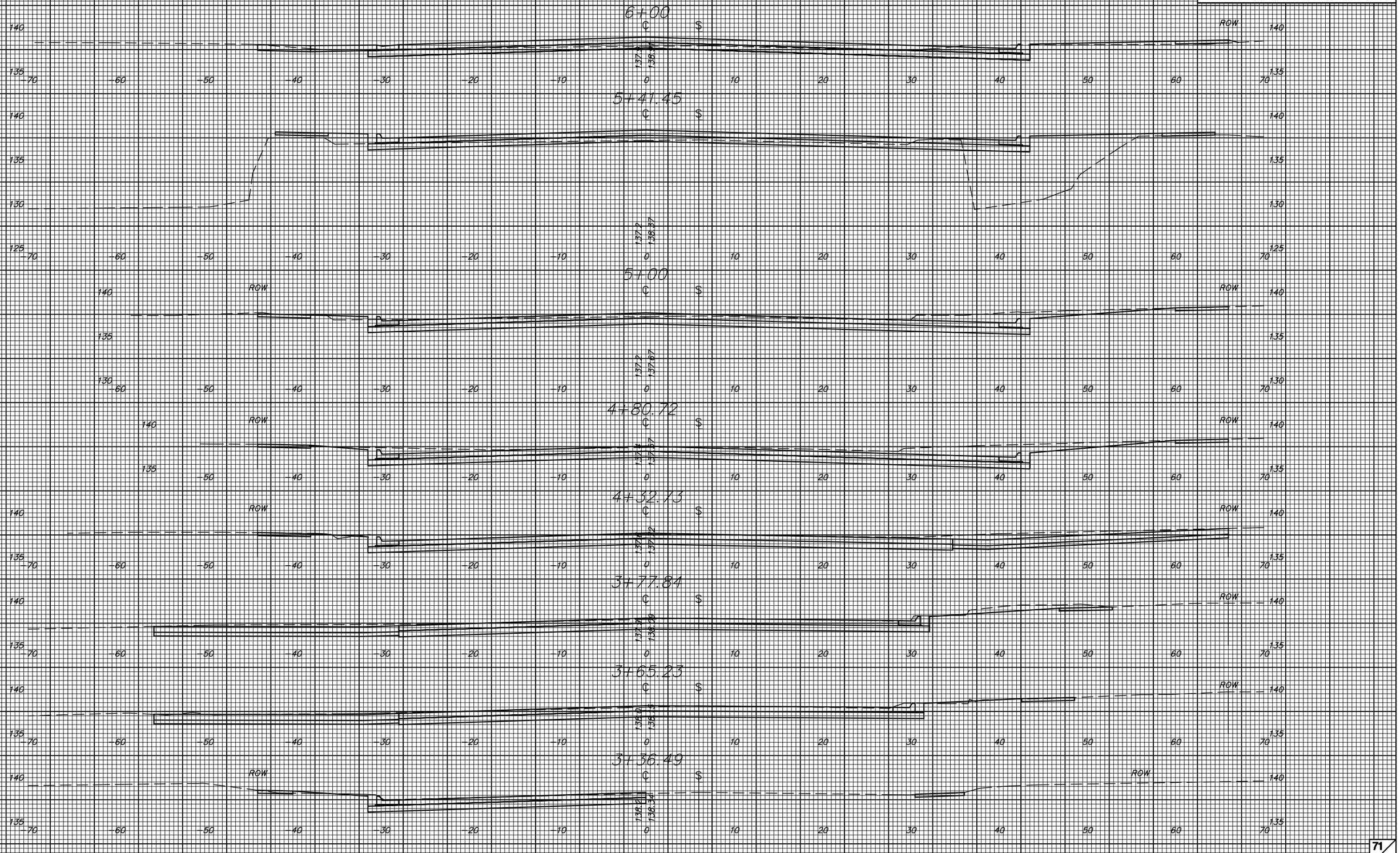
CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.



CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
CENTRAL AVE.

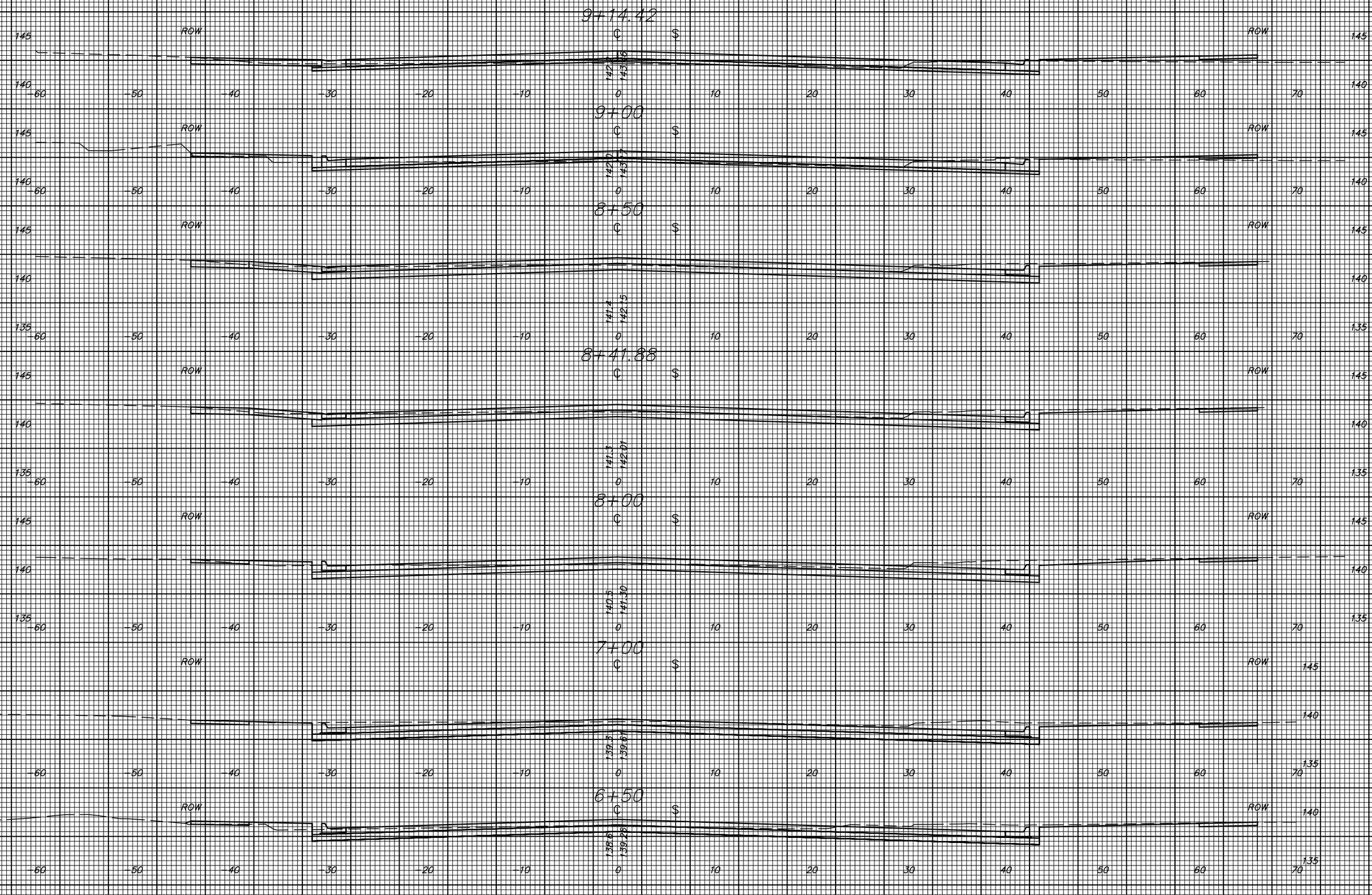
STA. 60+28.81 TO STA. 62+39.45

CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
HILLSIDE AVE.



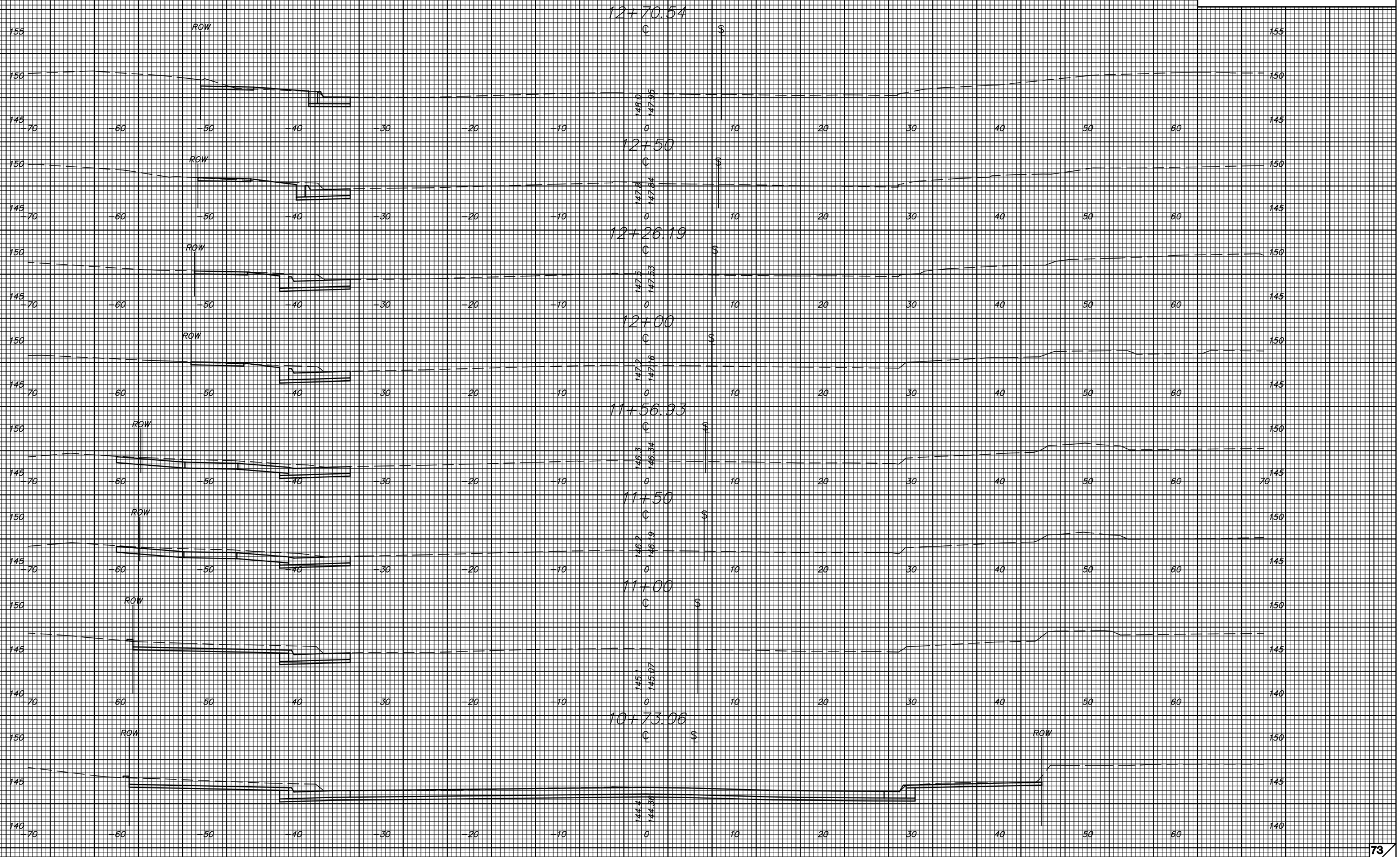
STA. 3+36.49 TO STA. 6+00

CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
HILLSIDE AVE.

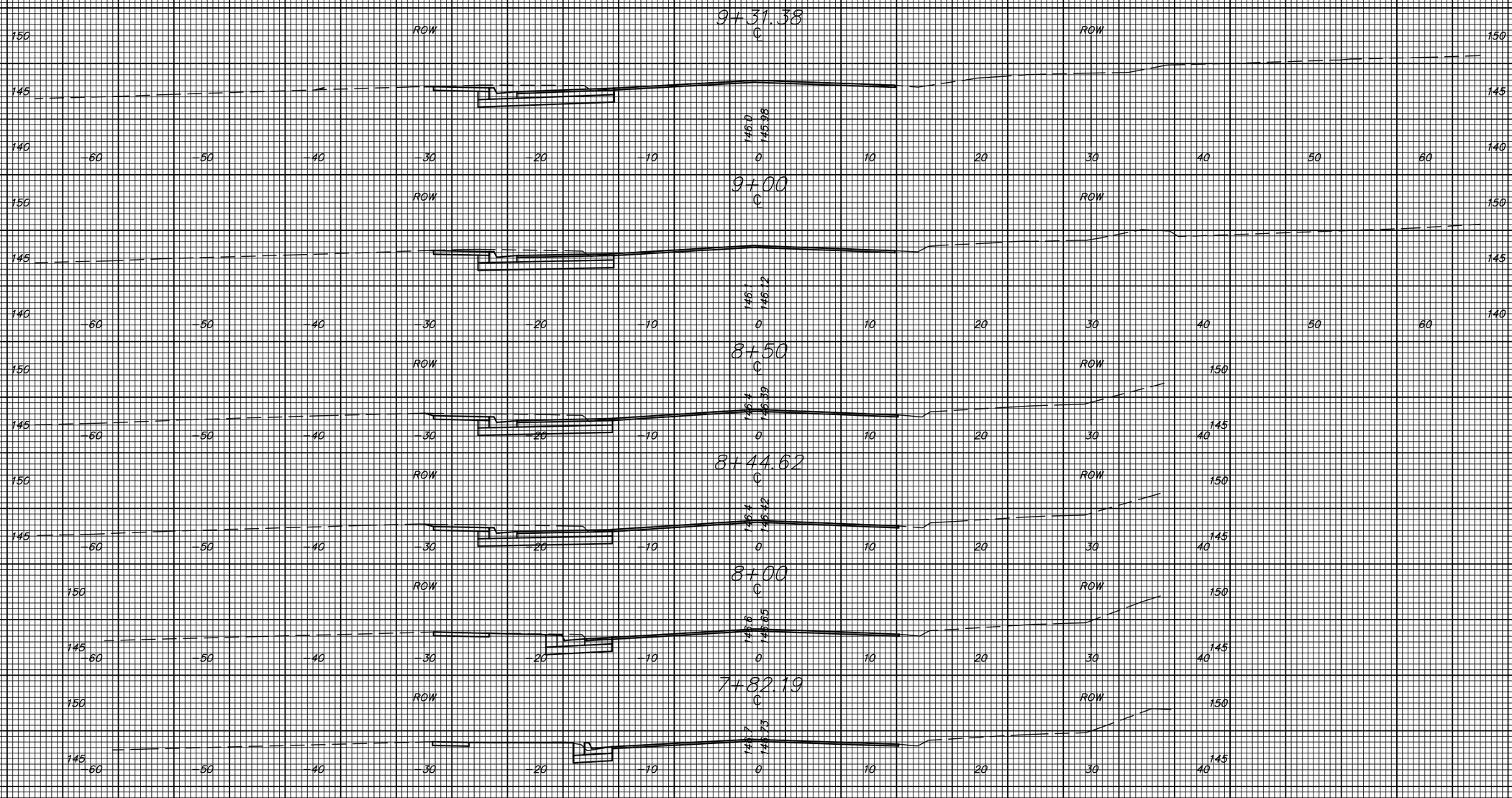


STA. 6+50 TO STA. 9+14.42

CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
HILLSIDE AVE.



CENTRAL & HILLSIDE INTERSECTION
PAVING CROSS SECTIONS
RUTAN AVE.



STA. 7+82.19 TO STA. 9+32.19